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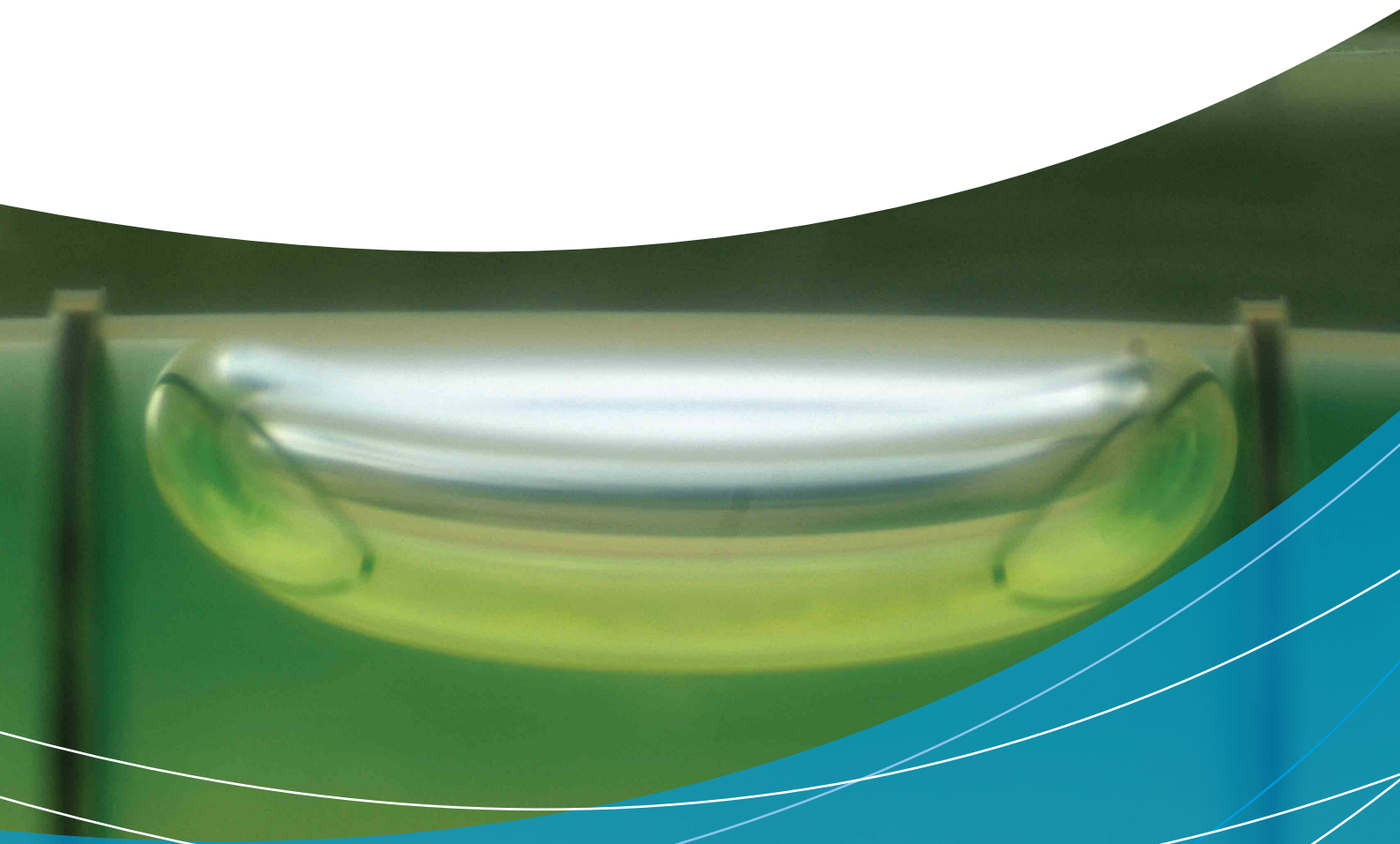

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Foreword

Why do so many people say they want to start their own business, but so few actually do it? What are the factors that shape the decision to become an entrepreneur — regulatory framework and market conditions, entrepreneurial capabilities and culture, access to finance, R&D and technology? How has the economic crisis affected small firms seeking finance?

To answer these and many other questions on entrepreneurship, internationally comparable statistics on entrepreneurship and its determinants are needed.

This publication does just that. It summarises the results and lessons learnt from work done so far by the joint OECD-Eurostat Entrepreneurship Indicators Programme, which aims to develop a comprehensive framework for measurement of entrepreneurial activity.

It focuses on determinants of entrepreneurship, such as entrepreneurial culture, education and skills level of labour force that can be of benefit to a region or a country. The views of experts from around the world were gathered during several workshops and studies. The book also has a summary of data on another important determinant — access to finance, showing how the situation changed between 2007 and 2010, thus making possible a comparison with the situation prior to the financial crisis.

The publication aims to motivate academics and statisticians in their attempts to define internationally-comparable indicators for measuring the quality of entrepreneurial education and access to venture capital, as well as the indicators that are more subjective in nature, such as those related to culture and entrepreneurial capabilities.

The publication seeks to help policymakers to understand better the rate and types of entrepreneur activity, as well as its determinants and its impact on job creation, economic growth and wealth and to help them develop initiatives to facilitate access to finance for Small and Medium-sized Enterprises (SMEs), creating an environment favourable to business creation and growth, and encouraging an entrepreneurial culture.

For more information, go to the OECD and Eurostat websites where you will find a presentation on the joint Entrepreneurship Indicators Programme, as well as data on business demography, job creation, and SMEs in general.

Walter Radermacher
Chief Statistician of the European Union

Acknowledgements

The chapter authors have provided the essential input to this publication. The Chief Editor for Eurostat is Mariana Kotzeva, and Manfred Schmiemann is Editor-in-charge for this publication. The editors would like to thank all contributing authors and Eurostat's dissemination unit.

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Measuring Entrepreneurship in Europe

Measuring Entrepreneurship in Europe

Manfred Schmiemann (1)

Introduction

'Entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organisation'

The Entrepreneurship and Innovation Programme is the largest component of the European Union's Competitiveness and Innovation Framework Programme for the period 2007-2013. It directly and indirectly supports entrepreneurial activity and innovation among businesses across Europe, promotes better access to finance for SMEs through venture-capital investment and loan-guarantee instruments, and supports policy-making that encourages entrepreneurship and innovation. The new Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) will run from 2014 to 2020, with a planned budget of EUR 2.5 bn. (2) The European Commission states as its objectives the following:

- facilitating access to finance for Small and Medium-sized Enterprises (SMEs)
- creating an environment favourable to business creation and growth
- encouraging an entrepreneurial culture in Europe
- increasing the sustainable competitiveness of EU companies
- helping small businesses operate outside their home countries and improving their access to markets

The expected results are:

- easier access to finance for entrepreneurs and small businesses
- more prominent role for self-employment and business development as important sources of growth and job creation
- in individual EU countries: a more competitive industry, more entrepreneurs and higher employment rates.

In recognition of the importance of the issue, the OECD and Eurostat are collaborating in the joint Entrepreneurship Indicators Programme (3) and in this context, have taken steps to improve policy-relevant measurement of entrepreneurial activity. This chapter sets out the entrepreneurship indicators and determinants used in the programme, describes some of the work done in this field and provides examples of the data already available.

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(2) http://ec.europa.eu/cip/cosme/index_en.htm.
(3) More information on the Entrepreneurship Indicators Programme is available from the OECD website: http://www.oecd.org/document/58/03746,en_2649_34233_44441658_1_1_1_1.00.html.

Defining entrepreneurial activity

A broad range of authors have tried to define the entrepreneur and entrepreneurship from a variety of different perspectives and disciplines (economics, management, organisation, sociology, philosophy). Most agree that entrepreneurship is a phenomenon that is found across the entire economy, going beyond the confines of the market economy to include society as a whole; for example, encompassing organisations such as non-profit making enterprises. Furthermore, entrepreneurship may be practised in a range of different entities, from the self-employed individual, through small and medium-sized enterprises (SMEs) to large multi-national concerns. For a more detailed description of how the joint OECD/Eurostat Entrepreneurship Indicators Programme arrived at agreed definitions of entrepreneurs, entrepreneurial activity and entrepreneurship, see the chapter by Ahmad and Seymour in this book.

In each of these scenarios, entrepreneurship is usually viewed as a process driven by individuals (or by key persons within firms), that involves some form of innovative behaviour and/or risk-taking that results in change. Most writers agree that entrepreneurship is also driven by a desire to generate profit or other types of rewards, be they linked to monetary gain, personal satisfaction, career-related status, a change in lifestyle, recognition, or other benefits.

As such, entrepreneurship is a process that has the potential to lead to the creation and expansion of firms. In this respect, there is considerable policy interest in entrepreneurship, insofar as it has the potential to change macro-economic conditions through increasing employment opportunities and stimulating economic growth. Indeed, economists and policy-makers have long identified entrepreneurs as important drivers for employment, innovation and economic growth, although the links between entrepreneurship and the various facets of economic growth are less well understood.

Following the Barcelona Council in 2002, the European Commission presented a Green Paper on entrepreneurship the following year, designed to contribute to economic growth, competitiveness and job creation. It outlined a definition of entrepreneurship within a business context:

Entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organisation. (4)

(4) Source: Green Paper, Entrepreneurship in Europe (COM (2003) 27 final)

The Entrepreneurship Indicators Programme in the context of European entrepreneurship policy

The European Commission's entrepreneurship policies are firmly rooted in their support for small and medium-sized enterprises (SMEs).The European Charter for Small Enterprises, endorsed by the Heads of State or Government in June 2000, was followed by the creation of a European company statute in 2001. More recently, the Commission has focused on access to finance, on ways of preserving SMEs from bankruptcy, on promoting entrepreneurship among ethnic minorities and women, on attracting and recruiting the first employee, and on helping start-ups by setting up one-stop shops for SME support. In the words of European Commission President Barroso, the Small Business Act for Europe, released on 25 June 2008, marked '*a step towards a Europe of entrepreneurs, with less red tape and more red carpet for Europe's 23 million SMEs*'.

Two key issues have troubled policy makers across the EU, namely:

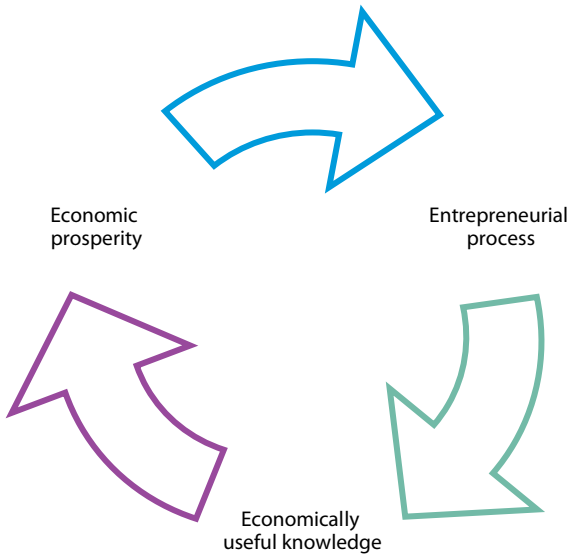
- why do so few people in Europe start a business, although a relatively large number of individuals express an interest in doing so?
- why do European enterprises grow at a generally modest rate?

The Entrepreneurship Indicators Programme may help answer these questions.

In September 2006, the OECD launched a new Entrepreneurship Indicators Programme (henceforth the 'Programme', or EIP) to collect internationally-comparable statistics on entrepreneurship and its determinants. The aim of this effort was to develop a list of indicators, standard definitions and concepts that would guarantee the long-term delivery of statistics in this area. For a detailed description of the Programme, see the article by Ahmad and Hoffmann in this book. In 2007, a formal partnership was agreed between the OECD and Eurostat (on behalf of the European Commission) to take forward the Programme. The challenge faced by the Programme is to provide data that gives policy-makers and academics a better understanding not only of the rate and types of entrepreneurial activity but also of the outcomes and impact of entrepreneurship, especially in terms of the creation of wealth, employment and productivity gains.

The interest in entrepreneurship can be depicted in a number of different ways. The Kauffman Foundation (which has kindly provided funding for the Programme) summarises the benefits of entrepreneurship in terms of a cyclical process that furthers knowledge and prosperity.

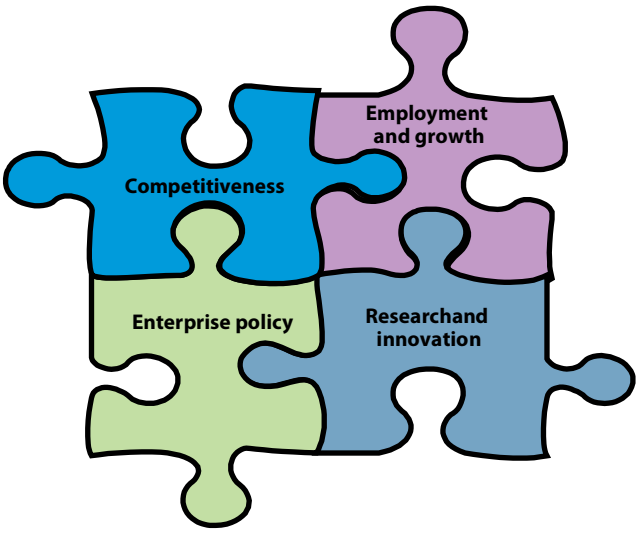
Figure 1: Benefits of entrepreneurship



Source: Kauffman Foundation

In (European Union) policy terms, the influence of entrepreneurship can be seen to extend across a range of policy areas.

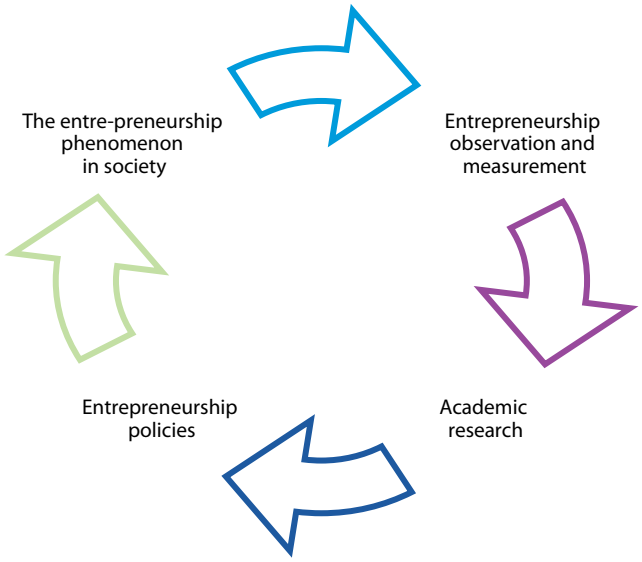
Figure 2: EU policy areas influenced by entrepreneurship



Source: European Commission

According to the framework developed by the Programme, one of the main facets of the entrepreneur is his/her ability to innovate by recognising a fit between given, existing resources and future possibilities, so as to exploit them in a different manner. This paradigm is expanded into a more general context through the inclusion (within the framework) of the wider business environment and the role that this can play in shaping how entrepreneurs operate — namely, the economic, political, legal, social and cultural background that can play a role in determining how entrepreneurs act.

Figure 3: Cycle of shaping entrepreneurship



Source: Eurostat/OECD, 2007

The aim of the Programme is to provide a collection of indicators that can be used in different ways to focus on particular aspects of entrepreneurship; the indicators are proxies for entrepreneurship. The programme has been very successful in its first round: almost 20 EU and OECD countries have adopted and implemented key concepts for the measurement of entrepreneurial performance.

There is a broad range of business/economic environmental factors that may, at least in part, determine a country's entrepreneurial performance. These cover aspects as diverse as labour-market regulations, the diffusion rate of technology, the patent regime, ([5]) the availability and ease of access to debt finance, or bankruptcy and other administrative regulations. The business environment or business climate for entrepreneurship is however only one side of the equation, and should be considered alongside cultural aspects relating to an individual's personal traits, for example, attitudes to risk, mindset, desire to own or create a business, skills and education. ([6]) One way of looking at these determinants is to consider that a particular combination of resources, opportunities and skilled persons will increase the likelihood of entrepreneurship and entrepreneurs in a given regulatory framework and culture.

Resources within the model developed by the Programme generally concern access to finance and the prevalence of R&D and technology (in business R&D expenditure, either that developed in-house or that purchased, or via government R&D expenditure. ([7]) References to entrepreneurial skills and capabilities are usually made in relation to the human and social capital of the entrepreneur, although an employee may also display an entrepreneurial spirit.

Opportunities for entrepreneurship are largely seen as a function of market conditions, competition, and access to foreign markets, as well as the involvement of the public sector and the degree of public procurement. On the other side of the equation, the regulatory framework can hinder or impede entrepreneurship if the opportunity cost of start-up outweighs the benefits. Such costs can result from a range of different factors, such as administrative burdens, health and safety regulations, labour-market regulations, social-security regulations and tax regimes ([8]) At the same time, the regulatory framework can also be adapted and used by policy-makers to induce higher degrees of entrepreneurship through, for example, changes in social-security regimes for small businesses, start-up assistance from government agencies (one-stop shops) or tax breaks.

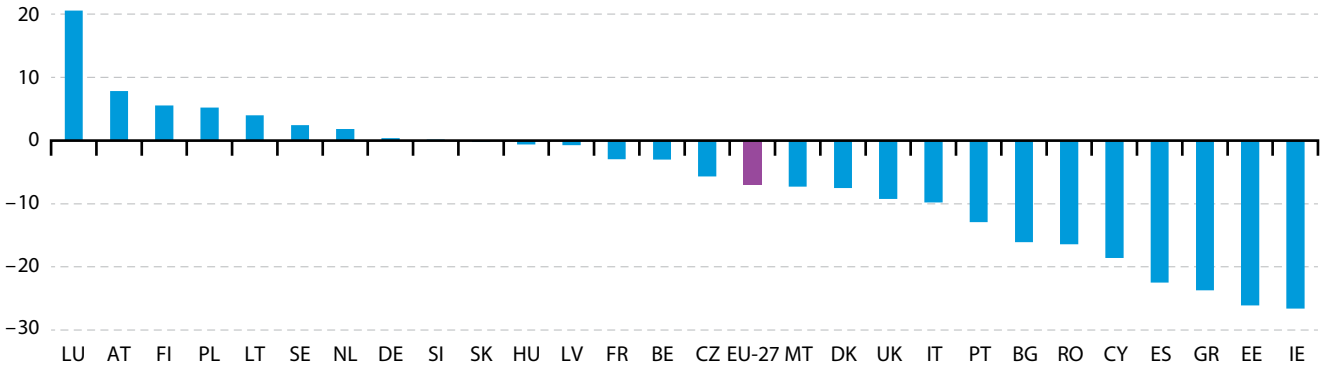
The development of indicators relating to performance measures has been the subject of a great deal of work by both Eurostat and the OECD. The underlying theme for this group of indicators is that they should measure the addition of value or something new (be it a product, a process or a market). The typology developed is based on the three sub-groups of firms (enterprises), employment and wealth. The definition of 'new' is subjective; for example, a new market could be construed as being a global market, a national market, a regional market, or a local market. If 'new' were to be defined as a global concept, local innovators through imitation would be excluded from the entrepreneurial concept.

Measures of entrepreneurial activity

One of the measures of entrepreneurial activity that can be observed using the framework is shown in Figure 4 below — namely, the change in the number of entrepreneurs who are employers (in other words, self-employed persons who are not working alone and who are not family workers). This comparison of the share of 'real' employer businesses over two years is one example of how entrepreneurship indicators can be used to assess a country's performance and trends with regard to employment.

([5]) See, for example, http://ec.europa.eu/eurostat/product?code=KS-SF-08-022&mode=view
([6]) See, for example, http://ec.europa.eu/eurostat/product?code=KS-SF-08-043&mode=view
([7]) See, for example, http://ec.europa.eu/eurostat/product?code=KS-SF-08-029&mode=view
([8]) See, for example, http://ec.europa.eu/eurostat/product?code=KS-SF-08-047&mode=view

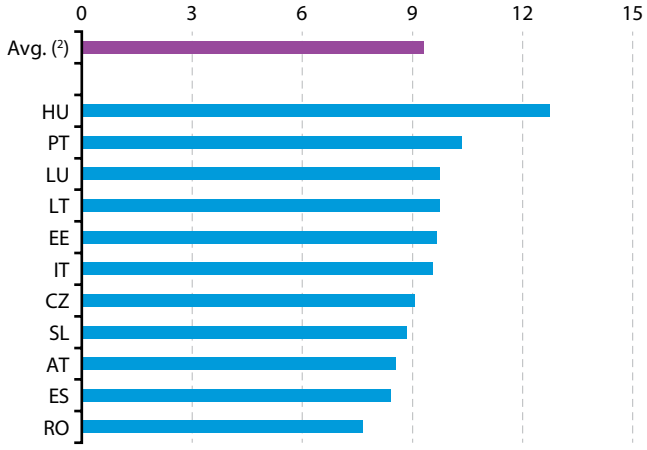
Figure 4: Change in 'real' employer businesses, total economy (NACE Rev. 2 Sections A to U), Q4-2008 to Q4-2011 (1)
(%)



(1) Overall growth rate between Q4-2008 and Q4-2011, in percentage, of the number of self-employed persons (aged 15 or more), who are not working alone and who are not family workers (in other words, who employ at least one other person).
Source: Eurostat Labour Force Survey — LFS. See also http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/introduction

In a similar vein, a count of the number of new start-ups could include enterprises with or without employees. In many cases, working-proprietors may set-up relatively small-scale operations, with little growth potential, whereas employer-enterprise birth rates (those enterprises that engage additional personnel) are perhaps of more interest to policy-makers (see Figures 5 and 6).

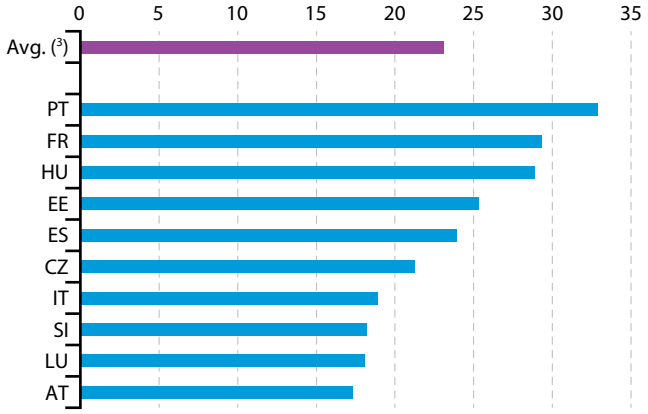
Figure 5: Employer-enterprise birth rates, business economy (NACE Rev. 2 Sections B to N excluding K64.2), 2009 (1)
(%)



(1) Employer enterprise birth rate: newly born employer enterprises as a proportion of all active employer enterprises.
(2) Average composed of available countries shown in graph.
Source: Eurostat business demography — employer data collection (online data code: bd_9f_sz_cl_r2). See also http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/business_demography

The turnover rate of firms in a country's economy is the net result from adding both firm births and firm deaths – it may be an indicator of business dynamism:

Figure 6: Business churn rates, business economy (NACE Rev. 2 Sections B to N excluding K64.2), 2008 (1) (2)
(%)



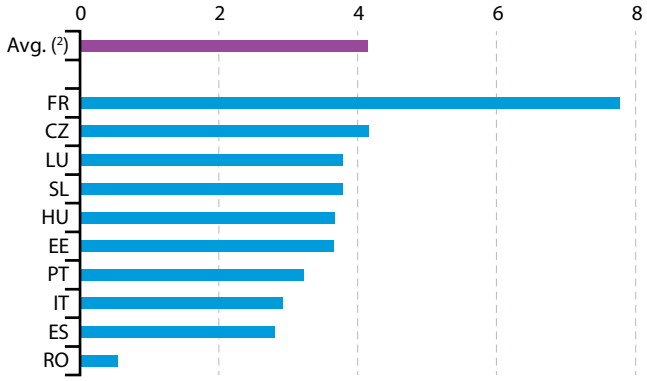
(1) Business churn: birth rate + death rate.
(2) Czech Republic, France, Italy, Hungary and Portugal, information on deaths is provisional.
(3) Average composed of available countries shown in graph.
Source: Eurostat business demography — employer data collection (online data codes: bd_9f_sz_cl_r2 and bd_9d_sz_cl_r2). See also http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/business_demography

For policy purposes, there is also particular interest in those enterprises that display particularly rapid rates of growth. This sub-group of enterprises are likely to have behaved in an atypical fashion, in that they are likely to have done something different or new in terms of product or process development, in order to achieve such rapid growth. This gives rise to two important indicators that measure the turnover and employment growth among high-growth enterprises. Note that this measure is applied to all enterprises, thus also capturing the growth of older firms that may continue to innovate.

The definition of high-growth enterprises can be further restricted in terms of the age of the enterprise to focus on what are termed gazelle rates of turnover and employment growth; these indicators are based on high-growth enterprises that

are up to five years old. Eurostat has been analysing high-growth employment in pilot data collections since 2005. See Figure 7 below for the latest available data:

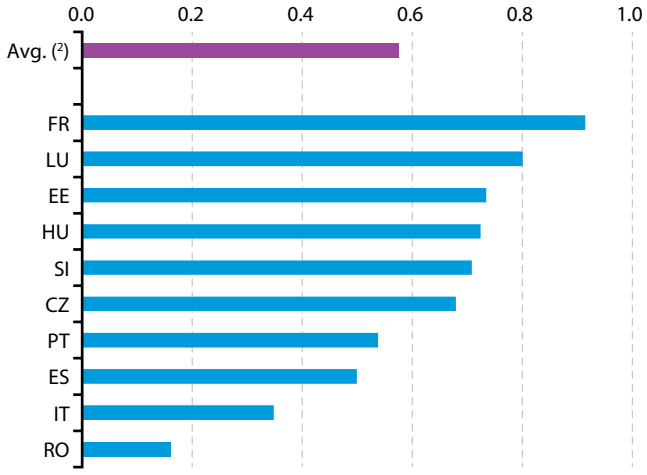
Figure 7: High-growth firm rate by employment, business economy (NACE Rev. 2 Sections B to N excluding K64.2), 2009 (1)
(%)



(1) Share of high growth enterprises in the population of active enterprises, measured in employment; all enterprises with average annualised growth greater than 20 % per annum, over a three year period.
(2) Average composed of available countries shown in graph.
Source: Eurostat business demography — employer data collection (online data code: bd_9n_r2). See also http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/business_demography

A subpopulation of high-growth firms are those enterprises that are relatively young, in the observed case up to 5 years old. They are often called 'gazelles'.

Figure 8: 'Gazelle rate' by employment, business economy (NACE Rev. 2 Sections B to N excluding K64.2), 2009 (1)
(%)



(1) Share of young high growth enterprises in the population of active enterprises, measured in employment; all enterprises up to 5 years old with average annualised growth greater than 20 % per annum, over a three year period, should be considered as gazelles; enterprises with ten or more employees.
(2) Average composed of available countries shown in graph.
Source: Eurostat business demography — employer data collection (online data code: bd_9n_r2). See also http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/business_demography

Performance measures

In a conceptual framework it is possible to imagine a direct link between these performance measures and the impact that entrepreneurs and entrepreneurship have on the economy as a whole (for example, an x % increase in the number of high-growth enterprises results in a y % increase in GDP). However, much of the impact of entrepreneurship is yet to be fully understood. Indeed, one of the main ideas behind the typology constructed within the Programme is to provide the necessary inputs for researchers who are willing to investigate any such links.

It is hoped that the results of academic research will populate the sub-headings in this final tier. A wide range of potential measures exist — but until their interaction with performance measures is further explored, it is difficult to determine appropriate measures.

- Creation of more and better job
- Economic growth
- Poverty reduction

Future developments

Eurostat's multi-annual programme on the Modernisation of European Enterprise and Trade Statistics (MEETS (9)) provides increased financing for the development of entrepreneurship indicators. Coupled with existing data collections on factors of business success and business demography, it is hoped that policy-makers and academics will increasingly refer to this source of information in an attempt to understand this economic phenomenon. The joint OECD/Eurostat Entrepreneurship Indicators Programme will continue and increased efforts will be made to persuade additional countries to produce core indicators for entrepreneurship.

(9) http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/MEETS_programme.

2

A Framework for Addressing and Measuring Entrepreneurship

A Framework for Addressing and Measuring Entrepreneurship ([1])

Nadim Ahmad ([2]) and Anders Hoffmann ([3])

Background

The recognition that entrepreneurship and entrepreneurs are important drivers of economic growth, employment, innovation and productivity has been long understood by analysts and economic theoreticians. Indeed, it dates back centuries if one considers the work of Cantillon, the first academic to explicitly attempt to define, and describe the role of, entrepreneurs. It was however not until the 1990s that the term 'entrepreneurship' became a buzzword both in the media and in political debate. Newspapers were full of success stories about self-made billionaires and politicians wanted to support and encourage their endeavours more widely.

This recognition has accelerated since the mid-1990s, with policy makers in many countries and international organisations beginning to recognise explicitly the importance of entrepreneurship and making general statements about their commitment to increasing entrepreneurship or, at least, to improving the entrepreneurial environment (Lundström and Stevenson, 2005, Hart, 2003; OECD, 2007a). Their commitment may be realised by removing obstacles or via more direct, targeted actions such as subsidies for example.

However, the pursuit and development of these policies, namely the factors that affect and benefits of, entrepreneurship, are still hampered by the limited, albeit growing, empirical information relating to these factors and benefits. Where there are policy references to entrepreneurship, most simply equate it with small and medium sized enterprises (SMEs) in general, or even numbers of self-employed (Hoffmann, 2007). Neither of which fully captures the totality of entrepreneurship, as we show later.

This, in part, reflects the greater availability of statistics on SMEs and the self-employed but it also reflects the general ambiguity relating to entrepreneurship. What compounds this ambiguity is the need for policy makers, particularly those in Europe, to be able to make international comparisons of entrepreneurship. In the absence of definitions that capture the essence of entrepreneurship therefore, and entrepreneurship indicators that are internationally comparable, policy makers are left somewhat rudderless when it comes to developing policies, particularly when they relate to learning from international best-practice.

However, that said, even in the absence of an internationally accepted and comparable definition of entrepreneurship, the situation regarding the availability of indicators has begun to improve in recent years.

Many countries now recognise entrepreneurship policy as a separate field and, as a consequence, have taken steps to improve the measurement of entrepreneurship at the national level. At an international level, programs by the World Bank, Eurostat and private organisations such as the Global Entrepreneurship Monitor, have also started to develop internationally comparable data. But it is fair to say that very few, probably none, of these efforts capture or embody entrepreneurship, neither conceptually, nor empirically, in a comprehensive manner, and, in fairness, none explicitly claim to, since all recognise that entrepreneurship is a multi-faceted phenomenon of which they measure one or some aspects. Moreover, it is important to note that developments at the national level rarely provide for international comparability.

The Entrepreneurship Measurement Framework

These shortcomings and the growing importance of entrepreneurship in the policy domain have magnified the need for a sounder basis for internationally comparable indicators of entrepreneurship. But the measures, and the framework, need to indicate not only the levels of entrepreneurship, but also the factors that determine these levels, and, ultimately, the role or impact that the entrepreneurial activity has in meeting policy targets. After all, creating a more entrepreneurial economy is a means to an end, and not the end in itself.

Given its experience in international data development, many countries and groups turned to the OECD for assistance and guidance in developing such a framework by capitalising on its international networks of statisticians, analysts and policy makers. The OECD 2004 Istanbul Ministerial Conference on SMEs and Entrepreneurship made strong and explicit recommendations on the needs for, and development of, more comprehensive and comparable data. In 2005/06, the Kauffman Foundation of the United States approached the OECD and offered funding for a Scoping Study to determine the feasibility of developing high quality, comparable international data on entrepreneurship and its determinants. In addition, the International Consortium on Entrepreneurship (ICE), a Danish-led international consortium, has also provided funding for various specific data development projects.

These initiatives and requests led the OECD to create an Entrepreneurship Indicators Programme (EIP) ([4]) that has

([1]) The chapter was previously published by the OECD. The authors wish to thank all members of the Steering Group of the joint OECD/Eurostat Entrepreneurship Indicator Programme for comments and inspiring discussions.

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([3]) Anders N. Hoffmann, Deputy Director-General, Danish Business Authority, Email: andhof@erst.dk Website: www.ebst.dk

([4]) For more information on the EIP including feasibility studies and meetings that have been instrumental in the development of the framework, see www.oecd.org/statistics/entrepreneurshipindicators. This work has been supported by a grant from the Ewing Marion Kauffman Foundation of the United States, though the content and outputs of the Programme are solely the responsibility of the OECD. (See http://www.kauffman.org/).

been at the vanguard of investigations and developments that seek to improve our current understanding and measurement of entrepreneurship. The work of the EIP continues but the cornerstone of its activities is the development of the framework presented in this paper and indeed the ability to marshal and motivate resources from across statistical institutions, ministries and research institutes, as well as within the OECD, to engage in the framework's crystallisation.

Clearly, the development of such a framework is a formidable challenge. Entrepreneurship is after all a phenomenon that manifests itself throughout the economy in many different forms with many different outcomes, and these outcomes are not always related to the creation of financial wealth, for example they may be related to increasing employment, tackling inequalities, or indeed, increasingly, environmental issues.

The challenge therefore is to develop a framework that provides the means to tackle these diverse outcomes and manifestations whilst at the same time remaining focused on the measurement of entrepreneurship. Key to this is a definition that captures the essence of entrepreneurship, one that is able to encompass these diverse issues, whilst at the same time remaining focused and most importantly measureable.

The OECD definition (OECD, 2007b) is described below. Its focus is deliberately to target business related entrepreneurship, and, so, explicitly ignores social entrepreneurship. That is not to undermine the importance of social entrepreneurship ([5]), merely to say that the definition sets out to capture a particular aspect of entrepreneurship related specifically to businesses, since the interests of the OECD and the bodies that have been participating and supporting the OECD in this work are in this domain.

The definition considers three components: Entrepreneurs, Entrepreneurial Activity and Entrepreneurship.

- Entrepreneurs are those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- Entrepreneurial activity is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- Entrepreneurship is the phenomenon associated with entrepreneurial activity.

More information on the rationale for the definitions can be found in the paper cited above but for the current paper, it is sufficient and instructive to mention a few points.

- The first relates to an important distinction between Entrepreneurs and Entrepreneurial Activity. Where there are entrepreneurs, there will always be entrepreneurial activity but it is important to note that the latter is not dependent on the existence of the former. This is important because the OECD definition recognises that individuals within businesses may demonstrate entrepreneurship without necessarily having a stake in the company. This means that all companies, even those without an entrepreneur at their helm, can be entrepreneurial. Companies owned by shareholders or trust funds for example and managed/run by salaried directors can still be entrepreneurial and the way they operate their businesses in identifying and exploiting new products, processes or markets can be of benefit to other businesses owned and managed by entrepreneurs.
- The second point, which follows from the first, is that entrepreneurs and entrepreneurship are not concepts that relate exclusively to small businesses or the self-employed, as many studies, through expedience, have often assumed. The OECD view is that entrepreneurship as a definable phenomenon reflects certain characteristics that relate to the processes through which it is manifested, namely, the creation of value through the identification and exploitation of new products, processes, and markets and this is not uniquely the preserve of small companies or entrepreneurs, important though these are to the entrepreneurial process. Moreover, it is important to avoid a definition that is possibly counter-productive from a policy perspective. Clearly, large companies can be entrepreneurial and it is important that these companies are not ignored when formulating entrepreneurship policies.
- The third ties entrepreneurship very closely to the idea that there is something different about entrepreneurial businesses that sets them apart from other businesses; namely they're in the business of doing something new, whether that be by creating/identifying new processes, products or markets. Not all businesses are entrepreneurial, indeed not even all new businesses are necessarily entrepreneurial (which has important consequences for the framework and supporting indicators we develop below and how they should be interpreted).
- The fourth hinges very much on the 'seeking'. Many studies of entrepreneurship investigate and focus only on those entrepreneurs or entrepreneurial businesses that succeed. Failure is a very important part of the entrepreneurial process and much can be learned from understanding it. Entrepreneurs who failed were still entrepreneurial and, indeed, entrepreneurs.
- The final point concerns 'value'. Policy makers are interested in facilitating or encouraging the growth of entrepreneurship because it is recognised as a force for good. How this 'good' is achieved, indeed, determining what is 'good' is the role of the policy maker. These 'goods' or objectives are about creating value in one domain or another, and, as noted above, these can be very diverse. Therefore, 'value' covers both monetary and non-monetary returns. These values are, naturally, identified as objectives or targets by

([5]) Indeed the measurement of social entrepreneurship brings many new conceptual and practical difficulties to the table, chief amongst these being data availability, which is much scarcer than data relating to businesses.

policy makers, who will then develop policies designed to achieve these targets although clearly they are carried out by entrepreneurs and entrepreneurial firms. Some countries for example will focus on entrepreneurship's contribution to economic growth. Other countries however might focus on entrepreneurship's contribution to solving environmental problems or its contribution to social inclusion.

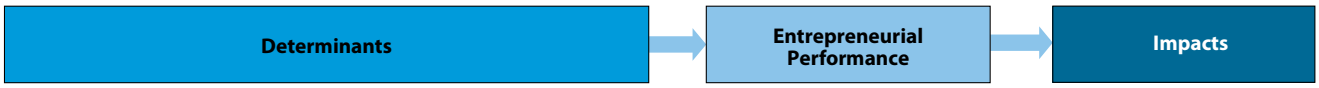
Given the diversity of outcomes and manifestations, it stands to reason that no single indicator can ever adequately cover entrepreneurship, especially given the different objectives. Indeed the same holds true for the number of entrepreneurs. True, one could arrive at a single indicator reflecting the numbers of persons that satisfy the necessary criteria, in the same way, for example, that one can provide an indicator describing the number of innovative firms, but this single indicator will not be able to reveal the full picture. Some of these entrepreneurs, for example, will have limited growth potential, (reflecting the value embodied in their idea, or their own attributes/experiences and motivation, for example push versus pull entrepreneurs). Others, for example, will have enormous growth potential that can be measured both ex ante and ex poste.

One could argue that one could measure entrepreneurship ex post, in much the same way that one can measure GDP ex poste but this is too simplistic and overlooks the fact that the outcomes, or impacts, of entrepreneurship can manifest themselves in different ways that are not additive, for example, job creation and (GDP) related value-added. As such, it is obvious that the framework needs to be the vehicle that provides policy makers with the tools (in this case, indicators) needed to tackle whichever entrepreneurship related objective they determine. This reflects not only the measurement of any particular target indicator, for example, the number of firms producing new products, but also the factors that determine or influence these target measures.

The framework (Figure 1) therefore identifies three separate but inter-connected flows, all of which are important in the formulation, assessment and appraisal of policy measures: 'determinants', 'entrepreneurial performance', and 'impact', where: 'determinants' reflects the key factors that affect 'entrepreneurial performance'; 'entrepreneurial performance' reflects the target indictors that policy makers believe have an impact on some or many ultimate objectives (impacts). Each of these is described in more detail below.

For simplicity however, and to assist interpretation, the basic idea behind the Conceptual Framework can be illustrated by means of an analogy. Passengers want to get from A to B by time t (reflecting the policy objective, Impact). There are various means of transport available, some more costly than others, with each means having many variants, (engine size, fuel consumption etc., which collectively form the Determinants). During the journey, passengers are informed whether they are heading in the right direction and on time via speedometers and GPS readings, (the Performance indicators). Different passengers (policy makers) will, of course, want to go to different places and get there at different times (different Impacts), using, whether by design or necessity, a mode of transport (Determinant) that reflects the price they're willing to pay for a certain level of comfort.

Figure 1: The OECD/Eurostat framework for Entrepreneurship Indicators



Source: OECD, Eurostat

In terms of understanding the evolution of the database it's perhaps easier to consider the development from a top-down approach, that is, by considering the ultimate goals of policy makers vis-à-vis entrepreneurship policy, drawing, of course, on the collective knowledge gained from the many empirical studies that have investigated the 'impacts' of entrepreneurship in recent decades.

Impacts therefore reflect the 'value' created by entrepreneurs and entrepreneurship. As noted above this value can be manifested in a number of ways, for example a macroeconomic variable like GDP growth or employment, or indeed some other measure such as Gini coefficients reflecting income distributions or reductions in the size of the 'informal' sector and corresponding increases in the 'formal'(registered, tax-paying) sector .

Entrepreneurial performance measures the entrepreneurial actions that are instrumental in delivering the impacts. Given the multitude of possible impacts, it follows that there is also a multitude of entrepreneurial indicators. Different countries will therefore choose to focus on different indicators of performance depending on their policy objective (the value they wish to create).

What we can say about the links between the performance measures and impacts however is, of course, based on prior analyses that have demonstrated these links. Naturally, it is expected that the creation and application of this framework across national statistical offices will improve our understanding of the role that various aspects of entrepreneurship play in delivering these impacts, and indeed provide a comparable basis that facilitates the production of international analyses and comparisons.

The indicators included within 'entrepreneurial performance', and developed by the OECD EIP and its partners

comprise, therefore, a basket of indicators that are generally thought to reflect entrepreneurship, and, indeed, that fit within the definitions outlined by the OECD. The indicators themselves are not revolutionary, but what is arguably revolutionary is the framework, which brings them together for the first time and provides an important and unique rationale for their collection across countries. Indeed, many of the indicators will be produced for the first time in many countries.

A myriad of underlying environmental and sociological factors coupled with the personal attributes of entrepreneurs affect the outcomes of the entrepreneurial process. All of these factors and attributes are expressed in the determinants for entrepreneurship.

The model recognises other relationships between the main components, in addition to those that flow from left to right (indeed, between the subcomponents too). For example, the model postulates that Determinants can alter the amount and type of Entrepreneurial Performance, which in turn leads to changes in an Impact category, such as economic growth. But economic growth itself will have an impact on Determinants, by affecting ease of access to finance, for example. Or a buoyant economy might encourage more entrepreneurs to take the steps to implement a business idea even if the Determinants are unchanged.

This model establishes a simple framework so that consistent, comparable and relevant data collection can proceed. Such data will help analysts to understand the interactions that may exist and target policies more appropriately.

The sections that follow provide a detailed description of each of the subcomponents that have been identified by the OECD and its partners for each of the three main groups described above.

Impact of Entrepreneurship

The major social and economic objectives related to entrepreneurship in the context of this framework have been identified as job creation, economic growth, poverty alleviation and the formalisation of the informal sector. Each of these objectives can be more precisely defined in terms of further specific objectives such as export growth or higher numbers of registered enterprises, self-employed, etc., which provide indicators for part or all of the more macro 'impact' indicators. Fortunately, most of these indicators have meanings and uses beyond entrepreneurship studies or policy making and so their availability and international comparability are for many countries unlikely to be limited.

Perhaps the most important point to make here however is that of the three major flows in the framework this is arguably the least important in the context of this framework's objectives — to improve and motivate the quality and availability of information pertaining to entrepreneurship, since most of these indicators are already readily available.

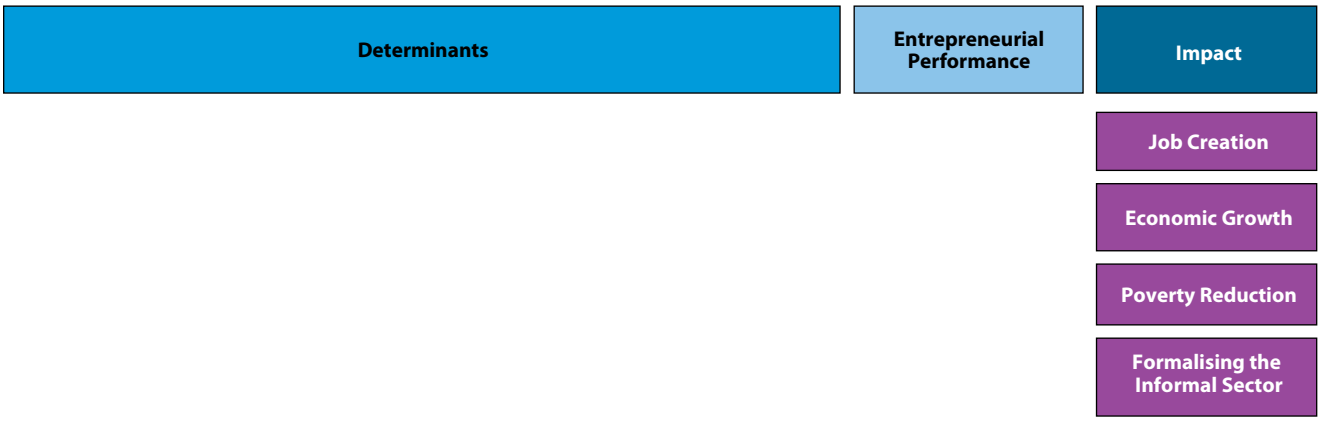
Policy makers and analysts who draw on this framework are almost certainly more likely to draw and on use the indicators within the 'determinant' and 'entrepreneurial performance' sections to determine whether they correlate with any potential 'impact' indicator they wish to affect/analyse, irrespective of whether they are included as one of the 'impact' indicators identified in this framework.

Moreover one needs to recognize that the 'impact' of entrepreneurship performance indicators on these macro-based objectives is not always so transparent and, indeed, rarely singular, in the sense that they are only affected by the identified performance indicators. Jobs created in a new firm, for example, will potentially affect employment in other firms, so the general equilibrium effects of these new jobs will depend on the functioning of the total economy. Indeed the same is true, and arguably more so if one considers new firms created through Schumpeterian creative destruction processes.

In that sense, one could argue that the necessity to identify 'impact' indicators is limited. But their role in the framework is essentially to illustrate the theory that policy measures, introduced at the determinant level, stimulate increases in the performance indicators that have an impact on the final policy objective. Returning to the analogy made earlier regarding transport, one could say that we are interested in providing the wheels, wings, hulls, engines, seats, speedometers and GPS systems that allow passengers to get to where they want to. We also provide some examples of the most popular destinations but ultimately it is the passengers who decide where they want to go.

Figure 2 below shows the framework with the key 'impact' sub categories included. Partly reflecting the reasons outlined above, no indicators are currently identified within these sub-categories although many are clearly obvious candidates, such as GDP growth, Gini coefficients, employment indicators, average/median wages and salaries, relative poverty etc. As the framework is utilized by analysts and the links between the performance indicators and specific impacts become clearer, on the basis of empirical evidence, it will be easier to populate these sub-categories with indicators. All the same, the EIP and its partners will work in the short to medium term to develop this section further to include specific indicators.

Figure 2: The OECD/Eurostat framework for Entrepreneurship indicators – adding categories for entrepreneurial impact



Source: OECD, Eurostat

Entrepreneurial performance

Given the multi-faceted nature of entrepreneurship, the identification of a single indicator that measures it is non-trivial, and, moreover, given the different ways its impact can be measured, arguably, not the best course of action.

As such, we are not proposing a single measure to understand and compare the amount and type of entrepreneurship that takes place across countries. In this sense, our approach is to define a range of indicators each of which paint part of the overall picture. A picture that necessarily varies according to the viewer's perspective (impact target) and our approach recognises the need for policy analysts to be able to understand and distinguish between the different types of entrepreneurship and their different impacts.

The segmentation of the total entrepreneurship population is critical for two reasons. First, it is difficult to identify measures that will capture all entrepreneurs, for example, especially on a comparable basis across all countries in the short-term, although this is a longer term objective. Second, the total population of entrepreneurs are engaged in many different types of entrepreneurial activities and only some of those will be of interest to a given country's policy-makers.

Furthermore, while some policies may enhance or restrain overall entrepreneurship, most policy instruments will target particular types of entrepreneurship. Thus, it is critical that analysts and policy-makers are able to measure clearly the specific categories of entrepreneurship they are trying to affect (using the speedometer and GPS systems in the transport analogy). In order for countries to benefit from the experience of others, it is also essential that the Entrepreneurship Indicators we are developing support comparisons across countries by type of entrepreneurship.

Thus, our list of core Entrepreneurship Indicators identifies a number of indicators that each target, to varying degrees, different aspects of entrepreneurship and different types of entrepreneurs. So, for example, whilst we include the total number of business owners in an economy, including the self-employed, as being an important indicator, we also place high priority on measuring the creation of firms with employees, the number of high-growth firms and the number of young, high-growth firms (gazelles). Indeed one might view these indicators as reflecting some evolution of entrepreneurship on a scale of 'impact' importance. High-growth firms require the creation of a firm, typically with employees, and many firms with employees, started out as one-man shows.

The indictors that we have identified below recognise that no measure or combination of measures will capture precisely the firms that meet the definition of entrepreneurship embodied above, which is multi-faceted both in its various manifestations and in its impacts. It is important to recognise too that the indicators are in some respect merely proxies for entrepreneurship or entrepreneurs. Not all new firms are truly entrepreneurial, as we define it above (create value through the identification and exploitation of new products, processes or markets), nor will all high-growth firms embody entrepreneurship. Moreover, in some cases the growth will not reflect entrepreneurship at all, and indeed, it may reflect the very antithesis of entrepreneurship, for example, firms in monopoly positions can experience rapid growth that is unrelated to entrepreneurship.

But the inclusion of these indicators reflects the pragmatic approach necessary in the formulation of such a framework. In other words, it needs to be recognised that the framework increases our understanding of entrepreneurship by providing indicators that describe various aspects of the entrepreneurship process and at the same time that need to be measurable in a harmonised, achievable and comparable way across countries. So, whilst it is recognised that entrepreneurship is about creating value through the identification and exploitation of new products, processes and markets it is also recognised that achieving indicators that measure exactly this phe-

nomenon in a comparable way present formidable challenges for many countries (OECD 2007b). Thus, we must develop indicators that can be added to this framework in the future as the statistical capacity within statistics institutes improves.

What is also important is that each indicator provides a spotlight on a specific aspect of the multi-faceted phenomenon that is entrepreneurship. Depending on where countries are on this scale and on which policy objectives they wish to tackle (how far away they are from their preferred destination), this suite of indicators will provide international comparability and assist in policy formulation.

In theory, a single indicator describing the number of entrepreneurs in an economy is realisable for all OECD economies, and the feasibility of creating such an indicator in practice has played a large part in determining the definition of entrepreneurs.

However, it must also be recognised that providing such statistics at the present time is beyond the reach of many OECD statistical offices using readily available data. To do so would require, in many cases, new data collection mechanisms and surveys that measure the number of entrepreneurs that have identified and exploited new products, processes and markets.

This is clearly achievable but is more a longer term objective, which in turn will require experts in the field to provide working and practical definitions for 'new'. Given this situation, one could argue that the development of this framework is premature. But that view is incorrect since it is the framework itself that is likely to provide the catalyst and motivation for statistical offices to work towards this longer-term objective. The same criticism would be even less relevant for entrepreneurship, where a single indictor, that does not at the same time reduce the potential areas of impact, is not considered possible, even in theory.

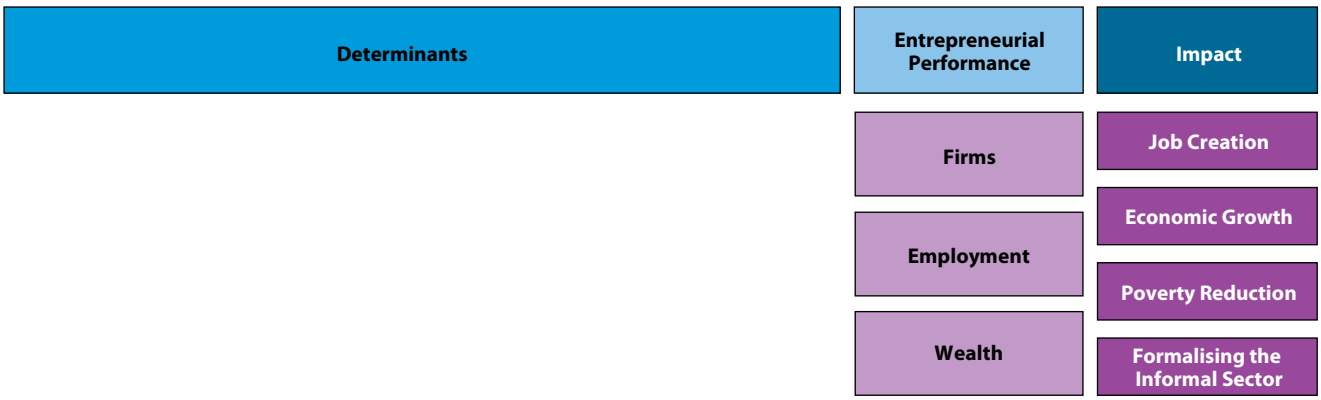
The indicators described in this framework for entrepreneurial performance, therefore, should be seen as tools that improve our understanding of 'pure' entrepreneurship and indeed can be viewed as measures that have loose or strict interpretations of 'new' as in 'new products, processes or markets'. All new businesses or increases in self-employment for example could be considered as creating new markets if one takes a liberal interpretation of 'new' for example. Moving further down the spectrum one could equally argue that indicators of high-growth enterprises, which are more likely to have demonstrated 'pure' entrepreneurship, take us closer to the OECD definition. The most important point to recall, however, is that all of the indicators are meaningful in the context of entrepreneurship analyses and policy making and, most importantly, measurable across most, if not all, OECD countries.

Entrepreneurial Performance Indicators

The approach used to determine the indictors described below, which are the result of many meetings of the EIP and Eurostat workshops, has been to focus on the creation of new value; recalling that 'value' is multi-dimensional and that 'new' relates to products, processes or markets. It is important to state up-front that the list is preliminary; one that will be expanded over-time as the statistical capacity within statistics institutes expands in response to the needs and anticipated momentum provided by the establishment of this framework. The current list therefore reflects indicators that are currently realisable, although of course, they also reflect relevance. Importantly they are also realisable without imposing any increased burden on statistical offices, since they tap into commonly and readily available and high-quality sources such as business registers and labour force surveys.

In addition to the overarching principles concerning 'new' and 'value' above, the framework has a further typology that categorises the indicators by indicator type. The first group are those relating to firms. The second and third correspond closely to 'impacts' in terms of employment and what has been provisionally described as 'wealth'. This 'wealth' subcategory could just as easily be described as 'other', given the relatively heterogeneous nature of the indicators it embodies, see Figure 3 below.

Figure 3: The OECD/Eurostat framework for entrepreneurship indicators – adding categories for entrepreneurial performance



Source: OECD, Eurostat

Defining 'new' is non-trivial, especially as it is relatively subjective, and as noted above, will require further discussions within the statistical community. A new market for example could be at the global, national, local or even at street level. Each definition saying something different about the overall impact on the national economy and indeed, sometimes, beyond.

Selecting the basis for 'new' in this context will ultimately require the construction of some convention and indeed the very idea of a 'market'. Moreover it implicitly requires strict lines to be drawn that exclude most replicative, as opposed to innovative (new processes and products), business owners from being entrepreneurs, for example. If 'new' is defined at the global level for example no firms that merely replicate ideas (processes/products) in other countries will be seen as entrepreneurial.

If new is defined at the national level on the other hand, only those replicative firms that copy an idea from another country, and not those that copy ideas already adopted in the same country, will be entrepreneurial. Without prejudicing the deliberations needed in the future, removing these types of businesses and business owners from the entrepreneurial mix is arguably a step too far. To take an ad absurdum example, if there were only 100 new ideas (products and processes) a year and every country absorbed these ideas, and 'new' was defined as new to the 'national' market, every country would have 100 exactly new entrepreneurs a year.

The approach of the framework, therefore, is to recognise that this is an issue for the future but to provide indicators that proxy the essence of entrepreneurship and entrepreneurs that the OECD definitions capture whilst, all the while, remaining relevant and measureable.

We begin by considering the number of entrepreneurs. The actual amount, of course, is explicitly tied to the definition of 'new'. But if we consider a very liberal interpretation of 'new' such that any new business is the manifestation of something new then the number of new business owners (business ownership start-up rate) provides a measure of the number of new entrepreneurs and the number of new businesses a measure of new entrepreneurial businesses. Equally, and by extension, the number of business owners (business ownership rate) provides a measure of the number of entrepreneurs.

Taking a less liberal, stricter, interpretation of 'new' one can consider the number of new business creations with employees (employer enterprise births). This assumes that the novelty or newness of the businesses idea or market can be better demonstrated by its size, as compared to business start-ups without employees (self-proprietor, self-employed businesses), which in many cases will reflect low scale operations with little growth potential or economic significance, such as hobby activities. Moreover OECD studies (OECD 2006) have shown that this concept provides for a higher level of international comparability than those that reflect all business creations.

Going one step further up the scale of defining 'new', one can consider that those firms that have demonstrated rapid growth have passed a higher threshold of 'new'. It is assumed there was something significantly different about their product or process or market that led to significant growth. This line of thinking gives rise to two important indicators in the framework: rate of high-growth firms based on employment growth, and rate of high-growth firms based on turnover growth. These measures explicitly recognise that firms do not need to be new to be entrepreneurial. Older firms can demonstrate entrepreneurship too, and indeed many do.

That said, one could tighten further the definition of 'new' and include the qualification that high-growth firms also need to be young. This gives rise to two further measures: rate of young high-growth firms based on employment and rate of young high-growth firms based on turnover, referred to in the framework as Gazelle rates based on employment and Gazelle rates based on turnover. In addition, and in recognition of the Schumpeterian process of creative destruction the corollary of employer-enterprise births is employer firm deaths, which is also included in the list of indicators below.

Given that it is difficult to define new, it is important to reiterate that the indicators described above and below are, in the main, proxies for the OECD's pure definition of entrepreneurship and entrepreneurs. As noted earlier, for example, some high-growth enterprises will grow for reasons that have little to do with entrepreneurship.

Some studies on entrepreneurship have used measures that take estimates of the potential numbers of business owners, including those individuals who aspire to it or who have considered it as being a measure of entrepreneurship (latent or otherwise) in an economy.

This is not an approach that we reflect in our framework, partly because it stretches the interpretation of 'new' far from its genesis, partly because until they engage in activity they don't create any realisable economic value, partly because it is subjective and does not lend itself well to international comparisons, and partly because the information is not generally available from official sources, Moreover, the important information that could be gained from such data, the number of individuals that actually start businesses, is readily available and indicators for these are included in the framework.

Additional indicators have been formulated by the EIP to supplement the indicators described above and they require little in the way of extra description. These include: business churn (the addition of birth and death rates); net business population growth (a measure of births minus deaths); survival rates after 3 and 5 years, the number of firms aged

3 and 5 years old as a proportion of all firms with employees; the percentage of employees in 3 and 5 year old firms; the average size of 3 and 5 year old firms; business ownership rates (including the self-employed), business ownership, the value-added share of young firms, the average productivity of births, deaths, small and young firms and their contribution to productivity growth, the innovation performance of young and small firms and the export performance of small firms.

Of these indicators, which are by no means exhaustive, six are considered core, repeated below.

- employer firm births;
- rate of high-growth firms based on employment growth;
- rate of high-growth firms based on turnover growth;
- Gazelle rates based on employment;
- Gazelle rates based on turnover; and
- employer firm deaths.

This framework does not provide specific details on how all of the indicators described above should be measured and specified, but the core indicators described above are consistent with the definitions described in the Eurostat-OECD Manual on Business Demography Statistics. That Manual reflects the collaboration of both institutions and many national statistics institutes and was recently endorsed by the OECD Statistics Committee.

Figure 4 below describes the indicators described above allocated to each of the three themes: firms, employment and wealth. It should be noted that the typology is merely to simplify the illustration since many of the indicators could also have been allocated to one of the three other themes.

Figure 4: The OECD/Eurostat framework for entrepreneurship indicators – adding indicators to the categories for entrepreneurial performance

Entrepreneurial Performance		
Firms	Employment	Wealth
Employer Firm Birth rate	**High Growth Firm rate by Employment**	**High Growth Firm rate by Turnover**
Employer Firm Death rate	**Gazelle rate by Employment**	**Gazelle rate by Turnover**
Business Churn	Business Ownership Start-Up rate	Value-Added by Young or Small Firms
Net Business Population Growth	Business Ownership rate	Productivity Contribution, Young or Small firms
Survival Rate, 3 and 5 Years	Employment in 3 and 5 Year Old Firms	Innovation Performance, Young or Small firms
Proportion of 3 and 5 Year Old Firms	Average Firm Size After 3 and 5 Years	Export Performance, Young or Small firms

Source: OECD, Eurostat

Each of the indicators can be further broken down to varying degrees into sub-sectors such as industrial sector, gender, business size etc. Many of these can be produced using currently existing data sources, particularly sectoral and size breakdowns. Many others, however, will only be possible in the future as statistical capacities increase, for example, breakdowns that describe the characteristics of entrepreneurs, which are not currently readily achievable in all OECD countries for example.

Ideally, a perfect correlation between the indicators for entrepreneurial performance and impact would exist. Countries aiming at increasing GDP growth, for example, should be able to pick a few performance indicators and expect that an increase in those performance indicators will lead to higher GDP growth. Some studies do, for example, focus on the link between entry and economic growth (Audretsch and Thurik, 2000; Scarpetta et. al 2002; OECD 2003a; Brandt 2004a). Much of the impact of entrepreneurship is still to be better

understood so a perfect correlation between the performance indicators and impact is not to be expected, but one of the motivations of the framework is to provide the basis for establishing the significance of these correlations, known and unknown,

All the proposed performance indicators above are used in various OECD member countries. Most of the indicators are used in a comparative perspective. The optimal level of new firm entry is for example unknown. Scotland was one of the first countries to target number of business start-ups in their 1993 'Business Birth Rate Strategy'. The target was to close the gap with the rest of the UK. ([6]).

Other countries like Denmark target the number of growth entrepreneurs. By 2015, Denmark aims 'to be one of the societies in the world where most growth enterprises are launched'. The share of growth entrepreneurs is just one target in a larger strategy for ensuring growth and employment in a time of increasing global competition. The overall goal is to become one of the most competitive economies by 2015. The Danes are therefore focusing on entrepreneurship's impact on growth and employment. They want to fly towards a goal of being one the world's most competitive economies with high growth and full employment and aim to use the share of high-growth enterprises as one of many indicators on the dashboard telling them whether they are flying in the right direction at the right speed.

Determinants of Entrepreneurship

A country's entrepreneurial performance depends on a myriad of underlying factors coupled with the personal attributes of entrepreneurs. In the travel analogy described above, these underlying factors and attributes are the size of the engine, mode of transport, size of wings, wheels, chassis, price of fuel etc.

The framework brings these many factors together and for clarity pulls them together within separate themes, described below. It builds on many of the important contributions made to the literature in this area, such as Audretsch, Thurik and Verheul (Audretsch et. al, 2002); the policy framework developed in the works of Lundström and Stevenson (Lundström and Stevenson, 2005) and the Danish Entrepreneurship Index (Hoffmann, 2007), combined with a pragmatic policy approach.

Many words and phrases are used in the literature to describe the factors affecting entrepreneurship (Schramm, 2006). But the differences between these various studies are often largely semantic; most agree for example that entrepreneurs and entrepreneurship are created by a combination of three factors: opportunities, skilled people and resources.

([6]) http://www.scottish-enterprise.com/sedotcom_home/about_se/research-and-publications/business_birthrate_strategy.htm

These three factors are all affected by two important factors (themes): the surrounding regulatory framework and culture.

Resources reflect access to capital, R&D and technology. These are the factors that are important to entrepreneurs and entrepreneurship in general. Indeed many studies on entrepreneurship highlight capital as one of the most critical factors for success (EU, 2003). Capital covers all phases of business life, from access to early seed funds to access to the stock markets. R&D creates new inventions that the entrepreneur and entrepreneurial businesses can turn into new products or processes. The R&D in this context should be understood as a resource that can be created or purchased, whether directly or in an embodied or diffused form.

Skilled people in this context relates to the capabilities of the entrepreneur and access to other capabilities within the entrepreneurial infrastructure (Lee et. al, 2000). In other words, the entrepreneurial capabilities include the human and social capital of the entrepreneurs. Entrepreneurial firms can exist without an entrepreneur at the helm, reflecting the entrepreneurialism of employees but this is not currently an explicit determinant that is being developed as part of this framework but may be included in later versions.

Opportunities are created by the market conditions in the country. These market conditions include public involvement in markets, competition in the markets, access to foreign markets, procurement regulation and so on.

Entrepreneurship happens within a regulatory framework, which affects performance. A combination of opportunity, capabilities and resources does not necessarily lead to entrepreneurship if opportunity costs (e.g. forgone salary and loss of health insurance) and start-up costs outweigh the potential benefits. Since in this event, a rationale, potential entrepreneur will not pursue the opportunity and will not create value through a new product, process or market.

In this framework, the regulatory framework is defined very broadly and includes all taxes, regulations and other public rules and institutions affecting entrepreneurship. All indicators that measure taxes, regulations or other regulations that either increase or decrease the incentive to entrepreneurial activities are captured in this theme.

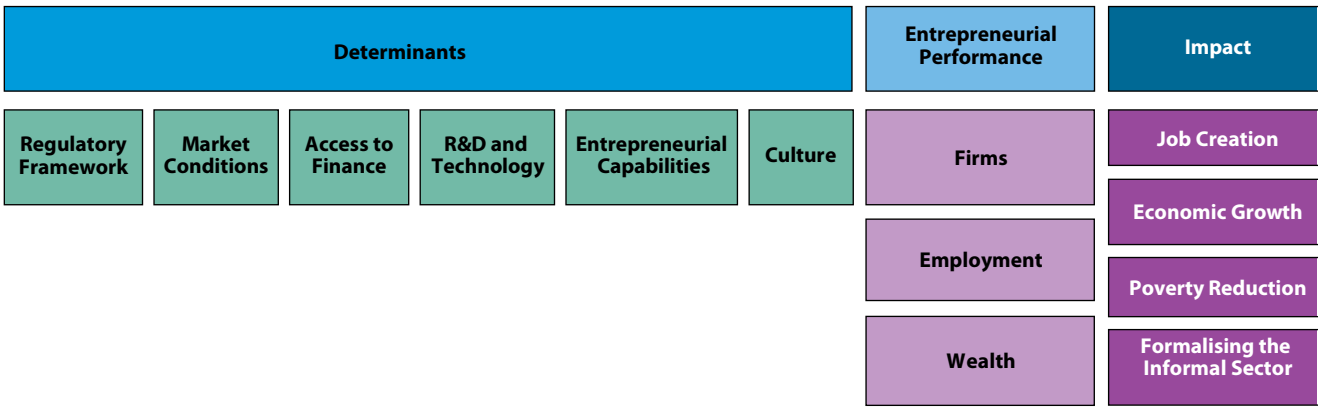
Finally, culture affects all parts of the model and is included as the final factor in the framework. Culture influences an entrepreneur's behaviour, attitudes, and overall effectiveness and, moreover, is often unnoticed by the entrepreneur (Ivancevich & Matteson, 1996). In this framework, culture comprises each individual's assumptions, adaptations, perceptions and learning.

Entrepreneurship is also affected by basic macroeconomic conditions. High unemployment, for instance, might be

expected to increase the share of individuals motivated to become entrepreneurs. Despite their obvious importance for entrepreneurship however, these conditions are currently excluded from this framework.

Summarizing, six themes (access to capital, access to R&D & technology, capabilities, market conditions, regulatory framework and culture) describe the determinants affecting entrepreneurial performance (Figure 5). These themes are used as labels to guide and categorise the collection and comparison of indicators of determinants of entrepreneurship.

Figure 5: The OECD/Eurostat framework for entrepreneurship indicators – adding categories for entrepreneurial determinants



Source: OECD, Eurostat

Entrepreneurship Determinant Indicators

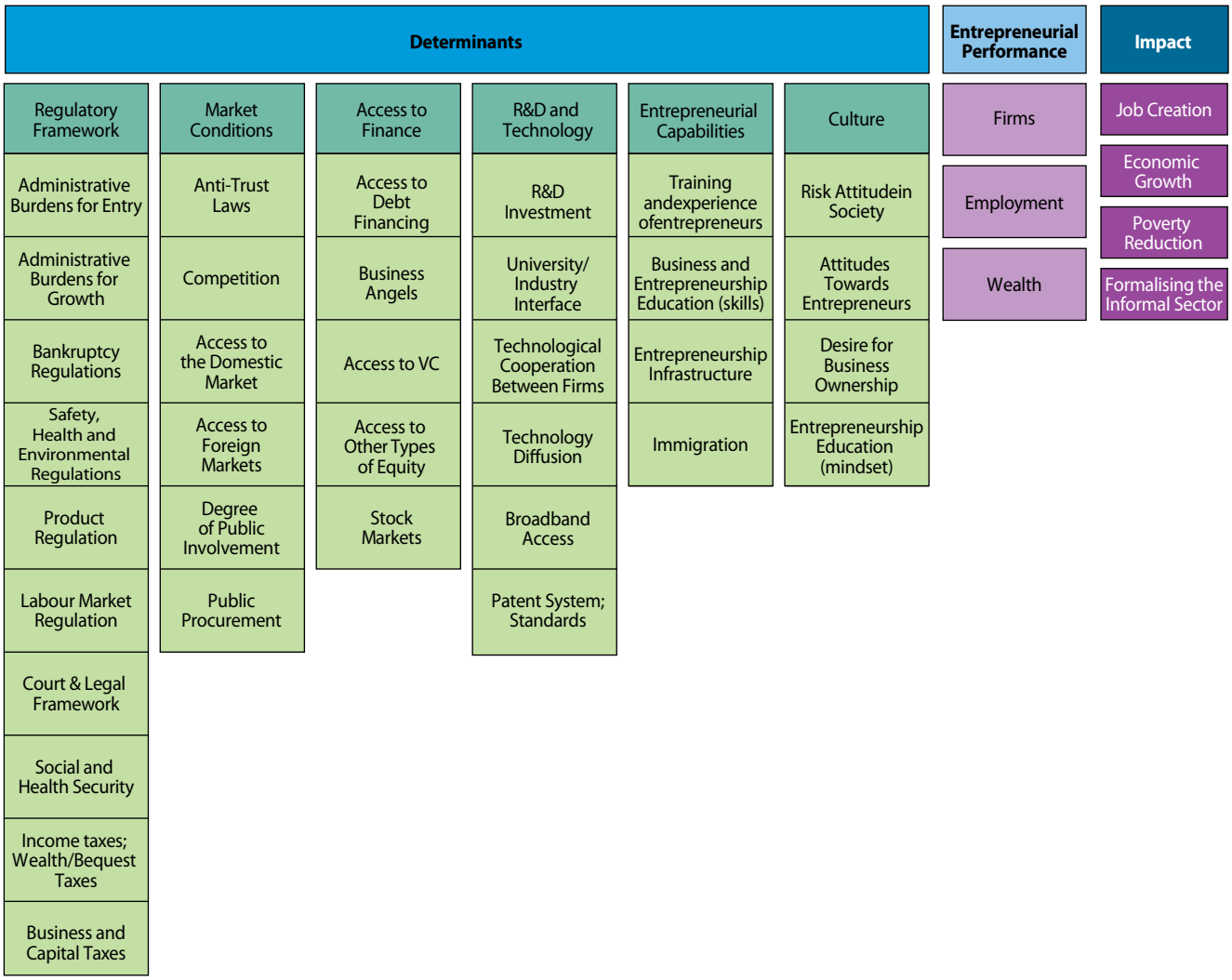
The six main thematic determinants of entrepreneurship described above are affected by many different policy areas. Policy areas are, typically, not well-defined concepts since they usually reflect a simple collection of policy instruments with similar objectives. For example, promoting venture capital investments can be broken down into more detailed modes of accessing capital such as loans, venture capital or business angels. .

Additionally, policy areas might affect more than one determinant. However, each policy area described below is placed in relation to the determinant it is thought to affect the most.

The number of policy areas described below reflects the deliberations of the EIP and its partners and in particular the workshops organised by Eurostat during spring 2007. These deliberations resulted in a list of 38 policy areas (Figure 6). The list attempts to be as exhaustive as possible, in so far that it attempts to cover the most important policy areas. But it is also seen as a starting point, allowing additions and changes to occur over time as our collective knowledge on entrepreneurship expands.

More details on each of the policy areas are described in Annex 1. Further analyses will occur over time in order to determine the critical policy areas for entrepreneurship, and indeed the significance of each determinant in creating or hindering entrepreneurship and entrepreneurs and their relationship to the specific entrepreneurship performance indicators. And in this context it is important to note that this may lead to a reduction in the numbers of indicators identified in the framework; some, for example, may have no or very marginal impact on performance. But the important starting point is the elaboration and development of this framework and collection of indicators it supports.

Figure 6: The OECD/Eurostat framework for entrepreneurship indicators – adding policy areas for entrepreneurial determinants



Source: OECD, Eurostat

Many of the determinant-indicators are already available, indeed this formed part of the rationale for their inclusion. For example the International Consortium for Entrepreneurship (ICE) collects and evaluates the quality of a number of readily available entrepreneurship indicators each year (Hoffmann, 2006). The 2006 evaluation included 57 indicators relating to determinants (Annex 2).

Many more however will still need to be developed and elaborated in a way that makes them as comparable as possible at an international level, particularly those that are more subjective in nature such as those within the culture theme. But as already mentioned the development of the framework is an important and necessary step to allow this to happen,

Clearly therefore further work is needed in collecting determinant indicators. The steps forward need to be based on policy priorities, and these priorities will vary from country to country. However, some areas do seem to be part of the debate in all countries. The OECD's project 'Micro-policies for Growth and Productivity', for example, identified three critical policy areas for fostering entrepreneurship – entrepreneurial education, access to venture capital and bankruptcy regimes (OECD, 2007). These three policy areas are also mentioned in most national entrepreneurship reports.

Indicators on entrepreneurship education are clearly lacking. Some indicators exist on venture capital but improvements are needed to ensure international comparability. The World Bank has done substantial work in the area of bankruptcy, so the indicators in this area are relatively well developed (Doing Business, 2007). Indicators of entrepreneurship education and venture capital will therefore be towards the top of the list of new indicators to be developed.

The OECD Micro-policy study also points to private business advice services as an important area. No indicators exist in this area, so again more work is needed. Finally, the OECD study recognises the importance of taxes. Many indicators are available on taxes but more detailed indicators need to be developed.

All in all, the indicators of determinants require further development especially in the areas of entrepreneurial education, access to venture capital, business service and taxes, where the demand is manifestly high. The objective of this framework is to further motivate and indeed accelerate these developments.

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Annex 1 — Description of the Policy areas in the Determinants of Entrepreneurship

Policy areas affecting access to capital

Access to debt financing

The supply of debt capital via more traditional credit markets is vital to entrepreneurial activity. Without a large and efficient credit market to supply firms with efficient debt capital, some entrepreneurs will face a financial barrier making it impossible to seize opportunities. Governments can improve domestic credit markets through initiatives to improve access to debt capital in general or to entrepreneurs specifically. The former includes regulation improving the efficiency and competitiveness in credit markets by making debt capital cheaper and more accessible. The latter includes fiscal guaranties for entrepreneurial loans, making banks more motivated to help entrepreneurs.

Business Angels

Business angels are typically wealthy individuals who make direct equity investments in the seed stage of companies, and they tend to provide more managerial and business advice through their greater personal involvement than institutional investors do. Although data is scarce, it is believed that total funding by business angels is several times greater than all other forms of private equity finance. Governments in many countries try to cultivate business angels by organising networks and giving special investment tax incentives. Several countries have also tried to improve information flows between angels and potential entrepreneurs that otherwise tend to be informal.

Access to Venture Capital

Venture capital is an important source of funding for potential high-growth ventures in need of significant capital for development, growth and expansion. In order to enlarge the domestic supply of venture capital, governments can either take initiatives to develop national venture funds or improve venture market regulation to grow existing venture markets. The former includes direct investments and the latter includes relaxing legislation, making it more attractive (or simply possible) for entities, such as pension and insurance funds, to make venture investments.

Access to other types of equity

Not all firms' needs can be met with venture capital but they may still need equity financing to grow. Private equity and the activities of related funds are of growing importance in the context of globalization.

Stock Markets

An efficient stock market, a secondary stock market or efficient markets for buyouts are important in order to gather the capital needed for the expansion of firms. Furthermore, effective exit mechanisms increase the supply of venture capital and also serve as an indirect source to more capital in earlier investment phases. Most countries face the problem of obtaining a critical mass of new firms for a secondary stock market.

Policies affecting access to R&D and technology

R&D investment

Entrepreneurs play an important role in commercialising R&D. Countries with high levels of R&D will produce more possibilities for entrepreneurship than countries with low levels of R&D. The R&D can both be private and public.

University/industry interface

Effective technology or knowledge transfer regulation opens and speeds up the process of transferring public research into business, thereby effectively creating new opportunities for potential entrepreneurs. This regulation can be enhanced by policies encouraging universities (and other institutions engaged in research and development activities) to facilitate the development of ventures based on publicly funded research. Most importantly, legislation should develop the legal infrastructure that gives universities ownership of intellectual property developed from publicly funded research as well as the establishment of technology transfer offices that facilitate joint ventures between companies and universities.

Technological cooperation between firms

Existing firms can play an important role in developing entrepreneurship in new and younger firms either through corporate venturing or by actively working with these firms. The willingness of established firms to use new firms as suppliers or partners plays a crucial role in the development of their entrepreneurship. For example, the success of Silicon Valley compared to the Boston area in the early 1990s has been explained by the more open attitude to co-operation in Silicon Valley.

Technology diffusion

It is not only directly acquired or created R&D that benefits entrepreneurs. Many entrepreneurs simply using existing technology in new ways and benefit from the uptake and diffusion of these technologies.

Broadband access

Broadband access is included as a separate policy areas even though it is part of technology diffusion, as broadband gets a lot of policy attention in many countries.

Patent system, standards

The final resource is patents. Entrepreneurs can buy patents or protect their own product through the patent system. Several studies indicate a positive relationship between patent protection and entrepreneurial activities.

Policies affecting entrepreneurial capabilities

Training and experience of entrepreneurs

Training of entrepreneurs takes many forms (for example management training) and is offered in most countries as part of a public entrepreneurial support system. Another way to acquire skills is through experience. In this context serial entrepreneurs play an important role. But, often this role is not fully appreciated and so failed entrepreneurs are not always able to restart due to legislative barriers, such as bankruptcy legislation or indeed excessive time and costs involved in restarting a business.

Traditional Business Education

Traditional business education, including basic accounting, marketing and finance, are without doubt important attributes not only when running a company, but also when starting a company. Differences in the magnitude of business education among developed countries are significant. Some countries include basic business education in the core curriculum in both primary and secondary schools, whereas in other countries it is available only through electives or at dedicated business schools. The former approach obviously ensures that a greater share of the population possesses the basic business skills needed to run a company. Policy initiatives could ensure that basic business skills are acquired over a broad range of educations.

Entrepreneurship Education (skills)

In order to strengthen entrepreneurial abilities through education, teaching methods must be refined from primary schools to universities. Activities that go beyond traditional teaching, such as dedicated entrepreneurship centres, internships, teacher and advisor education, and research are necessary for success. Policy initiatives should ensure the supply and quality of entrepreneurship education. This education can be aimed at increasing the skills needed to succeed or aimed at creating an entrepreneurial mindset. The mindset is included under culture.

Entrepreneurship Infrastructure (Public and Private)

A strong entrepreneurship infrastructure consists of tightly linked regional networks of skilled and specialised advisors with relevant skills and knowledge that assist entrepreneurs, thereby effectively increasing the abilities available to potential entrepreneurs. Advisors can range from lawyers and accountants to experienced entrepreneurs to domain experts at universities. As such non-governmental involvement is vital to sustaining entrepreneurial networks. Governments can take an important role by initiating and developing the infrastructure.

Immigration

Immigrations can be another way of increasing the pool of capable entrepreneurs. Studies for example indicate that a large part of the U.S. tech boom over the past 20 years has come from their ability to pull in the best and the brightest from India, Taiwan and other Asian countries.

Policy areas affecting market conditions

Anti-trust laws

Antitrust laws protect the markets from the misuse of market power by dominant firms, or from anticompetitive collusion by groups of firms, or from anticompetitive mergers, all of which can deter entrepreneurship.

Competition

Competition and entrepreneurship have links both ways. Entrepreneurship is an important contribution to competition and competition is an important driver of entrepreneurship.

Access to the Domestic Market

Policies have only a limited impact on private demand.

Access to Foreign Markets

Globalisation has opened up for increased international opportunities for entrepreneurs. The decrease in trade barriers and the integration of world markets have made it possible for all types of companies — including new ones — to exploit global opportunities. Even though trade barriers are decreasing due to efforts from international organisations and, as such, are out of the hands of national governments to some extent, national governments can still initiate globalisation programmes, which help or motivate entrepreneurs to look abroad from the very birth of their firms.

Degree of public involvement

Minimising government activities and regulation in existing markets creates new business opportunities within established markets, thereby creating a larger demand for potential

entrepreneurs while at the same time improving market dynamics. Rolling back government activities (such as the liberalisation of the telecommunication sector in several European countries in the 1990s) or by deregulating the legal barriers (such as relaxing the educational requirements for starting a business in certain sectors) are two ways to improve access to existing markets.

Procurement Regulation

Entrepreneurship friendly procurement regulation increases the amount of government contracts for goods and services awarded to new companies, thereby effectively creating better opportunities for potential entrepreneurs. Procurement regulation in the widest sense — including competitive tendering schemes focused on the purchase of goods, services or science with a potential commercial value — can be made entrepreneurship friendly by encouraging governmental bodies to allocate a specific share of their purchasing to new companies.

Policies affecting regulatory framework

Administrative Burdens (entry and growth)

Administrative burdens comprise the amount of time spent collectively to understand and fulfil requirements imposed by governments or other authorities, such as new business registration, filing taxes and financial statements, and understanding which rules and regulations the business is subject to. They can discourage potential entrepreneurs by being overwhelming and difficult to understand as well as being beyond the entrepreneur's own abilities to fulfil. In countries with substantial administrative burdens, studies show that both job creation and employment settle at lower levels as a result. Policy initiatives to relieve administrative burdens include relaxing the legal demands required to start and run a company.

Bankruptcy Legislation

Bankruptcy legislation needs to balance the conflicting risk propensities of creditors and entrepreneurs. Creditors will not provide as much money to entrepreneurial activities if they do not have significant claims to a bankruptcee's assets. On the other hand, potential entrepreneurs are less apt to engage in entrepreneurial activity if significant claims are inevitable. The equilibrium, at which the maximum number of potential entrepreneurs can obtain debt capital to engage in entrepreneurial activities, is difficult to both identify and measure, but it is clear that bankruptcy legislation has a strong influence. Governments have a variety of means to relieve the costs of bankruptcy, including debt relief schemes, restructuring and postponement of debt possibilities. Debt relief schemes can regulate the length, uncertainty, and cost of going bankrupt, thereby altering both direct and indirect costs arising as a result of bankrupt. Reorganisation and postponement of debt typically take place prior to bankruptcy, making it possible to alter the business model and, as such, the risk of going bankrupt.

Safety, health, environment and product regulation

These types of regulations are important as they ensure that firms produce safe products without harming the environment or their employees. The regulation can however as be a burden for firms as they might induce costs on the firm's production.

Court-legal framework

Some authors have linked countries legal traditions and entrepreneurship. Generally, the distinction is made among British, French, German, or Scandinavian legal heritages.

Labour Market Regulation

The negative impact of strict labour market regulation, such as high minimum wages and rigid firing regulations are manifold. First, wage employment becomes attractive, thereby increasing the opportunity cost to become an entrepreneur. Secondly, limitations such as hiring and firing inflexibility can have severe impacts on a corporation trying to grow or to develop a business culture, often through trial and error, that fits with the overall vision and strategy of the company. Finally, high minimum wages means expensive labour and possibly a limiting barrier for a start-up. Thus, the end result of strict labour legislation is constrained levels of entrepreneurial activity.

Social and Health Security

Social security benefits, including health care, pensions, and unemployment benefits, can serve as entry barriers if they are reduced or eliminated as a result of becoming an entrepreneur. Social security policies that put entrepreneurs and wage-labourers on equal footing in terms of qualifying for benefits can neutralise any discrimination that could otherwise have a negative effect on the amount of potential entrepreneurs pursuing opportunities.

Income Taxes

High levels of personal income tax reduce the potential financial benefits from starting a business, making it more difficult to reach the cost-benefit equilibrium at which the opportunity becomes worthwhile to pursue. Policy initiatives lowering income taxes are therefore likely to induce a greater number of potential entrepreneurs to engage in entrepreneurial activities.

Business Taxes and Fiscal Incentives

While corporate taxes do not play a central role for new firms with little or no profit subject to taxation, they will eventually

have a significant impact on the profits for high-growth firms. Furthermore, as globalisation continues to develop, corporate taxation will become a central factor for companies choosing the extent to which they will locate operations abroad. Fiscal incentives can lower entry barriers through financial incentives or support, tax exemptions or rebates, which make more potential entrepreneurs willing to engage in entrepreneurial activity. However, fiscal incentives are a delicate political issue in some countries, and their long term benefits continue to be questioned.

Capital Taxes

Capital taxes also have a direct impact on the supply of capital. High taxation levels reduce potential investment rewards, thereby discouraging investments in companies whether new or existing. Policy initiatives reducing capital taxation thus increase financial sources. Some countries also offer special tax incentives for investments in new firms intended to improve the number of business angels.

Wealth and Bequest Taxation

Wealth and bequest taxes impact directly the supply of early stage investment capital. High taxation levels affect negatively the potential supply of liquidity among individuals, which then limits the number and size of investments made by business angels, friends or family. Policy initiatives reducing the wealth and bequest tax rates would enlarge the potential amount of seed and early-stage capital.

Policies affecting culture

Risk attitude in society

Many people associate entrepreneurship with risk taking although the links are not clear.

Attitudes towards entrepreneurs and desire for business ownership

Understanding the motivation behind the few entrepreneurs with visions for creating high-growth and global enterprises is difficult. It is furthermore a very challenging and slow process trying to fuel interest in entrepreneurship. Governments can try to enhance the attitudes towards entrepreneurship by implementing entrepreneurship awards and opinion campaigns.

Entrepreneurial education (mindset)

Entrepreneurship education has become an important component in many countries' attempts to affect the mindset of people, so they become more entrepreneurial. This type of education is not aimed at teaching specific skills that are relevant for entrepreneurship but more introducing the concept of entrepreneurship, its importance for society, and some of the key capabilities of entrepreneurs like pro-active.

Annex 2 — Overview of available indicators

The quality assessment of indicators is based on a simple quality framework that draws on the experiences of the OECD, Eurostat and the US Key Indicator Project (OECD, 2003; Wallman et al, 2004; Munoz, 2004). The quality framework has three dimensions: relevance, accuracy and availability. Each indicator is evaluated by grading it for each dimension and by an *overall assessment*.

Relevance

The relevance of an indicator is a qualitative assessment of the value contributed by the indicator. That is, the evaluation depends on the proximity between what the indicator measures and the framework condition it is supposed to measure. It is desirable for the indicator to be as close as possible to the framework condition it is intended to measure (Table A1).

Table A1: Assessment of Relevance

The Indicator's Proximity to the Framework Condition it is Supposed to Measure	Direct Measure	Proxy Measure
Mark	A	B

An example is the indicator labelled Barriers to Competition. Here the level of legal barriers to entry and number of antitrust exemptions is a direct measure of the level of barriers to competition in existing markets.

Relevance has an additional dimension. If an indicator is applied as a measure for a specific policy, it is useful to know whether a policy initiative has a direct or indirect impact on the indicator (Table A2).

Table A2: Assessment of Policy Indicator Typology

Policy initiatives' impact on indicator	Direct impact	Indirect impact
Mark	A	B

For example, for Barriers to Competition changing formal regulation concerning entry barriers and antitrust exemptions will have a direct impact on the size of the barriers to competition.

Accuracy

The accuracy of an indicator is the degree to which the indicator correctly estimates or describes the quantities or characteristics it is designed to measure. Accuracy has two dimensions: data collection method and degree of cross-country standardisation.

a) Data Collection Method

The data collection method is sound if data correctly estimates or describes the quantities or characteristics that it is designed to measure. Thus, accuracy based on the data collection method refers to the closeness between the values provided and the (unknown) true value. It is desirable for the value of the indicator to be as close as possible to the unknown, true value.

Major sources of error in data collection include coverage, sampling, non-response, response, processing and problems in dissemination. Addressing these standard problems is common for national statistical offices and international governmental institutions. Data from these sources should not suffer, in general, from these problems, whereas data from other sources should be evaluated on a case-by-case basis.

The appraisal of accuracy is based on the method used in collecting the data. Almost all indicators are based on surveys, polls or censuses. This framework distinguishes between three types: fact-based, action-based and opinion-based surveys.

- Fact-based surveys relate to easy quantifiable aspects, in which different people would give the same response to a question. The OECD Regulatory Database is an example of this type because respondents are asked about whether or not a country has a given regulation.
- Action-based surveys concern issues where respondents are asked if they have performed a given action within a given time period or not. The European Community Innovation Survey is an example of this type of survey. In this survey, firms are asked whether they have introduced new or technologically improved products or processes on the market during the last year.
- Opinion-based surveys deal with questions asking for a subjective evaluation of a given aspect of the economy. The World Economic Forum's Executive Survey is an example of this type of survey. It asks executives about their opinion of the functioning and the quality of various aspects of the economy.

The accuracy of data collection methods can be evaluated as very good, good, or acceptable (Table A3).

Table A3: Assessment of Accuracy

Data Collection Method	Very good	Good	Acceptable
Mark	A	B	C

These scores can be clarified as follows:

- Very good: the indicator originates from national statistical offices or international government institutions; or the indicator stems from a fact-based survey.
- Good: the indicator comes from an action-based survey.
- Acceptable: the indicator comes from an opinion-based survey.

b) Cross-country Comparability

Whether an indicator is comparable across countries requires a consideration of the data collection method used

across countries. For example, an indicator is comparable if the same question is asked in all countries in the same way and by the same means. Naturally, it is desirable to have the highest degree of comparability across countries (Table A4).

Table A4: Assessment of Cross-country Comparability

The indicator is cross-country comparable	Fully comparable	Comparable to some extent
Mark	A	B

Availability

The concept of availability relates to the accessibility of a given indicator in various countries and for a given time frame. Clearly, it is desirable to have data from as many countries as possible (Table A5). In addition, an indicator available beyond the initial benchmark year is better than one that is not available beyond that year (Table A6).

Table A5: Assessment of Availability across Countries

The share of OECD countries for which the indicator is available	100 – 76 %	75 – 50 %
Mark	A	B

Table A6: Assessment of Availability over Time

The indicator is available beyond the initial benchmark year	Yes	No
Mark	A	B

Overall Quality Assessment

The overall quality assessment is divided into three categories: good, acceptable and questionable (Table A7).

Table A7: Overall Evaluation

Name of indicator	Good	Acceptable	Questionable
Indicator A	A	B	C

Clarification of the three indicator score categories:

- Good (A): at least 5 As and no Cs
- Acceptable (B): at least 3 As and no Cs
- Questionable (C): less than 3 As or one or more Cs.

Evaluation of Indicators

57 indicators are included in the latest collection and evaluation of indicators (Hoffmann, 2006). Most indicators are available for the regulatory framework (Table A8).

Table A8: Overall Quality Assessment of Available Entrepreneurship Indicators

Indicator	Overall Grade	Relevance		Accuracy		Availability	
		Relevance	Policy Relevant	Data Collection	Comparability	Across Countries	Over time
Access to R&D and technology							
University/industry, research collaboration	C	A	B	C	A	A	A
Technological co-operation	C	A	B	C	A	A	A
Access to capital							
Extent of guarantees for SMEs	C	B	A	B	A	B	B
Private credit	A	A	B	A	A	A	A
Interest rate spread	A	B	B	A	A	A	A
Cost to create collateral	A	B	A	A	A	A	A
Country credit rating – 2.3.04/418	C	B	B	C	A	A	A
Venture capital – early stage	A	A	B	A	A	A	B
Venture capital – expansion stage	A	A	B	A	A	A	B
Capitalization of secondary stock market	A	A	A	B	A	A	B
Newly listed companies in secondary stock market	A	A	A	B	A	A	B
Capitalisation of primary stock market	A	A	A	B	A	A	A
Turnover in primary stock market	A	A	A	B	A	A	A
Revenue from bequest tax	A	A	A	A	A	A	A
Revenue from net wealth tax	A	A	A	A	A	A	A
Top marginal bequest tax rate	B	B	A	A	A	B	B
Taxation of dividends – top marginal tax rate	B	B	A	A	A	A	B

Table A8: Overall Quality Assessment of Available Entrepreneurship Indicators *(cont.)*

Indicator	Overall Grade	Relevance		Accuracy		Availability	
		Relevance	Policy Relevant	Data Collection	Comparability	Across Countries	Over time
Taxation of dividends – top marginal tax rate for self-employed	B	B	A	A	A	A	B
Taxation of stock options	B	B	A	A	A	B	B
Taxation of capital gains on shares – short term	B	B	A	A	B	A	B
Taxation of capital gains on shares – long term	B	B	A	A	B	A	B
Capabilities							
Claims on a bankrupt's assets – length of time	C	B	A	A	B	B	B
Entrepreneurship education at primary & secondary levels	C	B	B	C	A	A	A
Entrepreneurship education at higher levels	C	B	B	C	A	A	A
Quality of management schools	C	B	B	C	A	A	A
Government programs	C	B	B	C	A	A	A
Market conditions							
Procurement regulation	C	B	B	A	A	B	B
Barriers to competition	A	A	A	A	A	A	B
Public ownership	A	A	A	A	A	A	B
Public involvement in business operation	A	A	A	A	A	A	B
Export credits and insurance	C	B	B	C	A	A	A
Regulatory framework							
Highest marginal income tax plus social contributions	A	A	A	A	A	A	A
Average income tax plus social contributions	A	A	A	A	A	A	A
SME tax rates	A	A	A	A	A	A	B
Taxation of corporate income revenue	A	A	A	A	A	A	A
Actual cost to close a business	A	B	A	B	A	A	A
Actual time to close a business	A	B	A	B	A	A	A
Number of procedures for starting a business	A	A	A	A	A	A	A
Number of days for starting a business	A	A	A	A	A	A	A
Costs required to start a business	A	A	A	A	A	A	A
Regulatory and administrative opacity – index	A	A	A	A	A	A	B
Enforcing contracts – number of procedures	A	A	A	A	A	A	A
Enforcing contracts – time	A	A	A	A	A	A	A
Minimum of capital required to Start Business	A	A	A	A	A	A	A
Enforcing Contracts – cost in percentage of debts	A	A	A	A	A	A	A
Flexibility of hiring – index	A	A	A	A	B	A	A
Flexibility of firing – index	A	A	A	A	B	A	A
Rigidity of hours index	A	A	A	A	B	A	A
Number of administrative procedures when recruiting first employee	A	A	A	A	A	A	B
Number of administrative procedures when recruiting additional employee	A	A	A	A	A	A	B
The costs of firing	A	A	A	A	B	A	A
Entrepreneurial culture							
Cultural and social norms	C	A	B	C	A	A	B
Entrepreneurial motivation	C	A	B	C	A	A	B
Self-employment preference	C	A	B	C	A	B	A
'The wish to own one's own business'	C	A	B	C	A	B	A
Desirability of becoming self-employed	C	A	B	C	A	B	A
Proclivity to take risk	C	A	B	C	A	B	A

Source: Sources/links for the indicators can be found in Hoffmann (2006)

Defining Entrepreneurial Activity: Definitions Supporting Frameworks for Data Collection

3

Defining Entrepreneurial Activity: Definitions Supporting Frameworks for Data Collection

Nadim Ahmad and Richard G. Seymour ([1])

Background

In September 2006, the OECD launched a new Entrepreneurship Indicators Programme (EIP) to build internationally-comparable statistics on entrepreneurship and its determinants, whose aim is to create a durable, long-term, programme of policy-relevant entrepreneurship statistics. As such, the work involves developing standard definitions and concepts and engaging countries and international agencies in the collection of data.

The challenge for the EIP therefore is to define entrepreneurial activity in a manner that will enable valid indicators to be collected and compared across countries, allowing analysts and policy-makers to better understand the factors that influence the rate and type of entrepreneurial activity, as well as the outcomes or impacts of entrepreneurship, especially its contribution to productivity, wealth and employment creation.

This challenge is made all the more demanding because of the considerable confusion that exists in the way that people use the term entrepreneurship. Although the function of the entrepreneur is probably as old as the institutions of barter and exchange (Hébert & Link, 1988), there is no widely-accepted definition of the term 'entrepreneurship' (Hornaday, 1992, Ucbasaran, Westhead, & Wright, 2001, Watson, 2001).

Indeed, even the OECD itself has contributed to the confusion since virtually every study that has focussed on entrepreneurship has presented a different definition of the term. For example, in an OECD Economic Survey in 1997, it was defined as 'the dynamic process of identifying economic opportunities and acting upon them by developing, producing and selling goods and services'. In 'Fostering Entrepreneurship', it was defined as '…the ability to marshal resources to seize new business opportunities…'. In a 2001 publication on Youth Entrepreneurship, the term was equated with self-employment: '… an entrepreneur is anyone who works for himself or herself but not for someone else…'. Finally, another 2001 publication entitled Drivers of Growth, referred to, 'The concept of entrepreneurship generally refers to enterprising individuals who display the readiness to take risks with new or innovative ideas to generate new products or services.'

Many definitions have their genesis in a philosophical perspective (top-down approach) with little concern for measurement. This approach continues today, even in policy-oriented papers that discuss a concept of entrepreneurship without attempting to represent or measure it using concretely defined statistics or indicators. Other papers bypass the discussion of entrepreneurship definitions altogether and simply equate entrepreneurship to a specific empirical measure (bottom-up approach). Not surprisingly, the measures selected are those based on the most readily available statistics, for example the numbers of self-employed, and only rarely do authors attempt to justify or explain how the measures represent 'entrepreneurship'.

Our approach is different in that it looks at the process from both a bottom-up approach, with an eye to measurement, and a top-down approach that ensures relevance. Indeed the necessity of this overall approach is perhaps best summed up by the economist Peter Kilby (1971) who compared those who study entrepreneurship to characters in Winnie The Pooh hunting for the mysterious and elusive Heffalump. Like the economists and scholars, familiar with entrepreneurs and their contribution to economic growth, and who have attempted over the years to define an entrepreneur, the hunters in 'Winnie The Pooh' all claimed to know about the Heffalump but none could agree on its characteristics.

In this sense one can describe our approach as bringing together the most important characteristics of the Heffalump that are generally agreed on by most academics/policy makers/analysts, whether those characteristics have been formulated from a bottom-up or top-down approach.

The Top-Down Approach

The lack of a single definition of 'entrepreneurship' is partly due to the differentiated traditions within the field of entrepreneurship research, including: anthropology (for example, de Montoya, 2000, Firth, 1967, Fraser, 1937), social science (see for example Swedberg, 1993, Waldringer, Aldrich, & Ward, 1990, Weber, 1898/1990), economics (including Casson, 2003, Kirzner, 1973, Knight, 1942, Schumpeter, 1934, Shane, 2003, von Hayek, 1948, von Mises, 1949/1996) and management (for example, Drucker, 1985, 1999, Ghoshal & Bartlett, 1995).

The French economist Richard Cantillon ([2]) is generally accredited with being the first to coin the phrase in the context of what we view today as entrepreneurship in about 1730. Loosely, he defined entrepreneurship as self-employment of any sort, and entrepreneurs as risk-takers, in the sense that they purchased goods at certain prices in the present to sell at uncertain prices in the future. Many eminent economists and scholars have elaborated on Cantillon's contribution, including Adam Smith, Jean Baptiste Say, Alfred Marshall, Joseph Schumpeter, Israel Kirzner and Frank Knight, as shown in Table 1 below which also succinctly reveals the extent of differences.

Differences are further complicated by the proliferation of 'sub-categories' of entrepreneurship research, which introduce additional terminology including: 'corporate entrepreneurship', 'corporate venturing', 'intrapreneuring', 'internal entrepreneurship', and 'venturing' (Sharma & Chrisman, 1999).

([1]) Nadim Ahmad, Head of Division, OECD; Richard Seymour, The University of Sydney, Australia. The chapter was previously published by the OECD.

([2]) The word entrepreneur itself derives from the French verb 'entreprendre', meaning 'to undertake'.

Table 1: A superficial review of extant definitions

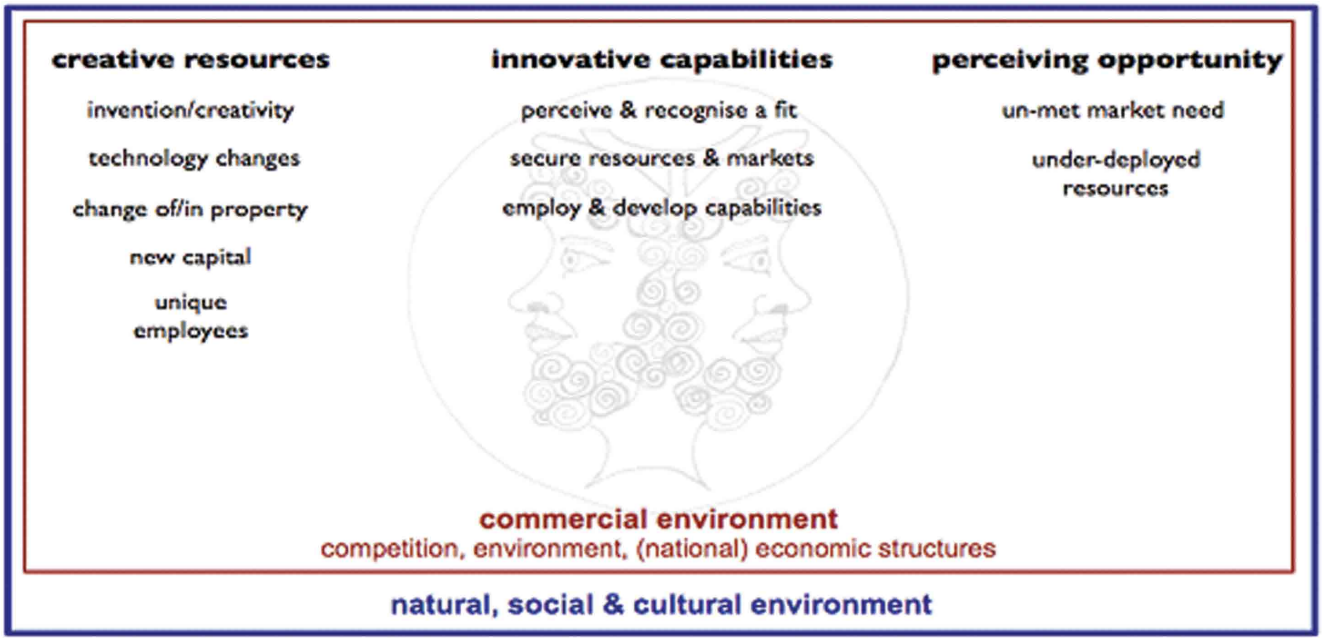
Essence of definition	Publication
Entrepreneurs buy at certain prices in the present and sell at uncertain prices in the future. The entrepreneur is a bearer of uncertainty.	Cantillon, 1755/1931
Entrepreneurs are 'pro-jectors'.	Defoe, 1887/2001
Entrepreneurs attempt to predict and act upon change within markets. The entrepreneur bears the uncertainty of market dynamics.	Knight, 1921, 1942
The entrepreneur is the person who maintains immunity from control of rational bureaucratic knowledge.	Weber, 1947
The entrepreneur is the innovator who implements change within markets through the carrying out of new combinations. These can take several forms: • the introduction of a new good or quality thereof, • the introduction of a new method of production, • the opening of a new market, • the conquest of a new source of supply of new materials or parts, and • the carrying out of the new organisation of any industry.	Schumpeter, 1934
The entrepreneur is always a speculator. He deals with the uncertain conditions of the future. His success or failure depends on the correctness of his anticipation of uncertain events. If he fails in his understanding of things to come he is doomed…	von Mises, 1949/1996
The entrepreneur is co-ordinator and arbitrageur.	Walras, 1954
Entrepreneurial activity involves identifying opportunities within the economic system.	Penrose, 1959/1980
The entrepreneur recognises and acts upon profit opportunities, essentially an arbitrageur.	Kirzner, 1973
Entrepreneurship is the act of innovation involving endowing existing resources with new wealth-producing capacity.	Drucker, 1985
The essential act of entrepreneurship is new entry. 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 & Dess, 1996
The field of entrepreneurship involves the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them.	Shane & Venkataraman, 2000
Entrepreneurship is a context dependent social process through which individuals and teams create wealth by bringing together unique packages of resources to exploit marketplace opportunities.	Ireland, Hitt, & Sirmon, 2003
Entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organisation.	Commission of the European Communities, 2003

The chronology of the table reveals that it was not until Joseph Schumpeter's definition of an entrepreneur in 1934 that the more modern interpretation entered the mainstream. Schumpeter defined entrepreneurs as innovators who take advantage of change, including: (i) the introduction of a new (or improved) good; (ii) the introduction of a new method of production; (iii) the opening of a new market; (iv) the exploitation of a new source of supply; and (v) the re-engineering/organization of business management processes. Schumpeter's definition therefore equates entrepreneurship with innovation in the business sense; that is identifying market opportunities and using innovative approaches to exploit them.

Although Schumpeter's definition embodies a characteristic of entrepreneurship that is widely recognized today, namely, innovation, it still retains some ambiguity that has meant the debate regarding a definition of entrepreneurs/hip continues. To some extent, this reflects the definition of innovation, in particular whether it relates to incremental or quantum changes. Moreover, unlike the Knight perspective, for example, the Schumpeterian entrepreneur need not be a risk taker or business owner. Indeed some (Drucker, 1985) have argued that entrepreneurship reflects merely the creation of a new organization and that any individual who starts a new business venture is an entrepreneur; even those that fail to make a profit. Although, it could be argued that this corresponds to Schumpeter's 'opening of a new market'.

From Table 1, a number of themes emerge, including the risk-taking role of entrepreneurs; the role of innovation or the creation of something new (whether that be a process, product, market or firm); the arbitrage role of the entrepreneur; and the process of change, emergence, and creation (Bruyat & Julian, 2000, Hartmann, 1959, Schumpeter, 1934, Weber, 1947), with activity differentiated from the relatively 'static' management ('Leitung', Hartmann, 1959).

Figure 1: Entrepreneurial activity in the commercial and wider environment



Source: Authors

Organising these concepts graphically, Figure 1 invokes the two-faces of the Roman god Janus to emphasise that the entrepreneur is simultaneously looking back to the resources (and combining them in new and creative ways) *and* forward to markets (and perceiving new or unmet opportunities). The entrepreneur perceives and recognises a fit between the two, a process referred to as innovating. The entrepreneur's activities occur within a business context, which includes industry structures, competition, and national economic structures. This business context is impacted in turn by wider environmental considerations, which include the economic, political, legal, social, cultural, social, and natural settings. In undertaking such entrepreneurial activities, the entrepreneur is endeavouring to create value.

Returning to the various definitions we identify 3 themes: (a) enterprising human activity; (b) the assembly of unique bundles of resources, identification of market opportunities, and/or utilisation of innovative capabilities, and (c) the creation of value. These are now considered in turn.

a) Enterprising Human Activity

Returning to the earliest conceptualisations of the entrepreneur as the person 'undertaking' or 'projecting' into their future (Cantillon, 1755/1931, Defoe, 1887/2001). As noted by von Mises (1949/1996 pp. 290-91), the entrepreneur 'cannot evade the law of the market. He can succeed only by best serving the consumers. His profit depends on the approval of his conduct by the consumers.'

As well as recognising the conceptual importance of action, researchers have included the concept in their definitions of entrepreneurship (Gartner, 1985, Low & MacMillan, 1988, Lumpkin & Dess, 1996). A more appropriate conception is that from Stevenson and Jarillo (1990), who proposed entrepreneurship to be the study of why, how and what happens when entrepreneurs act. Understanding the organising process is one of the necessary elements of entrepreneurship: 'Entrepreneurs create new organizations through a dynamic process that involves such activities as obtaining equipment, establishing production processes, attracting employees and setting up legal entities' (Shane, 2003 p. 247)

b) Leveraging Creativity, Innovation and Identifying Opportunities

To organise the human activities, the analysis now explores the nature of entrepreneurial activities, organising the analysis according to resources, capabilities and markets introduced above.

Resources include access to: (i) physical capital such as property or plant and equipment, (ii) financial capital such as debt finance or equity, and (iii) intangible resources such as intellectual property or technology. These resources can typically be bought and sold by firms or individuals. Changes in these resources can have dramatic implications for firm performance, with changes in these resources typically resulting from (i) creative inventions or discovery, or (ii) unusual and unique combinations of these resources such as venture capital funding.

In contrast, 'capabilities' include the human and social expertise required to leverage a firm's resources and bring them to market. In an entrepreneurial context, these innovative capabilities include the perception and recognition of a match

between creative resources and market opportunities. This may include novel and skilled capabilities as well as unique or unusual social networks and connections.

The perception and discovery of market opportunity is an important focus of entrepreneurship research (Ardichvili, Cardozo, & Sourav, 2003, Gaglio & Katz, 2001, Hills, Lumpkin, & Singh, 1997, Kirzner, 1997, Shane & Venkataraman, 2000), as it is one of the most important abilities of successful entrepreneurs (Ardichvili, Cardozo, et al., 2003) and is one of the core intellectual questions for researchers (Gaglio & Katz, 2001). Market entry need not result in the founding of a new firm or the use of market mechanisms, however 'it does require the creation of a new way of exploiting the opportunity (organizing) that did not previously exist' (Shane, 2003 p. 7). This organising is a process (not a state).

Two influential perspectives on entrepreneurship stem from Joseph Schumpeter and Israel Kirzner: Schumpeter (1934) viewed entrepreneurship as creating market disequilibrium from its original equilibrium position by generating innovations, i.e., as disruptive. This disruptive entrepreneurship should not be interpreted as destroying and replacing industries with new ones but as bringing change to the market to a greater or lesser degree.

Given the different ways entrepreneurs fulfil their role in the market; it can be argued that Kirznerian and Schumpeterian entrepreneurs could both work simultaneously, as the former engage in arbitrage and the latter in innovation.

c) The Creation of Value

The third theme emphasised in the literature is 'value creation'. This theme is most prevalent in the management stream of literature (refer for example to Ireland, Hitt, & Sirmon, 2003, Drucker, 1985). The entrepreneur creates value in the sense that their entrepreneurial activity results (sometimes) in sustained competitive advantage and super-normal returns for a number of parties. Innovators (entrepreneurs) can enjoy 'temporary monopoly power' (Baumol, 1993 p. 6). As reviewed in Walker and Brown (2004), entrepreneurs have been shown to value a number of non-financial measures of success, including autonomy, job satisfaction, the ability to balance work and family. These are all subjectively and personally defined, however can have a major impact on the decisions and exchanges involved in the creation and exploitation of opportunities.

Similarly, at the firm and national levels, value can include economic, social or cultural significance. Economic value would be considered in relation to an activity's pecuniary, or dollar, output and include concepts such as economic growth, productivity growth etc. Alternatively, an entrepreneurial undertaking can create social value such as personal relationships, poverty reduction, enhancement of job satisfaction or the creation of better jobs. A third value that could be considered in addition to these two extrinsic values is cultural value, which relates to the development of creative or cultural capital.

Summarising these points and the top-down approach in general, the definitions commonly used in the literature broadly converge on the following points: Entrepreneurship is about identifying and acting upon (enterprising human activity) opportunities that create value (be that economic, cultural or social). Typically, entrepreneurial activities require the leveraging of resources and capabilities through innovation, but the opportunities themselves always relate to the identification of either new products, processes or markets.

The Bottom-up Approach

The bottom-up approach bases itself on the measureable characteristics that have commonly been used at a national or policy level, in practice, to measure entrepreneurship. It recognises that although the Heffalump is a relatively elusive beast, from a policy perspective at least, it remains broadly understood. Indeed when policy makers refer to entrepreneurship and entrepreneurs they typically do so in the context of identifying the phenomenon, and the individuals involved, as being factors that influence some predetermined policy goal, such as wealth of job creation or income inequality.

Our approach here is to focus on definitions that facilitate these policy goals, and more specifically provide the basis for indicators that facilitate evidence based policy making. In that sense it is important to recognise an important point. The variety of policy goals and the way in which they can be measured (jobs created, wealth created) immediately points to the notion that entrepreneurship manifests itself in many ways and, so, is a multi-faceted phenomenon that cannot be measured with a solitary indicator but rather a basket of indicators. Moreover it is important to note too that our focus is on defining entrepreneurship from an economic perspective and so we will make no attempt to provide definitions that necessarily embody social entrepreneurship, important as this field is.

Not all concepts evidenced in the 'top-down' approach are easily measurable, with the concept of 'risk-taking' being a case in point: The idea of the entrepreneur as risk-taker, or bearer of uncertainty, as defined by Cantillon and Knight in their earlier thinking, is too broad to be a useful measure of entrepreneurship, at least for our purposes and indeed those of policy makers. Risk takers for example, or bearers of uncertainty, include money lenders, banks etc, and the lending of money, although of itself important to the entrepreneurial process as a form of funding, does not seem in and of itself to be entrepreneurial. The arbitrage view espoused by Walrus and Kirzner appears similarly deficient in this context, particularly given some of the key arbitrageurs in today's modern economies (traders on the money markets). Definitions that reflect risk or arbitrage alone therefore do not stand up to scrutiny as being workable definitions, at least as far as the key policy targets are concerned (both current and potentially those of the future). The

idea of risk-taking however cannot be entirely overlooked. Our view however is that the notion of risk or indeed arbitrage is captured within the idea of doing something 'new'. Sometimes the entrepreneur for example creates the arbitrage situation by creating a new product or process for example, or takes a risk by entering a new market.

The OECD's Entrepreneurship Indicators Project (Ahmad and Hoffmann, see chapter 2 of this book) has built a framework for addressing and measuring entrepreneurship. This work describes and presents a framework that reflects both the determinants, outputs and most importantly manifestations (performance indicators) of entrepreneurship. It considers:

- employer enterprise birth rates;
- rate of high-growth firms based on employment growth and turnover growth;
- Gazelle rates based on employment and turnover;
- employer enterprise deaths.
- business churn (the addition of birth and death rates);
- net business population growth (a measure of births minus deaths);
- survival rates after 3 and 5 years,
- the number of firms aged 3 and 5 years old as a proportion of all firms with employees;
- the percentage of employees in 3 and 5 year old firms;
- the average size of 3 and 5 year old firms;
- business ownership rates;
- business ownership start-up rates;
- the value-added share of young firms, and the average productivity of births, deaths, small and young firms and their contribution to productivity growth, the innovation and export performance of small and young firms.

This list is not exhaustive nor do the indicators necessarily claim to explicitly measure neither entrepreneurship nor entrepreneurs per se. The indicators are, however, important and measurable proxies that paint a picture of entrepreneurial activity and need to be taken into account in developing a definition that attempts to embody them.

Policy-makers are typically interested in facilitating or encouraging the growth of entrepreneurship because it creates both economic and non-economic value. Some policy-makers will, for example, focus on entrepreneurship's contribution to economic growth. Others might focus on entrepreneurship's contribution to solving environmental problems or its contribution to social inclusion. Distilling some commonalities, and relating these to the idea of value creation, one can distil the following key elements from the list above:

- Entrepreneurship is characterised activity in new markets, processes and/or products, which in turn is characterised by the creation of new businesses.
- Successful entrepreneurial businesses, pre-existing or otherwise, typically enjoy higher growth than non- entrepreneurial competitors. There are, certainly, enormous numbers of failed businesses, with businesses frequently appearing and disappearing within a couple of years.
- Concomitant with the view that, at least some, high-growth enterprises reflect aspects of entrepreneurship is the idea that entrepreneurship can be manifested even in the absence of an entrepreneur. This creates an important distinction between Entrepreneurs and Entrepreneurial Activity. Where there are entrepreneurs there will always be entrepreneurial activity but it is important to note that the latter is not dependent on the existence of the former. This is important because individuals within businesses may demonstrate entrepreneurship without necessarily having a stake in the company. This means that all companies, whether owned by shareholders or trust funds for example and managed/run by salaried directors can still be entrepreneurial and the way they operate their businesses can be of benefit to other businesses owned and managed by entrepreneurs.
- Following on from this, is the idea that entrepreneurs and entrepreneurship are not concepts that relate exclusively to small businesses or the self-employed, as many studies, through expedience, have often assumed. Our view is that entrepreneurship as a definable phenomenon reflects certain characteristics that relate to the processes through which it is manifested and this is not uniquely the preserve of small companies or entrepreneurs, important though these are to the entrepreneurial process. Moreover it is important to avoid a definition that is possibly counter-productive from a policy perspective. Clearly, large companies can be entrepreneurial and it is important that these companies are not ignored when formulating entrepreneurship policies.
- Entrepreneurs are business owners, incorporated or otherwise.

Ultimately when references are made to entrepreneurship it is in relation to the idea that there is something different about entrepreneurial businesses that sets them apart from other businesses. Policy makers are not, for example, interested in merely encouraging the creation of new businesses as the be all and end all. Their interest is in creating successful and sustainable entities (high-growth companies and gazelles) and indeed the creation of a business environment (competitive) that nurtures and stimulates the growth of more productive companies in general (hence the encouragement of business creations). No country, for example, could ever target increased levels of self-employment indefinitely; businesses need employees to grow and to compete and clearly it would not be desirable for everybody to become self-employed in the truest sense of the word.

We re-emphasise that the indicators described above are proxies for entrepreneurship. What policy makers are typically interested in, and indeed what the most common definitions embody, as shown below, is that entrepreneurial businesses

are in the business of doing something different. This, from the bottom-up perspective, is what the most commonly used indicators try to capture. Clearly not all businesses are entrepreneurial despite the fact that they take risks, create products, employment, revenue and taxes. If entrepreneurship studies were just about businesses and the people who owned or ran them, entrepreneurship would just be a euphemism for the general business environment. Indeed, not all new businesses are necessarily entrepreneurial. But clearly, the indicators, proxies or not, provide an indication of the types of definitions needed for both entrepreneurs and entrepreneurship.

The indicators described in the framework for entrepreneurial performance therefore should be seen as tools that improve our understanding of 'pure' entrepreneurship and indeed can be viewed as measures that have loose or strict interpretations of 'new' and 'new' can reflect 'new products, processes or markets'. All new businesses or increases in self-employment for example could be considered as creating new markets if one takes a liberal interpretation of 'new' for example. Moving further down the spectrum one could equally argue that indicators of high-growth enterprises, which are more likely to have demonstrated 'pure' entrepreneurship, take us closer to a stricter definition of 'new'. But one still needs to recognise that all along the spectrum the indicators are merely proxies, For example some high-growth firms' growth will not reflect entrepreneurship at all, and indeed, it may reflect the very antithesis of entrepreneurship, for example, firms in monopoly positions with rapid growth.

In summary, therefore, the list of indicators points to the following: entrepreneurs, and what differentiates them from other business owners, are in the business of doing something different, whether that be through identifying new products, processes or markets that increase the likelihood of success, employment, productivity and efficiency of their company. Entrepreneurs are also involved in the day-to-day running of the company to differentiate them from mere financiers such as business angels, shareholders, silent partners etc. An entrepreneurial company is one that displays the characteristics of doing something different, (new products, processes, markets) but does not necessarily need to have an entrepreneur at the helm. Employees, as agents of entrepreneurial businesses, can also be entrepreneurial. Entrepreneurship is also about doing. The creation of a new idea is an important pre-cursor to the creation of an entrepreneur or entrepreneurial firm but entrepreneurialism is not just about thinking. There needs to be some concrete manifestation of the idea and this is reflected in the creation of a business or the embodiment of the idea within a business. That is not to say that indicators reflecting the numbers of creators of ideas are not important. Clearly they are as they provide an important indication of the potential for entrepreneurs and entrepreneurship but one needs to recognise that indicators such as these will be rife with problems for international comparability, reflecting cultural differences as much as real differences in entrepreneurial potential.

Formal Definitions

The concurrent development of a definition with the development of the framework reflects a pragmatism and a need to meet policy-makers' needs. The top-down approach has emphasised the importance of enterprising human activity that creates value through innovative products and processes or new markets. The bottom-up approach reinforces this message, reflecting for example the importance of: the creation of new markets (e.g. enterprise births); the creation of value (e.g. high-growth enterprises); and, the pool of entrepreneurs (e.g. business ownership rates).

Drawing on the above analysis and arguments, entrepreneurship is about identifying and acting upon (enterprising human activity) opportunities that *create value* (be that economic, cultural or social). Typically, entrepreneurial activities require the leveraging of resources and capabilities through *innovation,* but the opportunities themselves always relate to the identification of either new products, processes or markets. This points to the definitions of the entrepreneur, entrepreneurship, and entrepreneurial activity as in the previous chapter.

The definitions suggest that any indicator should include reference to the value created by entrepreneurial activity, the changes in resources, capabilities and opportunities confronting an entrepreneur, and the business and wider environments that will impact activity. The definitions are proposed to guide the collection and interrogation of data sets.

Conclusions

Note that these definitions differentiate entrepreneurial activity from 'ordinary' business activity, and additionally: (i) indicate corporations and other enterprises can be entrepreneurial, though only the people in control and owners of organisations can be considered entrepreneurs, (ii) emphasise entrepreneurial action is manifested rather than planned or intended, (iii) do not equate activity with the formation of any particular 'vehicle', whether formal such as incorporated entity or informal, though they do allow measurement to reflect particular vehicles as embodying activity, and (iv) although defined in the context of businesses they incorporate economic, social and cultural value created. Addressing each of these issues in turn:

The definitions recognise that many companies can attempt to instil an entrepreneurial spirit in their employees and encourage them to be creative and innovative. Employees may be urged to 'take ownership' of particular components of the company's work and be remunerated accordingly for success. The definitions do, however, recognise a distinction between the entrepreneur, who is a business owner, and entrepreneurial activity, and so, a business without an entrepreneur at the helm can continue to be entrepreneurial, as can its employees.

We deliberately do not set out to define what 'new' is or how it should be defined. As discussed above the definition of new is in some respects an issue of convention. The indicators described

in the OECD's framework all implicitly focus on different interpretations of what 'new' is, and this, perhaps surprisingly, is one of the strengths of the framework and the definitions, since ultimately it is the role of policy makers to determine the policy goals, and so the types of entrepreneurship and entrepreneurs they wish to foster.

Despite this 'vagueness', the definition also lends itself well to international comparability since it provides the umbrella for comparable indicators to be produced across countries that can be developed in a harmonised way, reflecting different definitions of new. Moreover it is also very easy to define 'new' in a more precise way as the basis for more focussed analyses and surveys. One could for example adopt the definitions set out in the OECD's 'OSLO Manual'.

Secondly, the definitions proposed do not include those 'considering' entrepreneurial activity, nor do they differentiate between entrepreneurs in new or old ventures. The success of an entrepreneur's undertaking is based on the strength of their perceived opportunity, innovative capabilities and creative resources. It is not based on their intentions or on a supply/demand equation for entrepreneurs. Such phenomena would be considered in relation to cultural or socio-cultural analysis, which may indeed impact entrepreneurial activity indirectly. This could be contrasted with the Index of Total Entrepreneurial Activity (TEA-index) (Reynolds, Bosma, Autio, Hunt, De Bono, Servais, Lopez-Garcia, & Chin, 2005), which measures the ratio of people classified as entrepreneurs to the total adult population. The criteria for classification of 'entrepreneur' is based on whether a respondent is planning to, or owning and managing a business aged between 0 and 42 months (Minniti, Bygrave, & Autio, 2006).

Thirdly, there is no particular 'vehicle' that is required for entrepreneurial activity to be 'undertaken'. Given technology and new business models, even an independent 'entrepreneur' without employees can innovate, implement new products and processes and 'grow'. Furthermore, the definitions recognise that entrepreneurial activity can be associated with organic as well as acquisitive decisions. The definitions do, however, allow different countries to have different objectives for entrepreneurship policy, for example encouraging self-employment, the development of the formal economy, or development of new corporations.

Fourthly, although the definitions reflect the fact that entrepreneurial activity does not result in economic impacts alone, there has been a conscious decision to orient the framework towards the economic policy interests of the OECD, EU and other countries. As has been alluded to in the above review, there are many 'types' of entrepreneurial activity, from corporate venturing to social change enterprises. Value created by entrepreneurs can be captured by the entrepreneur (either a lot or a little) and/or exchanged or shared with others (for example with employees, stakeholders and society). Although pecuniary data are often the simplest and most widely available measures available, the definitions do not limit the value considerations to economic outputs alone. EIP's focus on business-related entrepreneurship does not imply that other forms of (social) entrepreneurship are unimportant.

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4

Developing Entrepreneurship Indicators

Developing Entrepreneurship Indicators

Mariarosa Lunati ([1])

Measuring entrepreneurship matters

The promotion of entrepreneurship and the support to small enterprises have been part of the anti-crisis measures in virtually all OECD countries, as highlighted by reviews of the main objectives and targets of stimulus packages in the OECD area. ([2]) The rationale rests on the role of entrepreneurship and business dynamics as drivers of economic growth and job creation: the creation of new businesses is associated to productivity improvements, through the replacement of dying or inefficient businesses, and comes along with the introduction of innovation in the form of new products, services and processes. The analysis currently conducted at the OECD on the New Sources of Growth recognises that 'facilitating entrepreneurial activity is essential: a dynamic process of firm creation and exit will facilitate resource reallocation to new sources of growth based on knowledge-based capital'. ([3])

If the role of entrepreneurship in economic development has entered the policy debate some decades ago, sound international evidence on the entrepreneurial phenomenon, its determinants and impacts is being produced at a slow pace, lacking reliable data for performing comparative analysis. It was to respond to the need of internationally comparable official statistics that the OECD-Eurostat Entrepreneurship Indicators Programme (EIP) was launched in 2007. By developing concepts and methodologies for the collection of harmonised indicators, and then establishing a database of comparable official statistics on entrepreneurship (e.g. business demography statistics), the programme has made an important contribution to fill the information gap in this domain. Certainly, there are reasons of satisfaction for the results achieved since the creation of the EIP; there are, however, also concerns for the on-going programme due to the difficulties in ensuring the annual update of the database and in expanding the range of indicators and the country coverage of the data collections.

This chapter presents an overview of the most recent activities of the programme, highlighting both the achievements and the problems for further developing the EIP (and even maintaining the results obtained so far). The scarcity of resources in National Statistical Offices to be allocated to the production of cross-country comparable business demography statistics combined to a rather low level of priority assigned to the collection of harmonised indicators of entrepreneurship seem to be at the origin of the difficulties in advancing the EIP. This chapter therefore invites a reflection on the needs, priorities and production processes of harmonised official statistics on entrepreneurship.

([1]) Head of Sector, OECD. Project Leader of the Joint OECD/Eurostat Entrepreneurship Indicators Programme. Chapter previously published as an OECD Committee paper.
([2]) See for instance OECD (2009), Policy Responses to the Economic Crisis: Investing in Innovation for Long-term Growth; and OECD (2009), The Impact of the Global Crisis on SME and Entrepreneurship Financing and Policy Responses.
([3]) See document 'New Sources Of Growth: Knowledge-Based Capital — Interim Project Findings' prepared for the Meeting of the Council at Ministerial Level, 23-24 May 2012.

Overview of activities of the OECD-Eurostat Entrepreneurship Indicators Programme (EIP)

The OECD-Eurostat Entrepreneurship Indicators Programme (EIP), jointly conducted by the OECD Statistics Directorate and Eurostat, is aimed at the development of policy-relevant and internationally-comparable indicators of entrepreneurship and its determinants, in order to support the analysis of entrepreneurship, notably for international comparisons. To that purpose, the programme has developed a conceptual framework and a methodology for the collection of harmonised entrepreneurship statistics. Three elements constitute the characterising features of the EIP. Firstly, the core set of entrepreneurship indicators collected by the programme consists of business demography statistics on the birth, death, survival and growth of enterprises (as distinct from other approaches to entrepreneurship measurement that focused, instead, on data on individuals). Secondly, the source to compute the core set of EIP indicators is the statistical business register maintained by the National Statistical Offices (NSOs). Thirdly, statistics for the harmonised database are produced directly by NSOs, according to an agreed methodology. ([4]) The direct involvement of NSOs in the production of the harmonised statistics makes a clear distinction from other existing international collections of entrepreneurship indicators.

Characteristics of the EIP

The OECD-Eurostat Entrepreneurship Indicators Programme has a number of characteristics that clearly distinguish its approach to the measurement of entrepreneurship:

- Focus on businesses rather than individuals: The EIP measures entrepreneurial performance primarily with data on businesses, differently from other existing programmes that focus on data on individuals.
- Conceptual framework: A distinction is made between indicators of entrepreneurial performance, entrepreneurial determinants (i.e. regulatory framework, market conditions, access to finance, knowledge creation and diffusion, entrepreneurial capabilities, entrepreneurial culture), and social and economic impacts of entrepreneurship.
- Harmonized definitions and methodology for the international data collection: The EIP has developed a statistical

([4]) See *Eurostat-OECD Manual on Business Demography Statistics*, http://ec.europa.eu/eurostat/product?code=KS-RA-07-010&mode=view

Manual covering the definitions and methodology for the calculation of the indicators.

- Concept of 'employer enterprise': The relevant statistical unit is considered the enterprise with a least one employee, as economically more significant than the non-employer firm.
- Use of business registers: The core EIP indicators of entrepreneurial performance are developed from business registers data, and not from ad-hoc surveys, censuses or business surveys.
- Direct involvement of NSOs in the production of the EIP indicators.

This chapter provides an update on activities undertaken by the EIP in 2011 and early 2012. It covers detailed information on the annual data collection, the preparation of the second edition of the publication *Entrepreneurship at a Glance*, the contribution to OECD horizontal work on Gender Equality in Education, Employment and Entrepreneurship, and the development of up-to-date indicators of entrepreneurship. Other EIP activities are described in a more synthetic manner.

Data collection

The core set of indicators for the EIP are collected as part of the data collection for the OECD Structural and Demographic Business Statistics (SDBS) database, which comprises three elements: Structural Statistics for Industry and Services (SSIS); Business Statistics by Size Class (BSC); and Business Demography (BD). Data for each of these components are collected as follows:

- For European Union countries and Norway, data are directly extracted from the on-line Eurostat database.
- For other OECD countries, data are collected by the mean of Excel questionnaires which are sent to NSOs on an annual basis.

In the framework of the EIP, the datasets BSC and BD are the most relevant. Table 1 reports information on the data collection for BSC and BD in 2011. Note that the BD statistics based on the concept of employer enterprise are specifically produced by NSOs for the EIP and are not part of an established collection among the structural business statistics typically available in a country.

In addition, Table 1 also includes information on two other collections conducted through questionnaires to NSOs: the Trade by Enterprise Characteristics (TEC) database (linking business register and trade statistics); and the new collection undertaken in the fall of 2011 for gathering harmonised statistics on women entrepreneurship (the methodology is presented below under 'Women entrepreneurship').

Table 1: Coverage of entrepreneurship data produced by National Statistical Offices

Country	Business statistics by Size Class (BSC)	Export by size class (TEC)	Business Demography-employer definition (BD)	Women Entrepreneurship Statistics	
				Population data: self-employment	Firm level data: enterprises owned by men/women
Australia	Yes	N/A	N/A	Yes, LFS data (8)	N/A
Austria	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Belgium	Yes	Yes	Yes	Yes, LFS data	N/A
Canada	N/A	Yes	Yes (6)	Yes, LFS data	N/A (9)
Chile	Yes (1)	N/A	N/A	Yes, LFS data	N/A (10)
Czech Republic	Yes	Yes	Yes	Yes, LFS data	N/A
Denmark	Yes	Yes	Yes	Yes, LFS data	N/A (11)
Estonia	Yes	Yes	Yes	Yes, LFS data	N/A
Finland	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
France	Yes	Yes	N/A	Yes, LFS data	N/A (12)
Germany	Yes	Yes	N/A	Yes, LFS data	N/A (13)
Greece	Yes	Yes, intra EU only	N/A	Yes, LFS data	N/A
Hungary	Yes	Yes	Yes	Yes, LFS data	N/A
Iceland	Yes	N/A	N/A	Yes, LFS data	N/A
Ireland	Yes	N/A	N/A	Yes, LFS data	N/A
Israel	Yes	No (5)	Yes	Yes, LFS data	N/A
Italy	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Japan	No (2)	N/A	N/A	Yes, LFS data	N/A (14)
Korea	Yes	N/A	N/A	Yes, LFS data	Complete establishment survey.
Luxembourg	Yes	Yes	Yes	Yes, LFS data	N/A
Mexico	Yes (1)	N/A	Yes (7)	Yes, LFS data	Economic Census data (15)
Netherlands	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
New Zealand	Yes	N/A	Yes	Yes, LFS data	Yes, BR data

Table 1: Coverage of entrepreneurship data produced by National Statistical Offices *(cont.)*

Country	Business statistics by Size Class (BSC)	Export by size class (TEC)	Business Demography-employer definition (BD)	Women Entrepreneurship Statistics	
				Population data: self-employment	Firm level data: enterprises owned by men/women
Norway	Yes	No ([5])	N/A	Yes, LFS data ([8])	Yes, BR data
Poland	Yes	Yes	N/A	Yes, LFS data.	Survey data ([16])
Portugal	Yes	Yes	Yes	Yes, LFS data	N/A
Slovak Republic	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Slovenia	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Spain	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Sweden	Yes	Yes	Yes	Yes, LFS data	Yes, BR data
Switzerland	No ([3])	N/A	Yes	Yes, LFS data	Survey data ([16])
Turkey	Yes	Yes	N/A	Yes, LFS data	N/A
United Kingdom	Yes	Yes	N/A	Yes, LFS data	N/A
United States	Yes	Yes	Yes	Yes, LFS data	N/A
Russia	Yes ([4])	N/A	N/A	N/A	N/A

([1]) Only manufacturing.
([2]) Data were provided in the past; the current update available at the OECD is 2007.
([3]) A limited range of variables was provided in past; the current update available at the OECD is 2005.
([4]) Data for two variables currently available; it is expected that the number of variables will expand.
([5]) The data collection and/or delivery ceased.
([6]) Data are provided only at 2 digit level of NAICS, making an accurate correspondence with ISIC Rev.3 or Rev.4 impossible.
([7]) Economic Census data.
([8]) Comparability issues related to the classification of the incorporated self-employed.
([9]) Available data from the *Survey on Financing of Small and Medium Enterprises* would allow producing indicators of women entrepreneurship.
([10]) Available data from the *Encuesta Longitudinal de Empresas* would allow producing indicators of women entrepreneurship.
([11]) The Danish business register, linked with data on individuals, can be used to produce the indicators.
([12]) Available data from the *Système d'information sur les nouvelles enterprises (SINE)* would allow producing indicators of women entrepreneurship.
([13]) Data from different sources (structural surveys, statistical business registers) allow the construction of the indicator on the number of enterprises owned by women and by men. However, the data only provide information on the number of persons employed as sole-proprietors (and not on the number of sole-proprietor enterprises) and not all size-classes are covered in all economic sectors.
([14]) Gender-disaggregated data are available only on the number of persons employed as sole-proprietors (and not on the number of sole-proprietor enterprises).
([15]) Data are available only for indicators on the number of enterprises owned by women and men with size and industry breakdowns, and only for 2008.
([16]) Gender-disaggregated data are available on number of births, survival and employment growth rates from representative surveys of new businesses. For Poland, it is not possible to distinguish employer and non-employer enterprises.

Notes: Yes = satisfactory; No = data delivery ended; N/A = not available.
Source: OECD.

The synoptic table above illustrates that problems of data availability exist for many OECD countries, especially for the 'employer business demography' indicators (13 countries do not participate in the collection); for others, the collection only covers a subset of the data requested by the EIP) and the new indicators on women entrepreneurship (e.g. only one third of the countries were able to contribute to some extent to the data collection). The main obstacle resides, often, in the scarcity of resources to be assigned to the production of 'employer business demography', including by gender, according to the requirements of the Eurostat-OECD Manual; only for some countries, the absence of a statistical business register is what prevents the computation of the EIP indicators.

Entrepreneurship at a Glance

To disseminate the results of the EIP, a new publication was designed in 2011. Entrepreneurship at a Glance presents the set of performance indicators developed by the EIP (i.e. entrepreneurship as measured by 'employer business demography' indicators) together with statistics on businesses by size class that set the general context to interpret the entrepreneurship indicators.

The publication also contains thematic chapters on specific conceptual and methodological issues in measuring entrepreneurship and its determinants and proposing sets of harmonised indicators to be implemented by countries. In 2011, two chapters presented, respectively: the EIP approach to measuring entrepreneurship, based on the use of business registers; and the measurement of green entrepreneurship. The 2012 edition also includes two thematic chapters, the first on measuring women entrepreneurship and the second on the use of business surveys to collect information on access to finance that complement data from Central Banks.

The feedback on the publication received by policy makers and researchers has been positive, although a broader coverage of statistics both in terms of countries and additional performance indicators (for instance, breakdowns by age and size) would better respond to the users' needs. The timeliness of the data is also an issue, as most of the data published in Entrepreneurship at a Glance are three to four year old compared to the publication year. In Europe, the question of shortening the production process of business demography indicators is currently being debated by Eurostat and the EU Member States.

Women entrepreneurship

The promotion of female entrepreneurship has become a high-level priority for G-20 policy makers, as stressed by the US Secretary of State Hillary Clinton during the 2011 Ministerial Council Meeting (MCM) of the OECD. The lack of comparable data on gender differences in entrepreneurship was identified as one of the most serious information gaps faced by policy makers who aim to unlock the economic potential of women. One of the main objectives of the EIP project is thus to develop a set of simple and relevant indicators, apt to describe international differences in the characteristics of women and men entrepreneurs, the number of businesses owned and controlled by women across countries, and the size, industrial specialisation and performance of these businesses. The approach for the development of indicators of women entrepreneurship relies significantly on the linkage of business register data with administrative records on individuals.

The first statistics produced through this project are presented in Entrepreneurship at a Glance 2012. Despite the current limits in the coverage of countries and economic activities, these statistics provide unique information on differences in entrepreneurial activity of men and women. The methodological work undertaken for this project can serve as a basis for further development of statistics on 'entrepreneurs'. Indeed, the linkage of business register data with administrative records on individuals can fill information gaps in other relevant policy areas, such as migrant or young entrepreneurship. Knowing more about the individuals who create new businesses is crucial to understand sources of differences in entrepreneurship across countries, and to identify barriers hindering employment creation and economic growth.

Methodological approach

As for the other EIP data collection, the project proposes novel and internationally harmonised use of existing data, so as to minimize the burden on statistical offices and enterprises. Two different sources of existing data are relevant for the production of statistics on women entrepreneurship: data from the labour force surveys and population censuses, and firm-level data from registers, surveys and economic censuses.

Among firm-level statistics, business registers are the preferred source, since they enable the production of yearly statistics and are more suited to the construction of dynamic indicators (e.g. survival rates and employment growth). The project aims to produce gender disaggregated employer business demography indicators as defined in the above-referenced OECD-Eurostat Manual on Business Demography Statistics. The disaggregation by gender is based on the shares of the equity, interest, or stock of the business owned by women and by men. Given the difficulties in collecting information on ownership shares, the project has an initial focus on sole-proprietor enterprises. In practice, records on sole-proprietor enterprises are linked to administrative records on individuals (from tax files or other sources), and the enterprise is defined as 'woman or man-owned' according to the gender of the sole-proprietor. In a second stage, the project aims to extend the analysis to partnerships and limited liability companies. If business registers cannot be used for producing the indicators (either because they do not exist or because they do not incorporate any information on the owners), other sources of data such as economic censuses or representative business surveys are considered.

The indicators based on labour force survey data describe characteristics of self-employed women and men. Besides gender, characteristics of interest are age, education, nationality, tenure in business ownership, presence of children and hours worked in the business. For each indicator, distinct information is produced for self-employed with and without employees, if survey samples are large enough. The main methodological issue relates to the classification of the incorporated self-employed. While in official statistics for most OECD countries, the self-employed who incorporated their businesses are counted as self-employed, in some countries (such as Australia and the United States) they are counted as employees. As this different classification might seriously compromise comparability, an effort is made to produce indicators based on a population including both incorporated and unincorporated self-employed.

Issues related to the production and collection of statistics

The production of business demography indicators disaggregated by gender or other characteristics of the owners is challenging for most countries. Nordic countries have highly integrated business and population registers that are perfectly suited to this type of analysis. Other countries, such as Italy, have already made considerable investments in the construction of register-based, linked employer-employee data. In most OECD member countries, however, the development of information on individuals' ownership and roles in the businesses is still incomplete.

The linkage of enterprise and personal records generally requires significant resources. The suitable source of information on individual owners needs to be identified, and specific algorithms need to be developed for the data linkage. Notwithstanding these difficulties, ten countries (Austria, Finland, Italy, Korea, Netherlands, New Zealand, Slovakia, Slovenia, Spain and Sweden) have already produced the indicators on sole-proprietor enterprises. Other countries (Germany, Japan, Mexico, Poland and Switzerland) were able to produce a subset of the indicators using data from representative surveys and economic censuses. If statistical

offices were able to devote specific resources to the project, the coverage of countries could be significantly expanded over the next two years. More information on data availability and methodological work is required to extend the data collection to limited liability companies.

Timely indicators

To respond to the need of more up-to-date information, a new series of 'timely indicators' of trends in the new firm creation and bankruptcies has been developed to supplement the EIP harmonised indicators that are typically two or three-year old. Timely indicators use national data series directly available on websites either of NSOs or alternative sources (e.g. chambers of commerce, business associations, registers of bankruptcies). Table 2 reports the list of sources for the countries where suitable series have been identified.

Table 2: Sources of the EIP series 'Timely indicators of entrepreneurship'

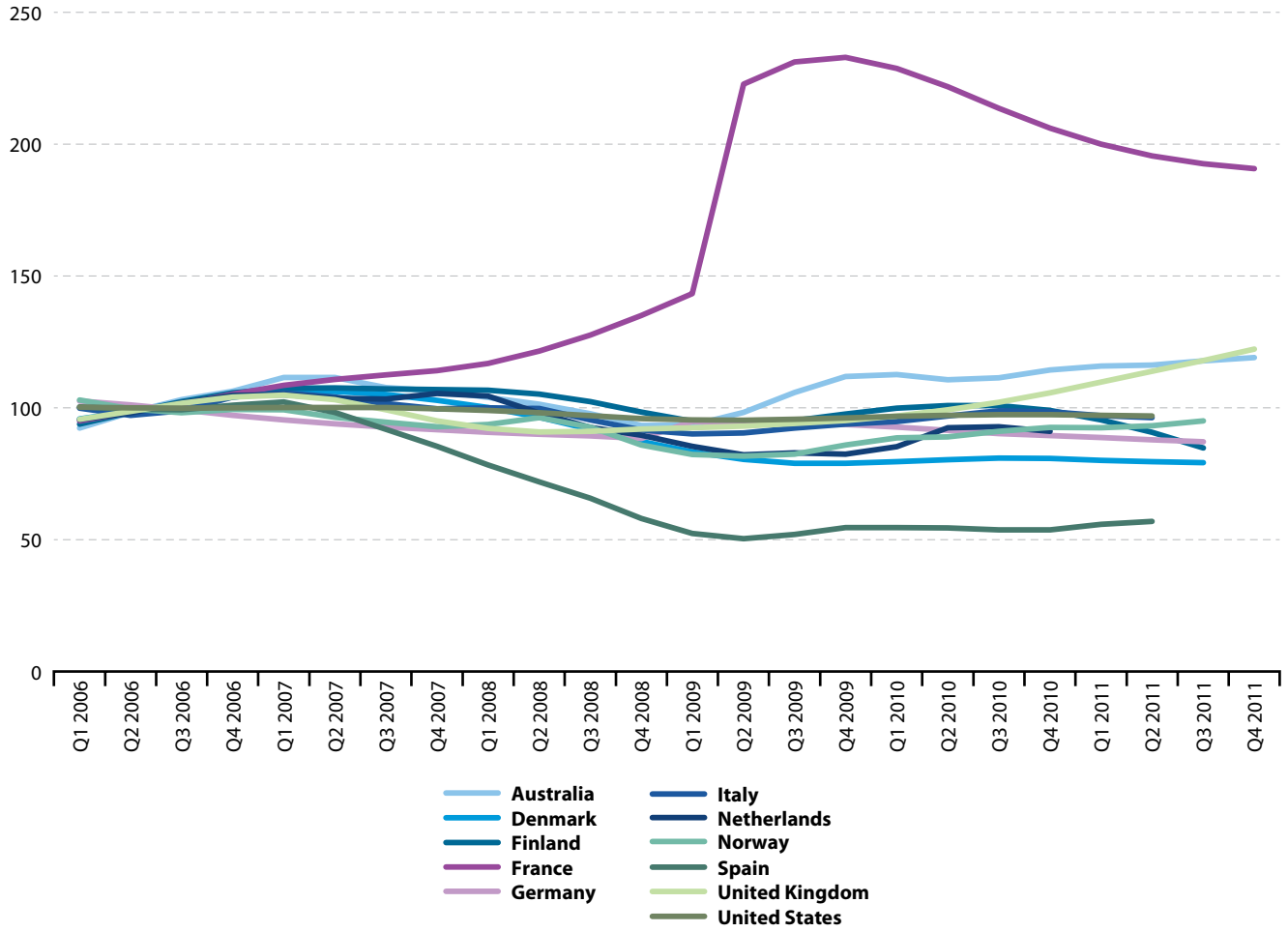
Country	New firm creations	Bankruptcies
Australia	Australian Securities and Investments Commission, monthly data.	Australian Securities and Investments Commission, monthly data.
Belgium	SPF Économie, DGSIE, Dynamique de la population des enterprises, monthly	SPF Economie, DGSIE, Dynamique de la population des enterprises, monthly
Denmark	Statistics Denmark, quarterly data.	Statistics Denmark, quarterly data.
Finland	Statistics Finland, quarterly data.	Statistics Finland, quarterly data.
France	INSEE, monthly data	INSEE, monthly data.
Germany	DESTATIS, monthly data	DESTATIS, monthly data
Iceland	Statistics Iceland, monthly data.	Statistics Iceland, monthly data.
Italy	Infocamere, quarterly data.	Infocamere, quarterly data.
Japan	N/A	Japan Small Business Research Institute, monthly data.
Netherlands	CBS, quarterly data.	CBS, quarterly data.
Norway	Statistics Norway, quarterly data.	Statistics Norway, quarterly data.
Spain	INE, monthly data.	INE, monthly data.
Sweden	Swedish Agency for Growth Analysis, ceased end 2010.	Swedish Agency for Growth Analysis, quarterly data.
United Kingdom	Companies House, monthly data.	Companies House, monthly data.
United States	BLS, quarterly data	BLS, quarterly data.
Russia	Rosstat, monthly data.	Rosstat, monthly data.

Source: OECD

The series use national concepts and definitions and are therefore not harmonised across countries. The analysis is nevertheless relevant at the level of national trends, as illustrated by Figures 1 and 2 where the impacts of the global crisis are observable in all the countries for which data are available.

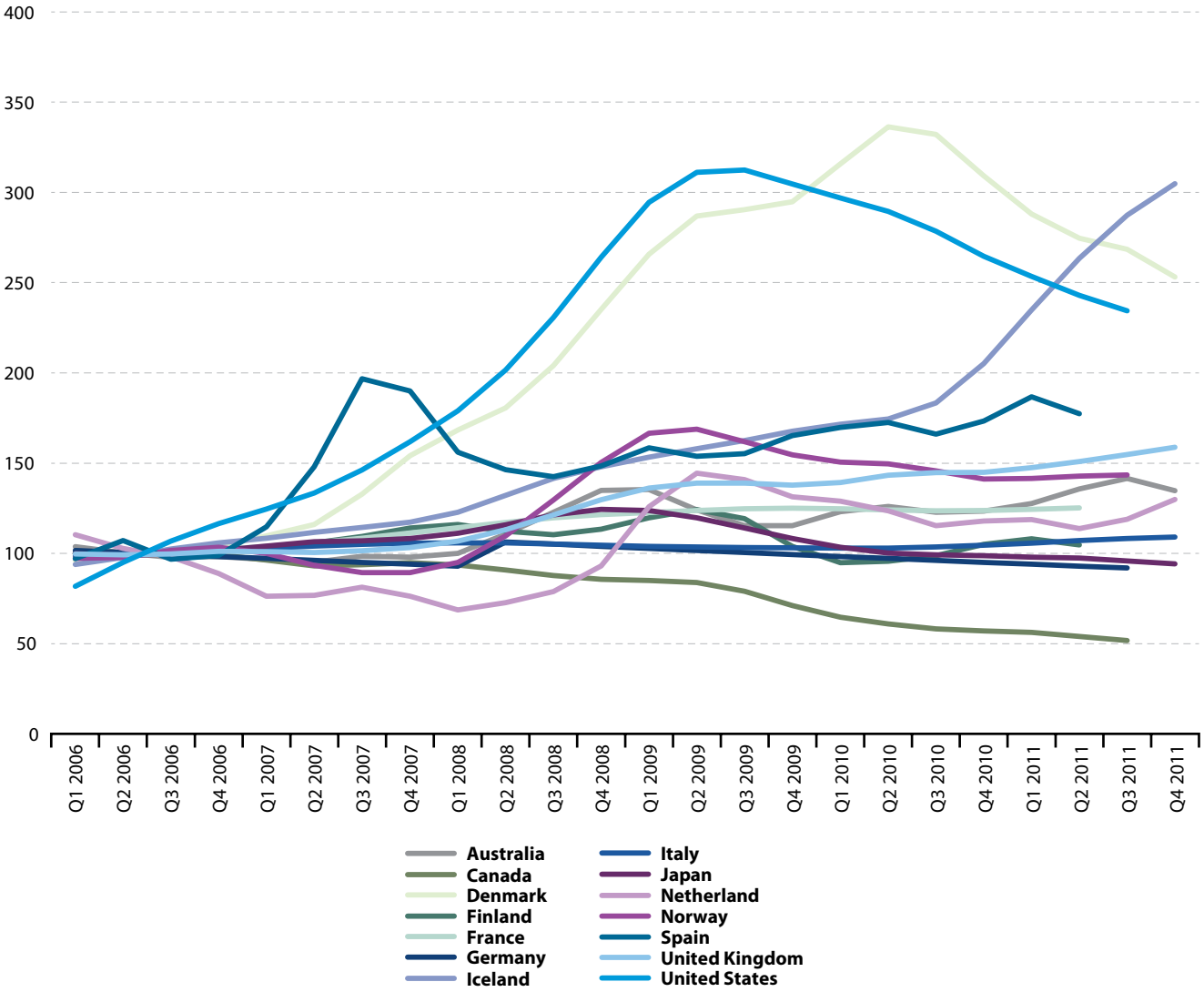
Further developments of the timely series involve two lines of work. The first consists in benchmarking the timely series with the corresponding business demography harmonised series to verify correlations and discrepancies for each country. The second aims at extending the country coverage, if appropriate national quarterly or monthly series are available.

Figure 1: Timely indicators: new firm creations
Number of new enterprises, Trend-Cycle 2006 = 100



Note: The *trend-cycle* is the underlying path or general direction reflected in data over the longer term, i.e. the combined long-term (trend) and medium-to-long-term (cycle) movements in the original series.
Source: OECD

Figure 2: Bankruptcies
Number of bankruptcies, Trend-Cycle 2006 = 100



Note: The *trend-cycle* is the underlying path or general direction reflected in data over the longer term, i.e. the combined long-term (trend) and medium-to-long-term (cycle) movements in the original series.
Source: OECD

Other developments

Other activities completed in 2011 or being currently conducted by the EIP are briefly described below. They involve the development of specific new indicators of entrepreneurial performance and determinants.

Green entrepreneurship

In the context of the OECD Green Growth Strategy, a review of existing definitions and measures of green entrepreneurship implemented at the national and international level was conducted in 2011. It aimed at identifying suitable measures for a harmonised cross-country collection of indicators of green entrepreneurship. Based on the key concepts of 'employer business demography' of the EIP, new measures of green entrepreneurship have been elaborated and are now used by the OECD in its analytical work. ([5])

High-growth innovative enterprises

In 2011, the EIP provided assistance to the European Commission and Eurostat for the development of a new indicator to measure the share of employment in high-growth innovative enterprises in the economy. The EIP harmonised definition of 'high-growth enterprises' was used as the reference for building the new indicator. Once finalised, the indicator will contribute to establishment of the 'innovation

([5]) See for instance CFE/SME(2011)9/REV1 Green Entrepreneurship, Eco-Innovation and SMEs.

headline indicator' in the framework of the EU2020 Strategy, under the 'Innovation Union' flagship initiative. ([6])

Determinants of entrepreneurship

Indicators of entrepreneurial determinants are typically used by analysts and outside researchers to carry out statistical and econometric analysis on the relationship between determinants, performance and impact of entrepreneurship, particularly the analysis of the different performance of entrepreneurship across countries, i.e. what explains the level of entrepreneurial activity in a country?

Comparable cross-country indicators of determinants already exist for at least three of the six determinant areas identified in the EIP conceptual framework, i.e. regulatory framework, market access, knowledge creation and diffusion. These indicators are a mix of official and non-official statistics. The EIP saw an opportunity of original contribution in the area of 'access to finance' (see chapter 12 in this publication), specifically as concerns the measures of equity capital where standard concepts and measures are missing at the international level. Data on venture capital and business angels are mainly, although not exclusively, produced by the regional and national associations that regroup venture capital companies and business angel groups or networks. The quality and reliability of the available data are poor or, in any case, difficult to assess; indeed, information is not collected by the associations for analytical purposes but to showcase to policy makers the relevance of the market for equity capital.

To contribute to a better understanding of the available statistics, the EIP has started an in-depth review of concepts and methodologies for the collection of data on venture capital and business angels. The ultimate goal is to issue recommendations to the data producers to improve the international comparability of data through harmonised definitions and methodologies. This exercise is done in cooperation with regional and national associations in the field of equity capital.

Advancing the agenda

There is an increasing demand from policy makers of measures of entrepreneurship comparable across countries. Yet, the development by the EIP of internationally-comparable indicators for entrepreneurship encounters difficulties, despite the recognised relevance of such indicators for policy analysis and design. ([7])

It is possible that insufficient awareness of the EIP explains the absence of some countries from the programme. However, it is the lack of sufficient resources in national statistical offices that seems to be the main reason hampering the participation in the harmonised collection, or significantly delaying the data delivery. An additional reason is the lower level of priority assigned to the compilation of harmonised statistics on entrepreneurship compared to that assigned to other international datasets. At the national level, business demography statistics are produced by some NSOs that do not participate in the EIP; data exist for instance in Australia, France and the United Kingdom, although the national character of the definitions adopted in each of these countries does not allow comparisons with other OECD members.

Also, in the past few years, other private international datasets of indicators for entrepreneurship have become available, and some that already existed (e.g. the Global Entrepreneurship Monitor — GEM) have increased their country coverage as well as the range of indicators they produce. On the Internet, a quick search for international indicators of entrepreneurship gives today the impression of an abundance of information.

The need of a harmonised collection as the one promoted by the EIP could therefore appear less compelling. An in-depth analysis of the content and characteristics of existing collections of indicators of entrepreneurial performance and/or determinants reveals, however, that the other international collections cannot be a substitute of the EIP collection.

An overview of international datasets of entrepreneurship indicators is presented in Table 3. It includes indicators produced by private consortia (e.g. GEM), international and supranational organisations (e.g. the World Bank, the European Commission, Eurostat ([8])), and researchers in academia (e.g. Compendia). The differences in scope, coverage and methodology are many, due to the diverse ambitions, resources and stakeholders of each of the data collections. Among the issues to be considered:

- Data refer to individuals and not to businesses (GEM and Eurobarometer): While a wealth of information is produced on the characteristics of the entrepreneurs or would-be entrepreneurs, no information is derived on the actual performance of the created enterprises.
- Collection limited to a specific legal form of enterprise (WB) and not to the enterprise as statistical unit: The indicator of 'entry density' produced by the WB covers only limited liability companies.
- Concerns over the quality of the data (GEM and WB): There are issues with the representativity of the data samples or the reliability of the data sources.

([6]) See http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/flagship-initiatives/index_en.htm

([7]) For instance, EIP indicators are now included in regular OECD publications such as the STI Scoreboard, STI Outlook and Financing for SMEs and Entrepreneurship: An OECD Scoreboard.

([8]) Eurostat carries out two distinct collections of business demography statistics at the EU level. The first collection covers business demography data (with no distinction between non-employer and employer firms) and is mandatory for EU Member States. The second one is conducted, since 2008, within the framework of the EIP and concerns the 'employer business demography'; this collection is at present voluntary.

- No comparisons possible at the broader international level (Eurostat business demography covering non-employer and employer firms): While the data quality is not questioned, the unavailability of distinct series for employer and non-employer enterprises reduces comparability with non-EU countries.

Table 3: Other international collections of entrepreneurship indicators

Data series	Characteristics	Coverage
Entrepreneurship performance		
Global Entrepreneurship Monitor (Global Entrepreneurship Research Association – GERA)	Survey of at least 2 000 individuals (aged between 18 and 64; several exceptions) conducted by national teams in each country participating in the GEM project. Indicators of entrepreneurial activity: total early stage activity (nascent entrepreneurs or owners-managers of new businesses). Non-official statistics.	Around 50 countries, including 26 OECD members (in 2011 Edition). From 2000 (for a selection of countries) onward. Annual update.
World Bank Group Entrepreneurship Survey	Indicator of numbers of limited liability companies, or its equivalent in other legal systems. Mix of official and non-official statistics.	Around 120 countries, including all OECD members. From 2000 onward.
Eurobarometer Survey on Entrepreneurship (European Commission – DG Enterprise and Industry)	Survey of individuals conducted by Gallup. It investigating peoples' entrepreneurial mindset (see below, under determinants), but also contains information on entrepreneurial activity by respondents who have been involved in any phase of the process of setting-up a business. Three groups are identified: those who were taking the necessary steps to start up a business at the time of the survey; those who had started (or had taken over) a business in the last three years and which was still active at the time of the survey; established business: those who had started (or had taken over) a business more than three years ago, and which was still active at the time of the survey. Non-official statistics.	EU27; Iceland, Japan, Korea Norway, and Switzerland, Turkey, United States, China. First edition issued in 2000 (for EU15); latest in 2009. No annual update.
Compendia – Comparative Entrepreneurship Data for International Analysis (EIM Netherlands).	Indicators on business owners from OECD LFS data as the main data source, complemented by other sources as needed. Only persons who are self-employed as their main occupation are included in the figures. EIM makes a unified dataset of business owners as the definitions of business owners in the OECD statistics are not fully compatible between countries. In some countries, business owners are defined as individuals owning a business that is not legally incorporated. In other countries, owner/managers of an incorporated business (OMIBs) who enjoy profits as well as a salary are also considered as self-employed. There are also countries that classify a part of the OMIBs as self-employed and another part as employee. Researchers' elaboration on official statistics.	30 OECD countries. From 1970 onward. Annual update.
EU Business Demography (Eurostat)	Statistics on business demography from statistical business registers. Data do not distinguish between employer and non-employer firms. Official statistics.	EU Member States.
Entrepreneurship determinants		
Global Entrepreneurship Monitor (Global Entrepreneurship Research Association – GERA)	Survey of individuals (see above). Collection of data on entrepreneurial perceptions and attitudes.	Around 50 countries, including 26 OECD members (in 2011 Edition). From 2000 (for a selection of countries) onward. Annual update.
Eurobarometer Survey on Entrepreneurship (European Commission – DG Enterprise and Industry)	Survey of individuals conducted by Gallup. Collection of statistics on the motivation, choices, experiences and obstacles linked to self-employment.	EU27; Iceland, Japan, Korea Norway, and Switzerland, Turkey, United States, China. First edition issued in 2000 (for EU15); latest in 2009. No regular update.

Table 3: Other international collections of entrepreneurship indicators *(cont.)*

Data series	Characteristics	Coverage
World Bank Doing Business	Survey of domestic laws, regulations and administrative requirements conducted by national teams of experts. Information gathered is quantitative measures of business regulation in areas considered relevant for starting a business, running and closing a business.	183 economies, including all OECD and EEA countries. From 2001 onward. Annual update.
OECD Product Market Indicators	Qualitative information on country laws and regulations is collected through a questionnaire to national administrations and turned into quantitative indicators after peer review of the questionnaire results. The database comprises an indicator 'barriers to entrepreneurship', composed of three sub-indicators: administrative burdens on start-ups; regulatory and administrative opacity; and barriers to competition.	OECD members, EEAC countries. Update every 5 years, first series in 1998, most recent in 2008.

Source: OECD

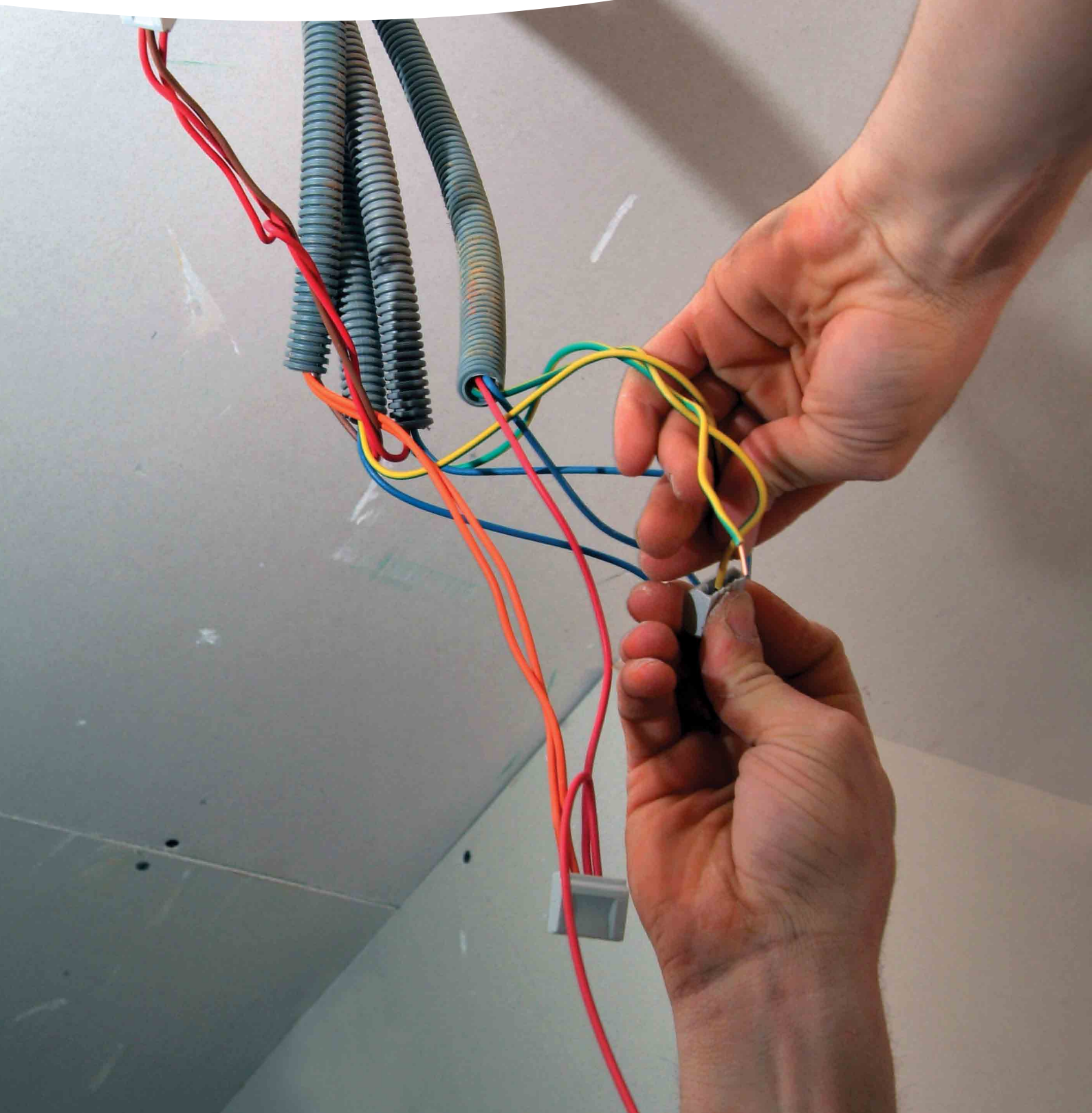
In light of the distinctive characteristics of the EIP, i.e. its comprehensive approach to the measurement of entrepreneurship, the use of official statistics and the quality and reliability of the indicators produced, it appears important to continue the efforts of producing harmonised indicators.

To conclude, it is worth mentioning two facts that will have a positive impact on the EIP. The first is the fact that the collection of 'employer business demography' data, now conducted on a voluntary basis in the European Union, will soon become a legal act and will make mandatory the annual collection of the EIP core performance indicators in the EU Member States.

Secondly, the future implementation of 'International Guidelines for Business Registers', currently in preparation by an international Task Force set up by the Conference of European Statisticians, will contribute to further harmonising statistical business registers across countries and promote their development in countries where they do not yet exist. As business registers are the basis of the EIP indicators, the ongoing work is expected to facilitate data harmonisation and advance work in key areas such as the linking of business register data with other administrative and survey data. These are important aspects for the development and computation of entrepreneurship indicators.

5

Training of Entrepreneurs and Future Challenges for Indicator Construction



Training of Entrepreneurs and Future Challenges for Indicator Construction

Amisha Miller ([1])

Introduction

Entrepreneurship education programs around the world face the same challenge: How do you assess effectiveness using reliable indicators? This question has become much more important in a time when initiatives to support and create new entrepreneurs are multiplying around the world. In the Universities and colleges in the United States alone, the number of entrepreneurship education programs increased from a handful in the 1970s to over 1 600 in 2005 (Kuratko, 2005). Professors, researchers, business support organizations and people interested in development are beginning to dedicate more time to this question.

Understanding the impact of existing programs can help both to understand more about their effects and to help in the design of new programs. Much knowledge has been taken from teaching best practice and techniques such as observation, standardized rating scales, record reviews, criterion-referenced testing, authentic assessment and standardized achievement tests can all be used by entrepreneurship educators to assess their programs. However, scholars argue that those working in the field must also look at the reliability of data available, particularly focusing on increasing longitudinal studies and creating multiple-country datasets (Crook et al., 2010). Bearing in mind the costs and efforts needed to achieve long-term evaluation, a real tension exists between what needs to be evaluated to assess progress and what can be assessed in practice.

This article aims to look at evaluation from a practitioner's viewpoint. It takes international expertise and experience to collate best-practice in entrepreneurship education programmes and their evaluation looking at indicators that are currently used, those that are being developed, or new potential indicators. To illustrate the point, and pull together a research framework that can be used across developing countries, we have used the experience of Endeavor, an international non-profit dedicated to foster high-impact entrepreneurship in 11 emerging economies. Endeavor has trained more than 400 high-potential entrepreneurs since its inception in 1997, based on a peer-to-peer model that connects these entrepreneurs with experienced business people that volunteer to donate their time and knowledge to them. In its operation in Brazil, Endeavor is piloting initiatives to broaden its offer to reach early stage entrepreneurs and students in universities.

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Overview

We start with the premise that entrepreneurship programs have an effect: that entrepreneurship can be taught. Peter Drucker (1985) was one of the first, and one of the most influential academics to argue that entrepreneurs are made, not born. He initiated a strong argument that like any other discipline, entrepreneurship could be learned. This has been supported by many academics since, including Gorman, Hanlon and King (1997).

A recent European Commission (2008) study looks at a wide range of entrepreneurship training programs and presents a set of criteria for good practices for developing a course in entrepreneurship education:

The purpose of the course / program is well established, with final results expected (definition of goals, and ability to measure outcomes related to these goals).

Balance between practical and theoretical aspects. Teaching makes use of traditional and interactive methods.

Activities and events are organized to promote students' ability to work together and create team spirit, develop networks and see opportunities.

Different guest speakers are involved (e.g. specialists in patent law, finance companies, etc.). Close relationships with the local entrepreneurial environment, and educators are part of relevant networks (formal and informal).

Young entrepreneurs (e.g. alumni who have opened companies) and senior executives should be involved in courses and activities, and contribute to their development. They should aid with practical experience, cooperating on projects with students and working on concrete enterprise projects.

Courses and activities are part of a wider program of entrepreneurship, with support mechanisms for start-up of students.

Promoting exchanges of ideas and experiences among teachers and students from different countries in order to encourage mutual learning and give an international perspective to the programs, courses and activities.

The first part of this paper uses this structure and focuses on the aims of courses and then on methodology, including infrastructure. We then focus on evaluation and draw on the aims and methodology of courses defined, to pull together good evaluation methods.

Lastly we'll pull together this best practice information, and use the case study of Endeavor Brazil, to show how programme evaluation could be implemented in a developing economy.

What are the aims?

Entrepreneurship education programs can have many and varied effects, partly due to the great range of them on offer. Therefore it can be challenging to define the aims of a program, which has large implications for designing and constructing the delivery of programs and their evaluation. Much knowledge can be drawn from experts in education who look for a wide range of progress in areas that include knowledge, metacognition (awareness of the learning process), attitudes, and skills (Bauer et al., 2008).

Leading international bodies such as the European Commission (2008), the Organization for Economic Cooperation and Development — OECD (2009) and the World Economic Forum — WEF (Volkmann et al., 2009) have compiled a list of entrepreneurship education programs and their aims. The EC paper focuses on courses in Higher Education and has pulled together three main goals: (1) Alert and motivate students about entrepreneurship; (2) Train students in how to open a business and make this business grow; and (3) Develop skills to understand and explore business opportunities.

When looking at this in conjunction with the papers by WEF, OECD and the Entrepreneurial Indicators Programme (Ahmad and Hoffmann, see chapter 2 of this book) it appears worthwhile to split the first EC goal into two aims. The EIP uses a model which divides performance from determinants, in this case, advocating the separation of attitudinal changes from behavioral changes. Taking the Volkmann et al. (2009) recommendation to separate the goal of creating start-ups and education, we aim to absorb goal 2 into all the other focuses. From a methodological point of view it also helps to consider the impact of the program and focus on the effects.

Therefore the overviews of entrepreneurship education programs show that they seem to share four main objectives:

1) Increasing knowledge about entrepreneurship
2) Creating more entrepreneurial attitudes amongst participants,
3) Creating more entrepreneurial behavior amongst participants
4) Developing participants' entrepreneurial skills.

Increasing knowledge about entrepreneurship

Knowledge about entrepreneurship can be split into many stages. Often the first, particularly amongst younger students, is an awareness of entrepreneurial career options (Donckels, 1991). This is followed by other knowledge to help an entrepreneur actually start and grow a business such as Intellectual Property protection (Vesper & McMullen, 1988), how to position oneself in the market (Ronstadt, 1987), social capital, including knowing sources of venture capital (Baron & Markman, 2000), and examples of real-life challenges associated with venture development (McMullan and Long, 1987; Plaschka and Welsch, 1990).

Many programs use straight-forward evaluation methods to assess this level of knowledge. Focus groups or surveys of students before and after the program are often used as a simple method to assess whether participants have increased their knowledge about entrepreneurship, and it can be ascertained quite quickly after the course (OECD, 2009). However, before relying on participants' opinions, a note of warning must be sounded. An important part of assessing knowledge using these evaluation methods is metacognition, or the knowledge of what you know. Students must be able to evaluate their own progress to a reliable extent. (See articles on metacognition by Paris and Winograd, 1990; Desoete, 2007.)

For entrepreneurial training programs and their evaluation, metacognition is particularly important due to the diverse nature of entrepreneurship. It is likely that each student will have slightly different needs, especially if they are designing their own business, and therefore students need to drive their own learning process as well as being able to assess the effects afterwards. When using self-assessment methods of evaluation, program managers must either ensure that participants are able to self-assess their progress, or take into account that students may not accurately report their own learning progress and implement other forms of evaluation.

Increasing knowledge about entrepreneurship can create more entrepreneurial attitudes as people become inspired by what they have learned.

Creating more entrepreneurial attitudes amongst participants

Entrepreneurial attitudes are made up of perceptions about entrepreneurs and entrepreneurship, attitudes toward becoming an entrepreneur oneself, and entrepreneurial ambition — towards either setting up or growing a business. The first is an attitude currently held toward a societal concept such as whether entrepreneurship is a good career choice, or whether a person is disposed to take risks, while the other two are attitudes about ambition held about a person's future.

The first group of perceptions is easier to analyze as it's a currently held view about the present. Studies such as the Global Entrepreneurship Monitor (GEM) and the Eurobarometer have measured these perceptions over ten years in multiple countries and the GEM 2010 report states that the majority of these data do not change within a country over 10 years (Kelley et al., 2011). Most training programs do not assess these perception

effects due to the aforementioned small changes, as well as the fact that anyone choosing to be part of an entrepreneurship program would be likely to have high perceptions of entrepreneurs and entrepreneurship at the beginning of the course.

Therefore the second group is more important, but also more complicated to assess because it is very difficult to attribute quantifiable measures to define entrepreneurial attitude and ambition. Often changes of this kind are also measured by surveys before and after the program. Attitude changes are more difficult to measure, as the time of surveys must be considered. Running a post survey very soon after the event can cause a 'glow' effect with overly-positive answers and Good (2007) recommends running surveys four weeks after the close of a program to avoid this problem.

Looking at existing data, we can note that side effects can occur. In attempting to increase knowledge about entrepreneurship, entrepreneurship education programs can discourage some participants from wanting to be an entrepreneur. Looking at evaluation of a mini-company program run for vocational students in the Netherlands, we can see that impact on the students' intentions to become an entrepreneur was 'significantly negative' (Oosterbeek, van Praag and Ijsselstein, 2010). By contrast, research by McHugh and Gorman (2006) and Fleming and Owusu-Ansah, (2001) in Ireland showed that entrepreneurial programs did have a positive effect on entrepreneurial behavior.

Herein lays the difficulty in attempting to compare or extrapolate results of across more than one program. Many factors could make a difference in the impact on the students such as quality of program, quality of teaching, fit with audience and time of evaluation. McHugh and Gorman's (2006) work shows that the type of program makes a great difference to the effect on entrepreneurs.

Changing attitudes is one factor that can influence changes in behaviour, including in the case of entrepreneurship (Ajzen & Fishbein, 1977).

Creating more entrepreneurial behavior amongst participants

Entrepreneurial behavior is simply defined as the act of starting up a business. However, taking a more Schumpeterian view of entrepreneurship as creating value, entrepreneurial behavior can also be applied in intrapreneurship and growing a company as well as the OECD's definition (2009) which includes voluntary work or creating new clubs and societies.

Measuring traditional types of entrepreneurial behavior such as frequency of start-up is fairly straight-forward, but involves the aforementioned attribution and causality problems. It is much more difficult to measure other types of entrepreneurial behavior such as intrapreneurship and effect on business growth, and more difficult still is measuring effects in voluntary, social or domestic work (Iredale, 2002). These indicators also suffer from the same causality problems as entrepreneurial behavior.

The evaluation of the Berger program for Arizona State University students found that participation in the program had a positive impact in terms of: risk-taking and the formation of new ventures; increasing the likelihood of becoming self-employed; income; the growth of firms; promoting technology-transfer from the university to the private sector; and, less strongly, job satisfaction (Charney and Libecap, 2000).

GEM data studies people that took part in compulsory training and controls for an individual's demographic background and country-specific conditions. It demonstrates a 'gain from training', which is seen more in countries with favorable economic conditions where the positive effects from training can be more easily translated into behavior. In Western Europe with its low rate of early-stage entrepreneurial activity, people with training are twice as likely to start a business as those without (Kelley et al., 2010).

In this case, the positive results from both programs negate the negative findings made by the aforementioned Netherlands study on recent graduates of a mini-company program. This could be an effect of two different programs taking place in different places with different teachers and different content. However it could also be due to the difficulties in predicting future behavior from students' perceptions about their future and an effect of the different timescales of the evaluation. The recent graduates of the program in the Netherlands may have been initially dissuaded from becoming an entrepreneur, but years after taking part in a program, this could change.

While increasing participants' knowledge, attitudes and behaviours are effects of entrepreneurship education, the majority of programmes focus on increasing skills.

Developing participants' entrepreneurial skills

Entrepreneurial skills are competences that help someone to set up a business. However, defining which skills to measure can be difficult. Most entrepreneurship programs attempt to measure change in traditional business skills such as sales, business planning and finance. However, as many experts have pointed out, skills required to start a business are different to those required to run a successful business (Gartner & Vesper, 1994; European Commission, 2008). Measuring less traditional skills can prove more challenging. Entrepreneurship skills are broad and encompass areas such as identifying opportunities, innovation, problem-solving, team-working and risk-assessment (European Commission, 2008; McMullan and Long, 1987; Vesper & McMullen, 1988).

Assessing change in entrepreneurship skills is easier as practitioners can rely on a wide range of expertise from the edu-

cation sector. Bauer et al (2008) show that teachers assess a wide variety of skills including interactivity, communication, decision-making and practical, and this experience can be used by the entrepreneurship education sector. Many leading evaluators of entrepreneurship skill-building programs focus on evaluating both types of skills. When assessing its secondary school students, the National Foundation for Teaching Entrepreneurship (NFTE) looks at entrepreneurial skills such as opportunity recognition and wealth creation as well as business-oriented skills such as marketing, sales and writing a business plan.

Overall, while courses have different aims, the majority of courses try to change participants' knowledge, attitudes, behaviour and skills, and use some method of evaluating this. The University of Cambridge pulls these aims together and looks at a way to measure self-efficacy — a person's perceptions of their skills to predict changes in their behaviour. (See Bakarat, 2011 for more information.) Bakarat suggests that courses improve entrepreneurship self-efficacy (ESE) based on 'people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives' (Bandura in Bakarat, 2011, p.4). They contend that highly efficacious people are more enterprising as they set more challenging goals and recover quickly from failures and entrepreneurs are much more likely to start a company when they are positive about the expected outcome (Chen et al, 1998). This model can work within the other aims suggested, and helps to link them.

What are the best teaching methods?

Once clear about the aims of the programs, one can look at the best ways of delivering them. This part of the article is largely focused on methods, rather than the role of the teachers.

Entrepreneurship courses often have more of a relevance to the real world than other types of courses. Therefore, when looking at teaching methods it's important to bear in mind this strong practical bias, which is even higher than other general business courses. Ronstadt (1987) proposes lectures, case studies and feasibility plans as ways of transferring information and expertise to students, helping to deal with alerting students to the difficulties in entering the market and positioning themselves. Controversially, Sexton and Upton (1984) suggest that entrepreneurship studies should focus on individual activities rather than in groups, but the vast majority of experts encourages the opposite. Overall, a wide range of experts call for 'active learning' in entrepreneurship and various studies have shown that students can learn more effectively when actively involved in the learning process (Bonwell and Eison, 1991; Sivan et al, 2001).

The most effective methods, listed below, are all methods of active learning that try to connect the classroom to the real world. The preferred are (European Commission, 2008):

- Group techniques to create new business ideas;
- Workshops for business planning;
- Business simulation;
- Case study; and
- Network

Group techniques to create new business ideas

Taylor and Greve´s literature review (2006) explains that innovation can be result of two sources: a) the knowledge available for an innovative activity (Ahuja, 2000; Powell, Koput, & Smith-Doerr, 1996) and b) the ability of team members to apply available knowledge as a group (Brown & Duguid, 1991; Tripsas, 1997; Von Hippel, 1988). As creativity is considered as the first stage of the overall innovation process (Amabile, 1996; West, 2002), the institution of higher education could promote activities that enhance it. Creativity sessions can yield ideas that could become business in the future (Volkmann et al., 2009). These group techniques work well with the following methods, as part of workshops and other studies based on real life.

Workshops for business planning

Even though practical application of business planning is still not well understood (Castrogiovanni 1996, Honig 2004) suggests that exposure to some types of entrepreneurial activities, including business planning, increases individual intentions to start a business. These types of activities resemble real world situations. Workshops to create business plans are another important way of creating situations where students can apply the knowledge and tools taught in classes to create idea that are applicable to the real world (Kelmar, 1992).

The Alumni society of the University of Vienna and the Technical University of Vienna offer a series of workshops for students who consider themselves potential entrepreneurs. Also, the Technical University of Catalonia, through the INNOVA Program, promotes innovation and entrepreneurial cultural in the university community. Among many other methods and efforts, INNOVA offers workshops to all students, faculty and staff (European Commission, 2006).

Researchers at Cornell University (Decker et. al, 1988) studied the effects of a woodland management workshop on participants and the businesses they worked for. As such, the study provides relevant information about whether workshop training can change the practices of existing businesses. The research showed that the workshop had an immediate influence on two-thirds of attendees to engage in management activities.

A few diminished their intentions because they learned their original expectations had not been realistic.

The study also involved an evaluation two and a half years after the event to see whether anything had been implemented in the businesses, or whether effects had faded. Somewhat surprisingly, the effects had actually increased. 82 % of attendees who left the workshop with a high level of intentions performed to the level, and they were joined by two-fifths of people that had left the workshop with a medium level of intention. Of those with no intentions to engage in management practices, two-thirds carried out a medium level of activities and one-third carried out a low level. They attributed this directly to the workshop, indicating a delayed impact.

Workshops can clearly make a difference to intentions for business development and then also implementing changes into business practice. When focusing on students without an existing business, the workshops for business-planning can lead very neatly into business simulations, where students can use the skills they learned.

Business simulation

Business simulations are also methods of giving opportunity to students to put their knowledge into practice. Simulations can work because they teach students what it would be like to start or run a business in the real world. A key consideration for entrepreneurship educators is to ensure that environmental feedback is given — to simulate the types of feedback an entrepreneur would receive from the market. According to Saravasthy (2001), entrepreneurship is an activity that requires an individual to test and modify a range of products, services, materials and ideas. In other words it is an inductive process based on attempts, rather than a deductive process. The decisions of entrepreneurs will be based on the responses given by the market. Since in a business simulation activity students are free to put their ideas in practice regardless the output they will reach (in contrast with a project-oriented activity), this experience provides the necessary environment to develop entrepreneurial skills in its participants.

There are various ways of using simulations, computer games and business competitions are amongst the favorite methods. Many universities send teams of students representing them around the world in competitions (Ames, 1989; Hindle, 1997; Kahrs, 1995; Maitland, 1996). Universities such as the University of Cyprus organize competitions where their students can simulate that they own a business and have to face obstacles encountered by real firms. Centers including the Entrepreneurship House at Grenoble universities (an effort from five universities to promote entrepreneurship among their students) and institutions as Greece's Ministries of Education and Development also organize competitions (European Commission, 2006).

Computer-based business simulations are one way to generate the feeling and responsibility of possessing a real enterprise, particularly when used in time-constrained environments or large business classes where teaching cannot be tailored to a specific students' idea (Volkmann et al., 2007). The use of business simulations is increasing, particularly in the United States, and a survey conducted in 1995 (A. J. Faria & Nulsen, 1996) suggested that 97,5 % of all member schools of Association to Advance Collegiate Schools of Business (AACSB) were using at least one simulation game.

The University of Chicago tested the effectiveness of *Threshold Competitor*, a web-based business simulation on three entrepreneurship classes. The study looked at a wide variety of entrepreneurship skills and found that the simulation did teach several essential financial and marketing skills as well as the impact of good team performance. However, it did raise the problem as to how to involve all students in the team, which needs more study (Fregetto, 2005).

As seen, business-planning workshops and simulations work well to bring experimental real-life experiences to students. This can also be replicated by the use of case studies.

Case studies

Case studies develop interactions among students. The method creates an atmosphere of discussion where students can share their ideas about the topic studied. The activity makes the students become involved in the situation assessed to the point where abstract ideas gain a real-world perspective (Boehrer & Linsky, 1990; Christensen & Hansen, 1987; Christensen, Garvin, & Sweet, 1991). When it comes to entrepreneurship, case studies enhance the students' ability to analyze the current situation of a firm and to find solutions to overcome obstacles to its growth. Through discussion of ideas the students have to put themselves into the situation assessed and make decisions as if the results of these decisions could really affect their lives and the success or failure of the business studied.

If a teacher can act as a mediator of a debate, rather than a teacher passing on academic content, the chances of students developing entrepreneurial skills are much greater. Dana's paper (1987) suggests that activities which develop the participation of students in the classroom increase student awareness and their ability to learn from experience.

Moreover, case studies are important sources of information about entrepreneurial perspective. An analysis of these cases can provide insights into the traits, characteristics and personalities of individual entrepreneurs, and then be assimilated by students (Kuratko, 2005). These role models found in case studies should be a source of inspiration and make students consider an entrepreneurial career path. As Wilson (2008) says 'if students see that people like themselves were able to successfully create companies, it helps to demystify

the process and make that option more feasible (chapter 5, p.6)'. Preferably, they should provide role models that could be easily identified with and by students (European Commission, 2006). To this end, it helps if the cases can refer to local existing companies and feature entrepreneurs discussing their experiences, helping to give students a better sense of reality to their experience of entrepreneurship (Volkmann et al., 2009).

The KfW Endowed Chair in Entrepreneurial Finance at the Technische Universität München offers case studies seminars which are aimed to develop problem-solving skills and creativity of their participants. The case studies are given to group of students, who have to present the solutions created in class or to a jury made of faculty members and members of the company analyzed. The Hunter Centre for Entrepreneurship at University of Strathclyde offers a course focused on creative industries. Students are given the opportunity to solve case studies with emphasis on problems specifically related to creative sector (European Commission, 2006).

Raju and Sanker (1999) demonstrate the importance of using case studies in engineering education to expose students to real-world issues with which they may be faced. Case studies have also been linked with increased student motivation and interest in a subject (Mustoe and Croft, 1999). Case studies and examples are valuable to any course, and these are amplified even more when the cases are real people who can talk to the students.

Networking and infrastructure

Having entrepreneurs in the classroom works well as training entrepreneurs involves the difficult concept of trying to teach something that most teachers have no experience in. Kuratko (2005) highlights this: are educational institutions and training bodies trying to build a bridge between the two groups of teachers and professionals, or just trying to curb the separation between them? Practitioners generally agree that it is very important to teach well but also to have experience of the field. If a course cannot be taught by a teacher that is also an entrepreneur, then it makes sense to involve both professionals in training new entrepreneurs.

Another reason to include entrepreneurs in the course is to begin to create an entrepreneurial infrastructure and network for the participants. The important thing is to connect the students to the real world and provide them an experience of how entrepreneurship is undertaken (European Commission, 2008).

Networking as part of the course is crucial to help participants to achieve entrepreneurial success as Granovetter's work (1973) shows that people who have many acquaintances can provide you with new information, helping people to do better in the job market, and probably in an entrepreneurial career too. Audretsch and Keilbach (2004) highlight the importance of this entrepreneurial capital in explaining differences in economic output between regions in Germany.

Case studies of teaching methods

Using these real-life methods such as workshops, simulations, case studies and real world situations, including working with real entrepreneurs can create some wonderful courses and this section highlights two of the best.

Given that entrepreneurship students tend to be increasingly involved with the work of starting a business, it is hard to imagine them becoming involved full time with the course. Therefore, it is advised that the contents of the classes are tailored to the needs of each specific group of students, whether they are currently in education, or already have a business.

Dividing into 2 groups:

1) Training for entrepreneurs
2) Training for students / potential entrepreneurs

Training for entrepreneurs

Training for entrepreneurs has two main objectives: (1) provide training that is useful for the entrepreneur's business and (2) progress their development as entrepreneurs. Each business and entrepreneur have their own needs for growth and it can be difficult to provide what each trainee needs in the same course. Therefore business support organizations often provide a range of courses on the key needs of a business and key competences for entrepreneurs, and entrepreneurs can select the courses they need.

Case study of Empretec Training Workshop Program

Since its formation in 1988, Empretec has successfully trained over 200 000 people in 32 countries. Programs identify promising entrepreneurs, train them to strengthen their entrepreneurial behavior and business skills and builds networks for the entrepreneurs including access to finance, partners, but also to other courses after the Empretec program is over. An evaluation of the program in Brazil in 2002 showed that businesses led by empretecos display better economic performance than other businesses in terms of employment (a 29 % increase compared to 8.5 % increase in the Brazilian service sector between 1996 and 200) and a higher labour productivity value (R$17000 compared to R$1300).

The Empretec methodology (developed by David McClelland at Harvard University) is based on the finding that everyone has an inner motivation to improve. This 'motive for action' is divided into three motivational categories: achievement, affiliation, and power. There are 10 Personal Entrepreneurial

Competencies, which form the basis of the Empretec Training Workshop.

The main component of the Empretec programme is ubiquitous — the behavioural approach to entrepreneurship. This approach consists of 10 personal entrepreneurial 10 competencies (PECs) developed by Harvard University. The PECs are exercised through the central activity of the project: the Entrepreneurship Training Work shop.

Ten Personal Entrepreneurial Competencies

- Opportunity-seeking and initiative – Entrepreneurs seek opportunities and take the initiative to transform them into business situations.
- Persistence – When most people tend to abandon an activity, successful entrepreneurs stick with it.
- Fulfilling of commitments – Entrepreneurs keep their promises, no matter how great the personal sacrifice.
- Demand for quality and efficiency – Entrepreneurs try to do something better, faster or cheaper.
- Calculated risk-taking – Taking calculated risks is one of the primary concepts in entrepreneurship.
- Goal-setting – This is the most important competency because none of the rest will function without it. Entrepreneurs set goals and objectives which are meaningful and challenging.
- Information-seeking – Entrepreneurs gather information about their clients, suppliers, technology and opportunities.
- Systematic planning and monitoring – Systematic behavior means acting in a logical way. Planning is deciding what to do. Monitoring means checking.
- Persuasion and networking – Entrepreneurs influence other people to follow them or do something for them.
- Independence and self-confidence – Entrepreneurs have a quiet self-assurance in their capability or potential to do something.

This course is very focused on the entrepreneur and their business. As the target group already has a business, the course uses workshops; individual sessions and small groups.

Training for students / potential entrepreneurs

By contrast, entrepreneurship education and training within an educational institution is different to training for entrepreneurs. The Volkmann et al. report for the World Economic Forum (2009) argues that education should develop students, focusing on changing mindsets (increasing self-confidence and self-efficacy) as well as skills that could be used in a wide range of entrepreneurial experiences (practical skills and experiences in building teams).

Creating courses to fit the audience is important within these groups. For example within Universities, many scholars are asking whether programs should be delivered as courses or through other methods, and how to create content and format to fit target audiences of different levels of education and disciplines inside a university.

Often courses delivered to management or business students are similar due to the overlap in the two disciplines demonstrated by Ireland, Hitt and Sirmon (2003). For other students, particularly those in science, technology and engineering, the courses tend to place more emphasis on market research to help to sell potential products. However, in general, universities offer courses for students from various fields. The positive effects are that a diverse set of experiences are generally believed to lead to innovative ideas (Freeman, 1991; Hagedoorn, 1995; Powell et al., 1996; Taylor and Greve, 2006). On the other hand, this can lead to slow development of the class, since what is elementary for some is still unknown to others.

Also, in most cases, there are courses for both undergraduate and postgraduate students. In addition to these courses within the curriculum, there are extra-curricular courses; extra programs geared especially to develop the entrepreneurial skills and culture of the university community.

Case study of the enterprisers programme, Centre of Entrepreneurship Learning at the University of Cambridge

The programme is run in the Centre of Entrepreneurship Learning at the University of Cambridge and was established by the Cambridge-MIT Institute in 2002. The 4 day intensive course aims to increase participants' self-efficacy to help them in a wide range of future careers. It is aimed at postgraduates with little or no entrepreneurial experience. Participants have improved on all assessed self-efficacy scales and there was very little change between immediate self-assessment and self-assessment 6 months later, suggesting the effects of the programme did not fade in the medium term.

The Enterprisers Programme

The programme develops Bandura's (1997) four sources of self-efficacy: enactive mastery experience, vicarious experience, verbal persuasion and physiological and affective states. Experimental learning methods are used including games and simulations in order to encourage participants to explore and foster their values and ideas, as well increasing creativity and risk-taking, well-known characteristics of entrepreneurship. Each course of 64 students divides into 8 groups of 8 students to take part in small group activities. The facilitators do not act as lecturers, instead focusing on giving reas-

surance, guidance and feedback to the group, as well as helping out with basic skills and knowledge of entrepreneurship.

Day 1: Personal values and direction – understanding the entrepreneur within each of us, thinking about the importance of self-identity and cultural values in entrepreneurship and community-building.

Day 2: Practical tools for developing new ideas – what an entrepreneur does, working in different types of teams, opportunity recognition

Day 3: Turning ideas into products: Marketing, finance and networking. Use panel of successful entrepreneurs to talk about their story, failures and successes.

Day 4: Motivation: Keeping up motivation to pursue further opportunities and nurturing entrepreneurial intent.

The programme evaluation was developed by the Education for High Growth Industries Enterprise Project group (Cooper & Lucas, 2006; Lucas & Cooper, 2004, 2005) and is divided into two main sections. The first section comprises item that describe situations where participants are asked to rate their abilities compared to peers in their course cohort on a 6-point scale (poor / not very good / adequate / good / very good / excellent). They represent three underlying scales, namely: norm-referenced general entrepreneurship self-efficacy, norm-referenced group interpersonal skills self-efficacy and norm-referenced problem-solving skills self-efficacy.

The second section comprises items where participants are asked to judge how confident they are that they can perform the task which is indicated in each item on a 11-point scale (from 0 % up to 100 %, in 10 % gradations).

NR GenEnt SE – Norm-referenced general entrepreneurship self-efficacy

NR Gp SE- Norm-referenced group interpersonal skills self-efficacy

NR Prob-solv SE – Norm-referenced problem-solving skills self-efficacy

CR GenEnt SE- Criterion-referenced general entrepreneurship self-efficacy

CR Gp SE – Criterion-referenced group interpersonal skills self-efficacy

CR Prob-solv SE – Criterion-referenced problem-solving skills self-efficacy

CR Tech SE – Criterion-referenced technical skills self-efficacy

This case study demonstrates nearly all the recommendations highlighted in the literature review. Courses are conducted in small groups, with teachers acting as facilitators encouraging students to use real world examples, and promoting access to networks. Both cases demonstrate the use of real-life situations and focus on using real examples to develop entrepreneurs. For each audience, this is used in different ways. Students are given examples while the business owners focus on their own business.

Overall, this wide variation in types of course, driven by widely-differing demand, makes it difficult to prescribe evaluation methods across all courses. However, both programmes work using small, interactive workshops and use real-life examples, whether that be using their own business or using cases. They also both rely on participant self-evaluation and conduct pre and post evaluation. This can help us to when looking at the best evaluation methods to apply over many courses.

What are the best evaluation methods?

To evaluate the aims and methods detailed above, there are further challenges. Apart from the difficulties in deciding what to measure and how to measure a wide range of different courses, there are also methodological issues in measuring the effects of entrepreneurship education programs. Scholars argue that those working in the field must also look at the reliability of data available, particularly focusing on bettering construct measurement (Cohen et al., 2003), increasing longitudinal studies and creating multiple-country datasets (Low, 2001; Chandler and Lyon, 2001; Crook et al., 2010).

External validity and construct measurement

One of the most difficult methodological issues across entrepreneurship is construct measurement, and very few programme evaluations can hope to achieve relevance for other programmes. The Entrepreneurial Indicators Program aims to confront this and 'understand the factors that influence the rate and type of entrepreneurial activity, as well as the outcomes or impacts of entrepreneurship, especially its contribution to productivity, wealth and employment creation' (Ahmad and Seymour, see chapter 3 of this book). The EIP work should help to create an idea of the impact entrepreneurship education can achieve, through changing entrepreneurship culture and capabilities.

In evaluating entrepreneurship education, this is largely focused on external validity. The last thing, which is very difficult to control for, are the random effects. The effect of the teacher, environment, and other students can all make a large difference on the impact of the program. Angelo and Cross (1993) show that teachers make a large impact on the course, which has a large influence on student evaluation.

Longitudinal studies

Apart from the largely unresolved problems of external validity and construct measurement, perhaps the largest problem in evaluating entrepreneurship training programmes is that, as with any kind of education program, the effects cannot be

properly evaluated until sometime in the future. Defining the required period of time needed to elapse before results are evident can be problematic and in practice, is often an arbitrary period. Practically, evaluating these long-term effects is difficult due to the fact that contact with the students can be lost.

Other problems also arise from long-term evaluation. Evaluating the effect of one program on someone who has probably taken part in many other experiences makes it difficult to attribute any changes to that particular program. One way of trying to resolve this causality problem can be to simply ask the person whether they think a particular program has had an effect on them. This method is often used in measuring Social Return on Investment (Nicholls et al, 2009). However, relying on a person's opinion is subjective, can be difficult to quantify, and makes comparative analysis across different social groups almost impossible.

Comparisons and sampling biases

One way to resolve the issue of the counter-factual, or what would have happened without the programme, is using comparative studies. Asking the same questions to those that took part in the program and those that did not and assessing the difference, is probably the best way to measure the effect of one program is by using comparative studies. Examples of programs that have successfully achieved this include the Berger entrepreneurship program, which surveyed students that took part in the program and students that took part in other business courses (Charney and Libecap, 2000).

Even from this survey of business school students, it remains difficult to entirely avoid a sampling bias. On the indicators looking at whether people want to start a business, it's likely that the people that choose to do entrepreneurship education courses are the same people that will already be more interested in entrepreneurship. It should be possible to avoid this kind of bias when measuring a compulsory entrepreneurship course or program. The one-off Global Entrepreneurship Monitor survey on entrepreneurship education provides a solution to this problem by questioning a national sample and including evaluation on those that participated in compulsory training compared to those that did not participate in any training (Coduras Martínez et al., 2010).

While understanding the limits of evaluation that a single programme evaluation can achieve in terms of construct validity and sampling bias, it is worth looking at one of the most cited cases of evaluation of entrepreneurship education.

Case study of University of Arizona (Chaney and Libecap, 2000)

The Berger Entrepreneurship Program started in 1983 and includes courses on competitive advantage, venture finance, market research and business plan development a well as placements in start-ups or venture capital organizations. The course culminates in taking part in a business plan competition.

The study evaluated the impact of the Berger Program on students' careers and also on the University – technology transfer from the University to the private sector, donations to the college and influence on the pedagogy of other disciplines.

Arizona — Key Indicators

Demographic

- Birth
- Gender
- High school graduation date
- Ethnicity

Other

- Educational and employment history
- New venture activity,
- Experiences with technology transfer
- Perceptions of the Berger Entrepreneurship Program

The study had clear aims and used longitudinal methods, studying students after they had completed their courses. The researchers also tackled sampling biases by comparing graduates of the program to a random sample of other business graduates from the University of Arizona and controlling for the socio-economic characteristics of the respondents. This study successfully looked at the effects of a specific program. However, its implication for other education programs, particularly in other countries, has not been tested.

Multiple-country datasets

The University of Arizona evaluation is one of the largest ever conducted and one of the most cited. However, to try to implement the same thing could be very time-consuming and expensive, particularly when trying to control for sampling biases outside a University. Surveying participants of a course can be challenging, but finding a good control group is often even more difficult. One solution to this problem can be to use global studies that already have national coverage in many countries. They can provide a wealth of experience when developing program or national evaluation and, if it is possible to use their data, they can provide a built-in control group.

Using international frameworks and surveys also helps to create more multi-country datasets and therefore more international comparisons.

Frameworks

Entrepreneurship Indicators Programme

The Entrepreneurial Indicators Programme is a joint OECD and Eurostat project and is supported by leading organizations such as the Kauffman Foundation. Started in 2005, it now pulls in data from 23 countries and collects mainly already existing indicators under a few main

categories from a wide range of datasets. The most relevant indicators for assessing entrepreneurship training projects are listed below.

EIP — Key indicators

Entrepreneurship Performance

- Size of business (employees and turnover)
- Growth of business (employees and turnover)

Capabilities

- Education – provision, number of people taking entrepreneurship courses
- Skills – general, business and entrepreneurial
- Networks

Culture

- Risk attitude and fear of failure
- Perceptions about entrepreneurs and entrepreneurship
- Attitudes towards starting a business and ambition

The EIP has not collected data on culture and capabilities and it is therefore impossible to understand the impact of this work. However, the design is promising as it is a longitudinal study, which relies on national data. It looks holistically at entrepreneurship and creates a clear list of aims or determinants that lead to entrepreneurial performance. It also begins to address the problem of attribution by creating indicators that allow for comparisons between program evaluation and national data. If many programs are evaluated using this framework, it could help to make comparisons and construct external validity.

National Foundation for Teaching Entrepreneurship (NFTE)

The National Foundation for Teaching Entrepreneurship was founded in 1987 and its mission is to provide programs that inspire young people from low-income communities to stay in school, to recognize business opportunities and to plan for successful futures. This program has twelve concepts that it advocates and measures against these as well as looking at entrepreneurial behavior.

NFTE's twelve concepts every young person should learn about business before graduating high school

- The importance of mental and physical health
- The joy of business and opportunity recognition
- The economics of one unit
- The laws of supply and demand
- Competitive advantage
- Wealth creation
- Marketing: putting yourself in the customer's shoes
- Leadership and giving back
- Financial statements (ROI and Breakeven)
- The basic sales call
- How to write a business plan
- Investment ('rule of 72')

The aims have been selected by the Volkmann et al., and clearly state what entrepreneurship education programs are trying to achieve. The NFTE Concepts are a framework and not a survey, therefore they are not relevant to debates around future effects or selection bias. If many programs are evaluating using this framework, it could help to make comparisons and construct external validity.

Surveys

Global Entrepreneurship Monitor (GEM) education survey

The normal GEM survey has been running since 1999 and focuses on gaining information about entrepreneurial attitudes and behavior. In 2008 GEM ran questions about entrepreneurship education in a sample of 30 countries and compared this to entrepreneurial attitudes, intention and activity.

GEM — Key indicators

National expert survey:

- Ratings on the level of entrepreneurial framework conditions in their countries
- Ratings on the state of in-school entrepreneurship education and training
- Ratings on the state of non-school entrepreneurship education and training
- Evaluations regarding entrepreneurs' need for external assistance with planning prior to start-up and the sufficiency of entrepreneurship education and training provided by public and/or private agencies, by country

Adult population survey:

- Percentage of the adult working-age population (18-64 years) that received training in starting a business, by country
- Levels of voluntary and compulsory start-up training
- Prevalence of in-school and non-school training
- Prevalence of formal and informal start-up training
- Prevalence of school training (secondary and tertiary)

The one-off GEM education survey works well to neutralize future effects and selection biases because it works with a national sample and includes analysis on people that took part in compulsory training. We could, however, gain more of an understanding of the impact of future effects if GEM asked when each participant had taken part in the training. A repeat of this survey would also give a better idea of whether policies or programs were having any effects.

The survey draws out relationships between training and entrepreneurial behavior measured by the annual GEM survey, so although it does not set out a clear list of aims, it does help to assess some impacts of education programs. This can lead to external validity and help to develop aims for other programs.

Empretec

Empretec is an integrated capacity-building program of the United Nations Conference on Trade and Development (UNCTAD) that promotes the creation of sustainable support structures that help promising entrepreneurs build innovative and internationally competitive small and medium sized enterprises (SMEs), thereby contributing to the development of a dynamic private sector. Since its inception in 1988, Empretec programs have been initiated in 26 countries, assisting more than 70 000 entrepreneurs through local market-driven business support centers. The evaluation framework is newer and is being implemented throughout Empretec offices worldwide.

Empretec

Soft impact indicators – PEC scores:

- Seeking Opportunities
- Taking Calculated Risks
- Exacting Efficiency and Quality
- Being Persistent
- Fulfilling your Commitments
- Seeking Information
- Setting Goals
- Planning Systematically
- Being Persuasive and Building Networks
- Being Self-Confident
- Hard impact indicators:
- Business statistics – size, sector
- Dynamic business variables – sales, costs, profits, investments, employment
- Expected business performance

The Empretec evaluation is very clear about what it hopes to achieve. Most of the soft impact variables are assessed over the duration of the course, so they do not take into account future effects. However, the hard impact variables can be reassessed after the course, allowing for longitudinal changes. The evaluation does not allow for a selection bias as it only questions people that took part in the course. Similar to the Arizona evaluation, it appears to be a good program evaluation, but it could be difficult to find external validity in the findings.

Global University Entrepreneurial Spirit Students' Survey — GUESSS

This international survey on entrepreneurship education began in 2003 and runs every two years. It includes universities from 27 countries worldwide and has a sample of 63,527 students. It focuses on the entrepreneurial intent and activity of students and compares across geography and time.

GUESSS — Key indicators

- Students' future career aspirations <5yrs and >5yrs
- Students' entrepreneurial intentions
- Steps already taken for the entrepreneurial start-up
- Importance of University services
- Students' business goals
- Satisfaction with self-employment

The GUESSS project works well to provide international comparisons on entrepreneurial intentions, attitudes and behavior. It focuses very much on students setting up a business and business goals rather than measuring entrepreneurial attitudes and skills. It includes the use of entrepreneurial services by students to help assess whether they make a difference to the aforementioned attitudes and behavior.

GUESSS is a biannual survey on students and provides longitudinal comparisons for the country. However, it does not track the same students, so does not allow for longitudinal comparisons on students. It does not allow for selection effects as it does not assess whether students have taken part in entrepreneurial programs.

Entrepreneurship Education Project

This new project was founded in 2010 and is run from Illinois State University and the University of Wisconsin. It is just beginning to collect data. In this project, student assessment offers longitudinal insights into the impact of entrepreneurial education on (1) the motivational processes underlying students' road to entrepreneurship, and (2) the process of identity transformation from student to entrepreneur. It also includes student self-assessment of skills.

Entrepreneurship education project — Key indicators

Professor survey:

- Provision of courses to students, including type
- Support (financial and political) given to entrepreneurship education within universities

Student survey:

- Perceptions about entrepreneurship
- Entrepreneurial attitudes including entrepreneurial identity and ambition
- Self-assessment of entrepreneurship skills including business competencies
- Entrepreneurial performance (size of business, etc)

The entrepreneurship education program tackles the longitudinal problem by re-contacting the same students one year later, with the opportunity to contact them again. It can therefore measure future effects effectively, as long as the participants respond.

The survey measures a wide range of attitudes and behavior to attempt to pull together a list of the effects of each program, which could help to lead to external validity. The survey does not allow for a selection bias unless the courses included are mandatory. As many of the entrepreneurship courses at Universities are optional, the issue of the selection bias will continue to be relevant.

Summary of programme evaluation

Overall, the international frameworks can provide help with the thorny issues of comparisons and sampling biases, which can be problematic for programme evaluation. The selected surveys have a specific focus on what they are trying to evaluate, and provide expertise in their own areas. Together the surveys provide much guidance on how to evaluate effects on entrepreneurial attitudes, skills and behavior.

Endeavor has attempted to collate the knowledge and expertise found in the literature, exemplary courses and leading evaluations to construct evaluation of its training programmes. The following case study shows one way to implement this best practice that can work in a developing country, and highlights the remaining areas for improvement.

Case Study — Endeavor's challenges in training entrepreneurs and measuring the effects

Since its inception in 2000, Endeavor has designed and implemented training programs in Brazil and in 2010 added to its efforts with new training programs focused on university students and professors. We outline the entrepreneurship education program and assessment framework that Endeavor is using in 2011, for its own programs and to track progress in Brazil. Endeavor hopes that a research framework that can be implemented in Brazil can be replicated in many other countries, particularly those with developing economies.

Robinson and Hayes (1991) published an article on the state of entrepreneurship education in the USA in the 1990s which is applicable for Brazil today. The two specific challenges they found for entrepreneurship education were (1) the challenge of developing high-quality new programs led by qualified teachers and (2) the lack of commitment by institutions, demonstrated by the lack of formal academic programs in Universities and schools. Currently Brazil has one of the lowest rates of access to entrepreneurship training programs within formal and informal education in the world (Coduras Martínez et al, 2009).

Endeavor training programs

To work within this environment, Endeavor chose to work with 2 main groups — entrepreneurs and potential entrepreneurs in Universities. However, due to its intense work with a few selected entrepreneurs, we split our entrepreneur group into 2 segments; Endeavor entrepreneurs and others. Therefore Endeavor designs different programs for 3 different groups at three different stages of the entrepreneurial process.

- Endeavor entrepreneurs
- Other entrepreneurs
- Young potential entrepreneurs

Endeavor entrepreneurs are selected as small businesses that have already proved their business model works. Therefore they are at the stage where they already have many of the entrepreneurial skills needed to start a business and need to improve their process and management skills to prepare for growth.

Endeavor works with other entrepreneurs along the same management-style themes and gives weekly seminars and some focused workshops on these subjects. It runs day courses which focus on case studies and live case studies where entrepreneurs tell their stories and connect with the group. It also runs short workshops to connect entrepreneurs with experts in fields such as Human Resources, Finance, and Sales and Marketing.

For younger and potential entrepreneurs, the strategy is different. Endeavor has developed Bota Pra Fazer — a course adapted from the Kauffman FastTrac program which teaches entrepreneurial skills as well as business skills to University students. The course helps to create new ideas and develop a business plan using team-working in lessons and examples through Brazilian case studies. The course also acts as a bridge for students considering entrepreneurship, and includes inspirational role models with the aim to change students' attitudes and lead to more entrepreneurial behaviour.

Endeavor also works with Professors and Universities to create a more supportive entrepreneurial infrastructure for young

potential entrepreneurs. It aims to increase the amount of courses and entrepreneurial activities on offer as well as training professors in how to teach the course. Endeavor recommends that Professors use Endeavor entrepreneurs and others as live cases in classes.

Creating indicators

Endeavor needs to assess the effects of all of these programs and hopes to compare progress to other programs and statistics in Brazil and globally.

Therefore the indicators would ideally have the following qualities:

- Easily comparable – numeric where possible and objective
- Comparable to:
  - National data
  - Global data
  - Other existing data – in other surveys and long-term if possible
- Easy to collect
- Linked to entrepreneurship – this is the most important filter

Therefore, Endeavor is working within the EIP framework to enable comparisons to national data from Brazil, the majority of OECD countries, and any other countries that also collect data from the international studies involved.

Looking at the EIP framework (see the chapter by Ahmad and Hoffmann in this book), the three relevant areas to assess the effects of entrepreneurship training programs are capabilities, culture and performance. While training programs can also have an effect on access to finance and R&D and technology, these effects are more difficult to attribute directly to a training program.

Endeavor is using the OECD capabilities and culture determinants to measure the shorter-term effects of its programs, and is also studying longer-term effects from the capabilities and performance columns to track longer-term progress. Within these columns, we have also added expertise from the NFTE and Empretec to build up the particular types of skills that we want to assess.

Key indicators

Capabilities:

- Business skills
- Entrepreneurship skills
- Education – number of students taking entrepreneurship courses

Culture:

- Knowledge about entrepreneurship
- Attitudes towards entrepreneurship
- Ambition

Performance:

- Business statistics – size, sector
- Dynamic business variables – sales, costs, profits, investments, employment
- Expected business performance

Bottom-up indicators

Most of the indicators we're using to assess the effects of entrepreneurship training are bottom-up and focused on individuals. They are largely taken from the capabilities, culture and performance columns of the EIP and can be measured across all three groups that Endeavor works with. Some examples of what Endeavor measures within these indicators for each of these groups can be found in the table below.

		Endeavor entrepreneurs	Other entrepreneurs	Young potential entrepreneurs
DETERMINANTS PERRORMANCE	Business skills i.e. strategy and planning; legal, finance; operations; sales and marketing; employees	Management methods, strategic planning and growth; Corporate governance; Financial controls; IT systems and operations; Sales and marketing; HR and recruitment	Strategy and planning for growth; Business law; Finance, including access; Operations and technology; Sales and marketing; People	Business planning; Finance skills; Operations; Sales and marketing; People
	Entrepreneurship skills i.e. creativity and innovation; negotiation and communication; spotting opportunities; risk assessment	—	Overall test of entrepreneurial behavior and risk assessment	Creativity and innovation; Spotting opportunities Negotiation and communication, including leadership skills; Risk assessment
	Risk attitudes	—	Risk attitudes	Risk attitudes

		Endeavor entrepreneurs	Other entrepreneurs	Young potential entrepreneurs
DETERMINANTS PERRORMANCE	Attitudes towards entrepreneurship and ambition	Growth ambition – yearly, 3 years, 5 years	Growth ambition – 3 years	Start-up ambition; Timing of start-up ambition; Growth ambition – 3 years
	Entrepreneurial behavior and business statistics	Exit; Age; Size; Employment; Value added; Exports; Turnover; EBITDA; Sector;	Exit; Age; Size; Employment (in groupings); Turnover (in groupings); Sector	Set up a business; Employment (in groupings); Turnover (in groupings)

Endeavor is also beginning to look at the impact of Endeavor entrepreneurs — using employees' surveys to assess standards of living of employees and comparing to national data.

Top-down indicators

Some, however, are top-down and focused on education infrastructure and networks, and these are measured using different indicators, also largely based on the EIP indicators.

	Universities	National information
Education	- Number of students taking entrepreneurship courses (inside and outside faculty) - Number of students outside of business faculty taking entrepreneurship courses - Number of teachers teaching entrepreneurship	- Quality of universities, business schools - Population with entrepreneurship education
Networks	- Number of entrepreneurship support centers/ transfer of knowledge centers	- Number of firms providing advice in entrepreneurship - Number and/or availability of mentorship programs

Collecting data

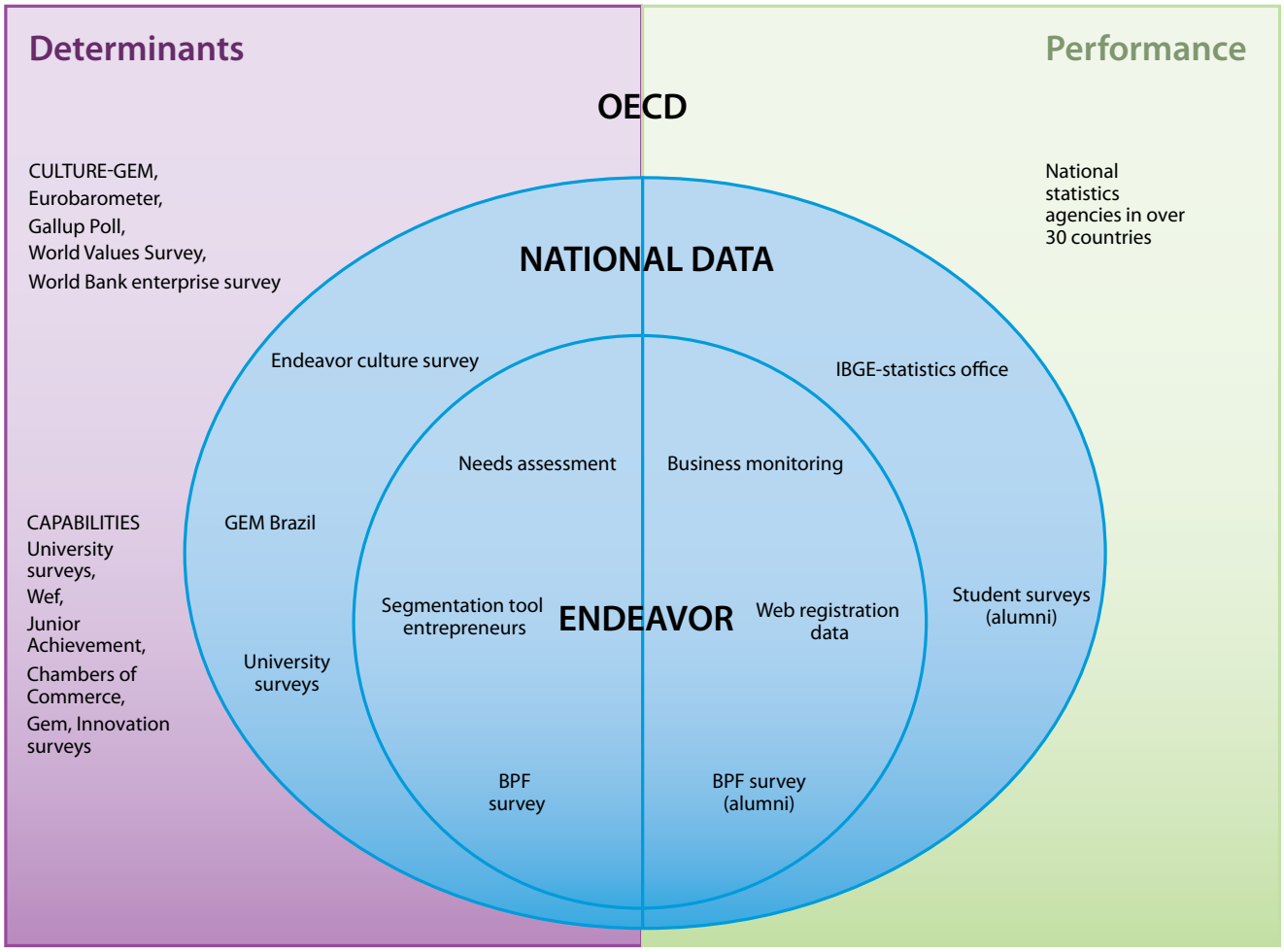
Endeavor has created some tools to measure some of these indicators on its own programs.

	Determinants (culture and capabilities)	Performance
Endeavor entrepreneurs	Needs assessment – annual - Advisors implementing questionnaire to companies	Business monitoring – annual Annual survey to entrepreneurs
Other entrepreneurs	Segmentation tool for entrepreneurs - On website	Web registration data
Young potential entrepreneurs	Bota Pra Fazer (BPF) surveys - Student survey – annual - Professor survey – annual	Bota Pra Fazer (BPF) alumni survey

National data

Normally, in OECD countries, national comparison data is collected using a wide range of methods including GEM, the World Values Survey (WVS), the Eurobarometer, education surveys, innovation surveys, and business registers.

However, one of the keys things to consider in Brazil is that many of the studies included in the EIP do not exist. Brazil, like most middle income economies, relies on GEM data and some business statistics almost exclusively. Therefore, Endeavor has created a list of indicators that need to be created at the program level, but also at the national level.



Source: Endeavor

Brazil does already collect some of the national data needed. It has some of the data to assess capabilities and culture from the Global Entrepreneurship Monitor, and some information on performance from the national statistics agency — Instituto Brasileiro de Geografia e Estatística (IBGE).

Where Brazil does not have the internationally comparative methods, Endeavor is running new national surveys – a culture survey and a University survey.

Endeavor can use the survey as a baseline for comparisons to its course participants before and after the courses they take.

Culture survey

Endeavor is working to run national research to baseline the EIP culture indicators not already collected and monitor the public and entrepreneurs on their capacities and attitudes towards entrepreneurship. This will provide comparisons on a range of indicators to most of the OECD countries and all of the European Union.

The survey can provide a baseline for further analyses of entrepreneurship culture in Brazil. It can also be used to segment the population on their attitudes and skills, and these segments can be used to create a shorter list of questions which can be reused by partners in other national surveys.

Using global partners to create surveys

Creating surveys using an international framework with international partners allows for international comparisons, comparisons between programs and perhaps some progress towards external validity in evaluation. If they are re-implemented, the studies also offer some longitudinal perspectives, particularly the Entrepreneurship Education Project.

Conclusions

The first finding of this study is that there are remarkably few evaluations of entrepreneurship education programs. Given the vast amount of largely public funding invested in this field, the paucity of evaluation at a program level and near absence of it at a standardized level is surprising. This finding has been reinforced by many academics including Grüner and Neubergen (2006) and Crook et al. (2010).

Their calls for increased academic rigor focus around creating long-term and multinational datasets, which suggests creating some kind of international study, or at least system of evaluation. This call is reinforced by the two main issues that remain in creating rigorous datasets; selection bias and external validity. It is clear that the problem of selection bias when assessing changes in program participants or comparing them to control groups is pervasive and difficult to overcome. The only surveys that controlled for this successfully were national or global surveys that also included data on people that took part in mandatory training. This recommendation is impossible to implement for program managers of voluntary training programs, if they are working alone. Likewise, selection bias can only be dealt with by comparing indicators pre and post the course with indicators that are used on other groups, such as participants on other entrepreneurship courses.

External validity would remain an issue as even if programs did compare the same indicators, as program specifics such as audience, teacher and country / region would continue to make a difference to evaluations. However, this problem would begin to be allayed using a framework such as those used by the EIP or the NFTE, as it would help more programs to evaluate in the same way, facilitating comparisons across them. Endeavor is beginning to pilot a strategy to tackle the problem of external validity through using the EIP as a base for their evaluation framework and the Entrepreneurship Education Project survey to provide a comparison to other projects.

The calls for academic rigor compete with the need to apply methodology broadly and cost-effectively across countries. We can see that some studies such as the one-off GEM report on education, GUESSS and the Entrepreneurship Education Project are beginning to create multi-country and longitudinal datasets on the impact of entrepreneurship education, and training programs such as EMPRETEC are beginning to implement cross-national evaluation. However, outside of these projects, it is clear that to reach a large number of participants and control groups participating in different courses in multiple countries and gain the longitudinal data that is necessary for reliability, the study needs to be focused and short.

To achieve brevity, evaluation of training programs must be very focused on specific indicators. Creating indicators to measure across courses is difficult as the best training programs fit their audience very well and are therefore very different. One solution could be to create a list of recommended indicators that could be applied across programs and key recommendations would be to focus on how well the course simulates the real entrepreneurial experience and how useful the knowledge and contacts gained would be for a potential entrepreneur. Then look at the effects on participants by measuring whether they have increased their knowledge about entrepreneurship and increased their entrepreneurial attitudes, behavior and skills.

To begin to evaluate across programs, some key teaching practices could be monitored to begin to try to indirectly assess the quality of programs. Examples of experiential learning using techniques such as team-working, workshops for business planning, business simulation, and case studies, and use of these teaching methods could be monitored. Another key practice is that could be evaluated is 'localizing' the experience, for example including local role models, as seen in the Endeavor case study, and beginning to connect the students to a network of entrepreneurs and other contacts that they would need to construct their enterprise.

The evaluation of knowledge, attitudes and skills and behavior is a thornier problem. Different courses aim to improve different types of knowledge, depending on the focus of the course, so these questions should be developed by the programs themselves and focused on measuring the aims of the program.

The evaluation of knowledge, attitudes and skills and behavior is a thornier problem. Different courses aim to improve different types of knowledge, depending on the focus of the course, so these questions should be developed by the programs themselves and focused on measuring the aims of the program. Frameworks such as Endeavor's Needs Assessment, the Enterprise Education Project and the University of Cambridge's study can help us to develop indicators across programmes.

There is no clear base of these indicators across programmes and this study calls for international organizations such as the OECD or World Economic Forum, who have already done much work in these areas, to create a base of possible indicators that could be applied to a variety of different programmes. This would follow examples of work created to measure entrepreneurship indicators, such as the OECD's Entrepreneurial Indicators Programme, and examples that measure the social impact of entrepreneurs such as the Global Impact Investing Ratings System (GIIRS) and the Impact Reporting and Investment Standards (IRIS), which group indicators to measure the social impact of entrepreneurs. This type of base would help smaller programmes to create evaluations with ready-made control groups and comparisons, and increase the quality of evaluation of the field as a whole.

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Selected program examples and their websites:

Technische Universität München:
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The Hunter Centre for Entrepreneurship at University of Strathclyde:
http://www.strath.ac.uk/huntercentre

The Alumni society of the University of Vienna and the Technical University of Vienna:
http://www.tuwien.ac.at/EN

Technical University of Catalonia, INNOVA Program:
http://pinnova.upc.edu

University of Cyprus:
http://www.ucy.ac.cy

Grenoble Universities, Entrepreneurship House:
http://entrepreneuriat.grenoble-univ.fr

Greece's Ministries of Education and Development:
http://www.ypepth.gr/en_ec_home.htm
http://www.ypan.gr/index_uk_c_cms.htm

University of Cambridge:
www.cfel.jbs.cam.ac.uk/research/publications/downloads/barakat_same_2010.pdf

Selected case studies and their websites:

Empretec Training Workshop Program:

http://www.unctad.org/en/docs/webiteteb20043_en.pdf

The Enterprisers Programme, Centre of Entrepreneurship Learning at the University of Cambridge:

http://www.cfel.jbs.cam.ac.uk/programmes/enterprisers/index.html

Entrepreneurial Indicators Programme:

www.oecd.org/document/58/0,3343,en_2649_44392116_44441658_1_1_1_1,00.html

Global University Entrepreneurial Spirit Students' Survey (GUESSS):
www.guesssurvey.org

Global Entrepreneurship Monitor (GEM) education survey:
www.gemconsortium.org

Entrepreneurship Education Project:
http://entrepeduc.org

National Foundation for Teaching Entrepreneurship (NFTE):
www.nfte.com/why/research

Empretec:
www.unctadxi.org/templates/Page____7362.aspx

Entrepreneurship Culture: The European Perspective and National Perspectives on the Example of Luxembourg

6

Entrepreneurship Culture: The European Perspective and National Perspectives on the Example of Luxembourg

Aleksandra Stawińska ([1])

Introduction

The phenomenon of entrepreneurship attracts great attention, but at the same time, its measurement remains a problem. Many initiatives are undertaken at the local, national or international levels to define the appropriate framework and identify tools to measure it, to show and, what is probably more interesting, to explain the differences between the culture at municipal, regional and national levels. It would be also very useful to use such tools to help policy makers at every level in their quest to influence entrepreneurial behaviours. This article incorporates the results of the Flash Eurobarometer survey on entrepreneurship as a good example of benchmarking within the EU. The Eurobarometer also shows the differences to other non-EU countries, e.g. the United States or China, as well as those existing between the EU Member States. Information about other initiatives undertaken at the national and local levels are also presented to illustrate the high interest in the topic of entrepreneurship culture and its measurement at various levels.

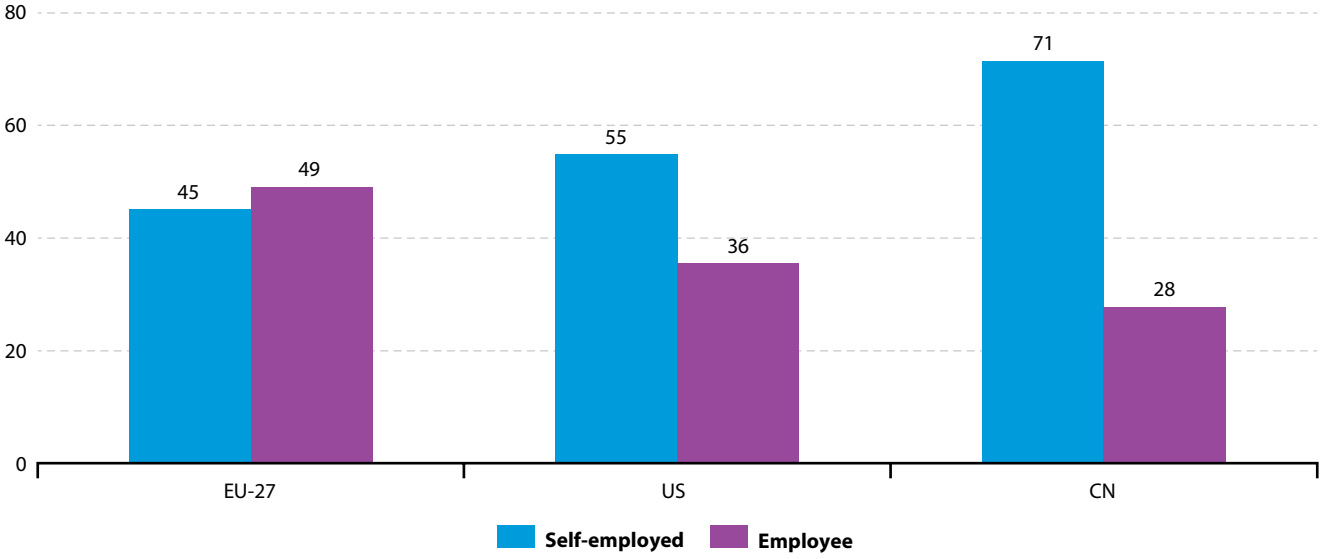
Entrepreneurship in Europe — the Eurobarometer picture

The European Commission's Directorate-General 'Enterprise and Industry' has been studying, for the past 10 years, the development of entrepreneurship in EU Member States, and has compared European opinions with those outside of Europe, especially in the U.S. Flash Eurobarometers ([2]) are ad hoc thematical telephone interviews conducted at the request of any service of the European Commission.

In a survey on entrepreneurship attitudes ([3]), conducted in December 2009, the opinions of residents in some Asian countries have been added to a pre-existing comparison, so it now covers 36 countries: the 27 EU Member States, two candidate countries: Croatia and Turkey, three European non-EU countries: Iceland, Norway and Switzerland, the U.S., and three Asian countries: China ([4]), Japan and South Korea.

The survey covered topics such as the development of entrepreneurship, how entrepreneurial mindsets are being fuelled and what encourages people to become entrepreneurs. It provides data about public attitudes on issues such as entrepreneurship, entrepreneurial education, risk-taking, start-ups, obstacles to entrepreneurship and business failures. The survey's fieldwork was conducted in December 2009. Over 26 000 randomly selected respondents aged 15 and over, were interviewed, predominantly via fixed-line telephones.

Figure 1: Preference of being self-employed or an employee
(%)



Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

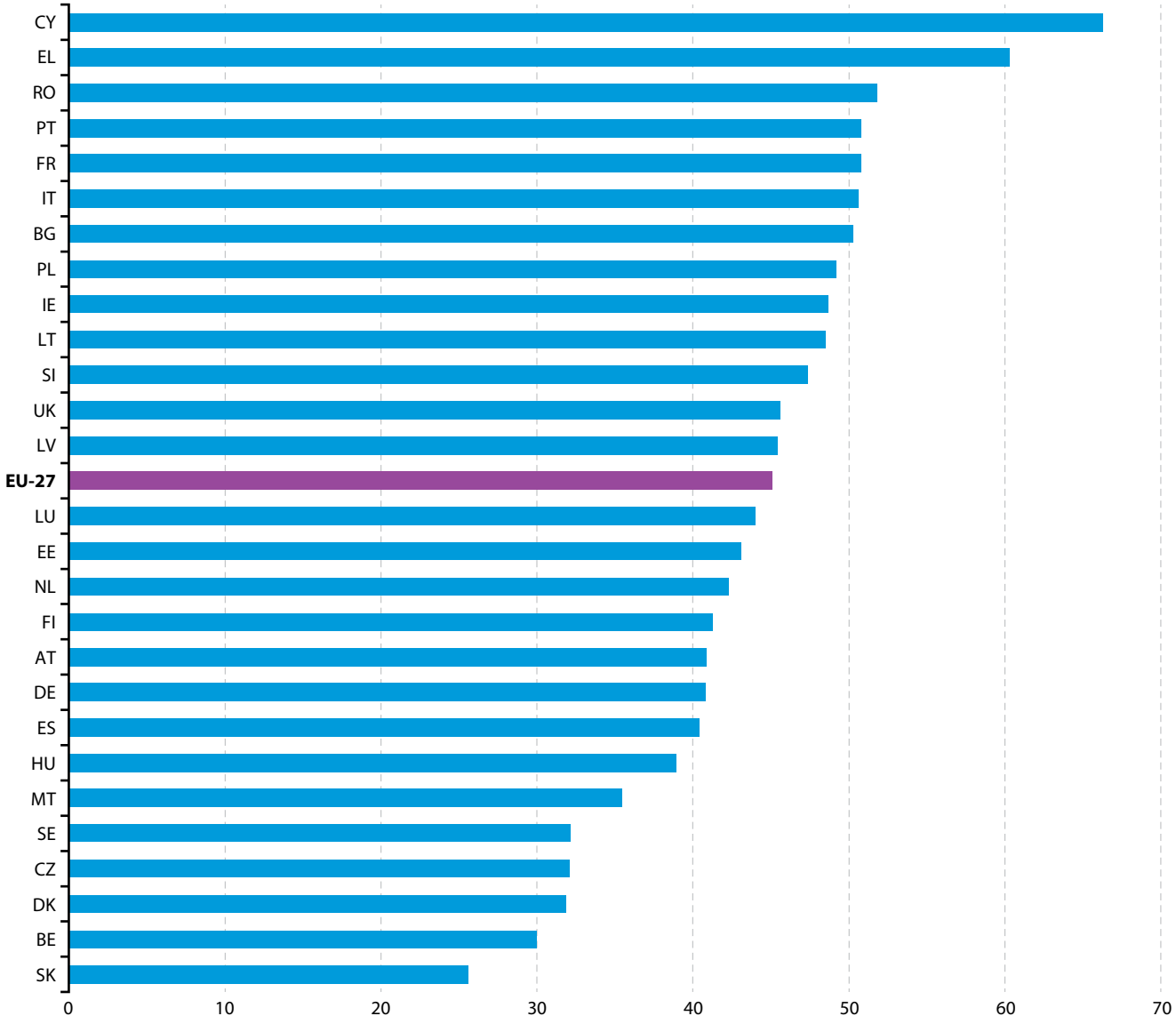
([1]) Eurostat unit 'Competitiveness of European businesses'

([2]) See, http://ec.europa.eu/public_opinion/archives/flash_arch_en.htm
([3]) European Commission Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'. See, http://ec.europa.eu/public_opinion/archives/flash_arch_284_270_en.htm
([4]) Interviews in China were concentrated in urban areas.

Part of the survey looked at the preferences of being self-employed versus being an employee. EU citizens were almost evenly divided in their preference for being self-employed or having employee status: 45 % would prefer the former and 49 % the latter. At the same time more than half of Americans and almost ¾ of Chinese preferred to be self-employed.

These EU-level results, however, tended to hide large variations between individual Member States: the preference for being self-employed varied from 26 % in Slovakia to 66 % in Cyprus. In 18 EU Member States, respondents who preferred employee status outnumbered those who would opt for self-employment.

Figure 2: Preference for self-employment in the EU
(%)



Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

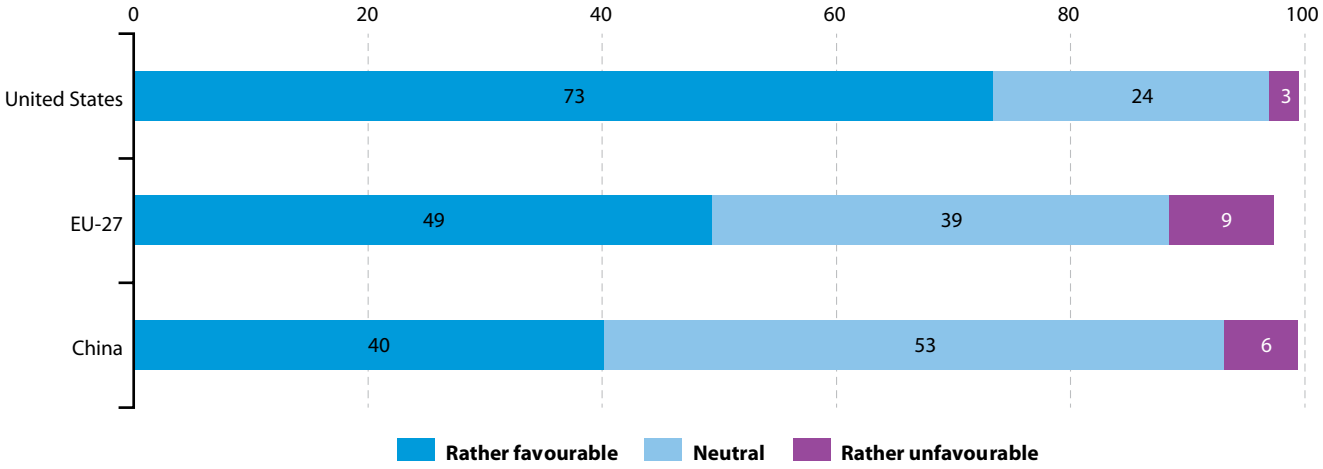
In the EU, men, younger interviewees, those with higher levels of education or those still in education, and respondents with an entrepreneurial family background were more likely to prefer self-employment status.

Results of the survey showed also the reasons for choosing between self-employment or employee status. As for reasons why respondents would prefer to be an employee, four out of ten EU citizens referred to a 'regular and fixed income' and more than every third interviewee mentioned 'stability of employment'. However, some differences across countries were very obvious. Respondents in eastern European countries appeared to be more likely than their counterparts in all other Member States to name some constraints of being self-employed (such

as a lack of finances or lack of an appropriate business idea). A large majority of EU citizens who expressed a preference for self-employment made this choice because of the freedom provided, such as personal independence, self-fulfilment and the chance to do something of personal interest (mentioned by two thirds of interviewees), or freedom to choose their own place and time of work (one third of them).

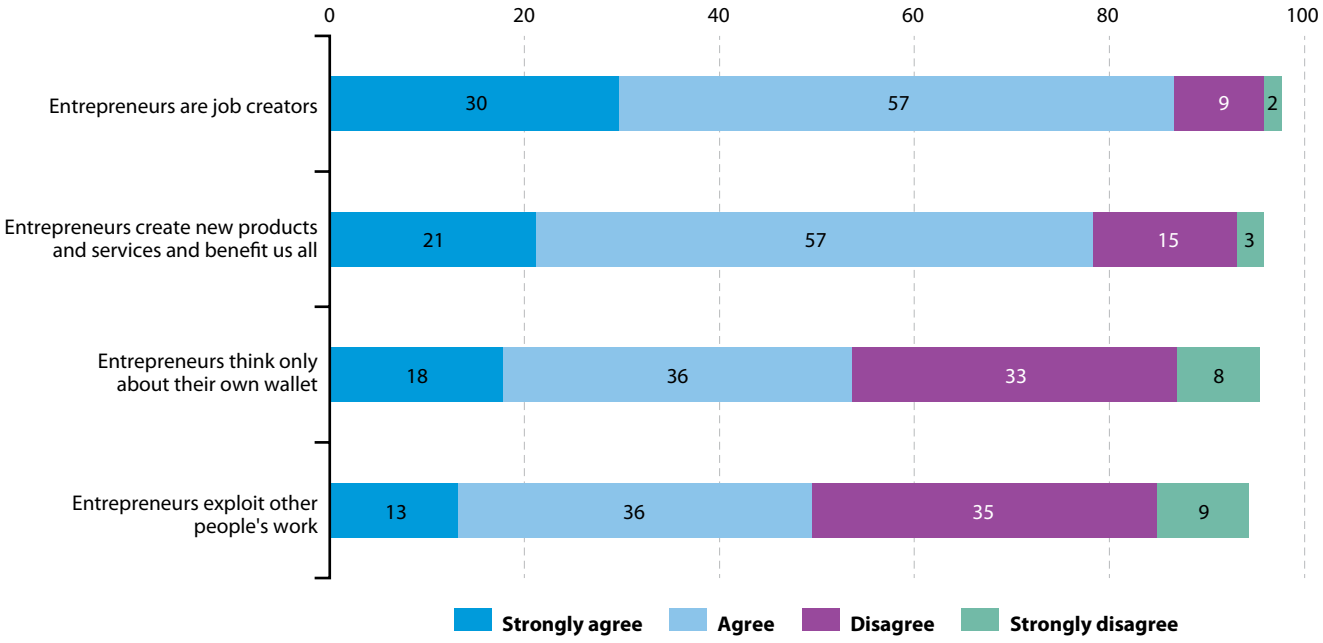
Another part of the survey displayed the image of entrepreneurs in society. Looking at the EU level their image is rather positive for half of the citizens. However, the proportion of EU citizens who had a favourable opinion about entrepreneurs showed a large variation across EU Member States. While four out of five Danes and Finns held a rather favourable opinion about entrepreneurs, this proportion dropped to a fourth of Hungarians. In Hungary, a fifth of respondents said they had a rather unfavourable opinion about entrepreneurs – a figure also exhibiting the situation in Poland, Slovenia, Greece and Bulgaria.

Figure 3: Entrepreneurs' image
(% of answers given)



Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

Figure 4: Entrepreneurs' image, EU-27
(% of answers given)



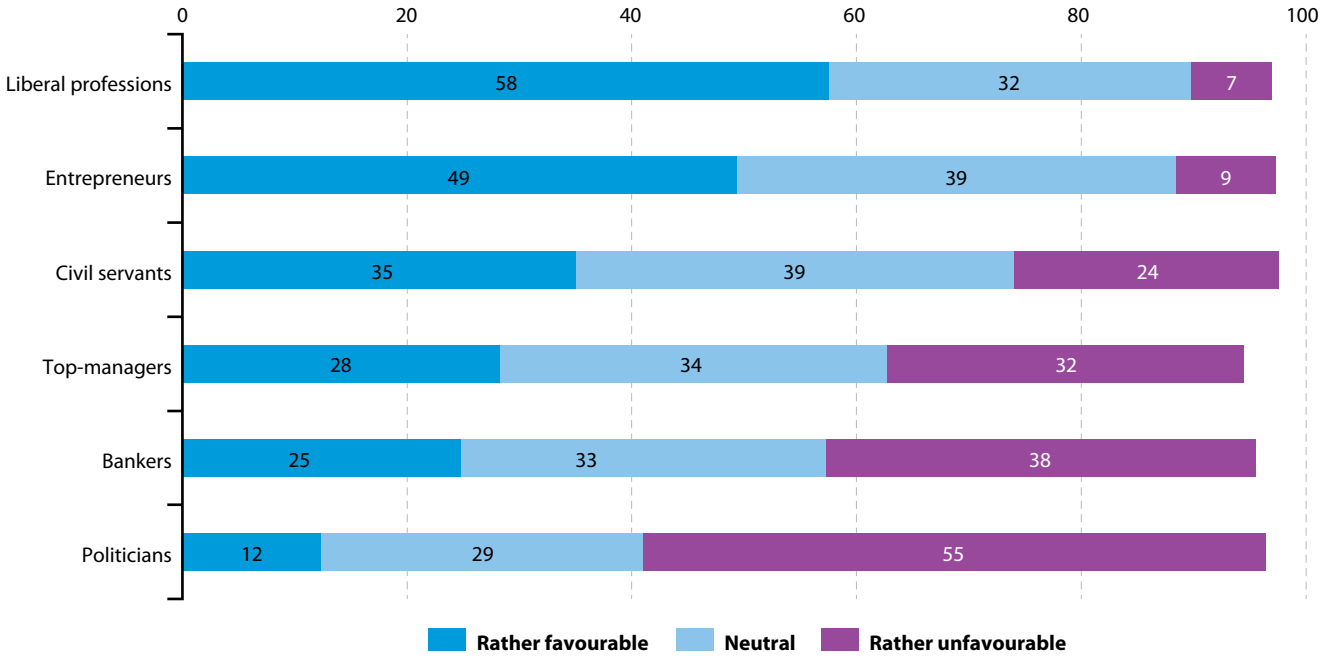
Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

Three-fourths of all answers given by Americans exhibit a favourable opinion about entrepreneurs, while in China their share was lower than in the EU and reached only 40 %. In addition, more than half of the Chinese respondents had showed their neutral attitude to entrepreneurs, which in the US was the case for just one out of four interviewees.

Almost nine out of ten EU citizens agreed that entrepreneurs were job creators. A large majority also thought that entrepreneurs created new products and services and were therefore of benefit to society. Interviewees were considerably less likely to agree with the negatively-formulated statements about entrepreneurs. Nonetheless, more than a half of EU citizens agreed that entrepreneurs only thought about their own wallet, and half thought that entrepreneurs exploited other people's work.

Compared to other professions, the attitude towards entrepreneurs was generally positive. When asked to give approval ratings of different professional groups, almost six out of ten of EU citizens said they had a 'rather favourable' opinion about people working in the liberal professions (such as lawyers, architects etc.); this group of professionals received the highest rating. Entrepreneurs followed in second position with half of respondents who gave a 'rather favourable' response. For both groups, less than 10 % of EU citizens had a 'rather unfavourable' opinion.

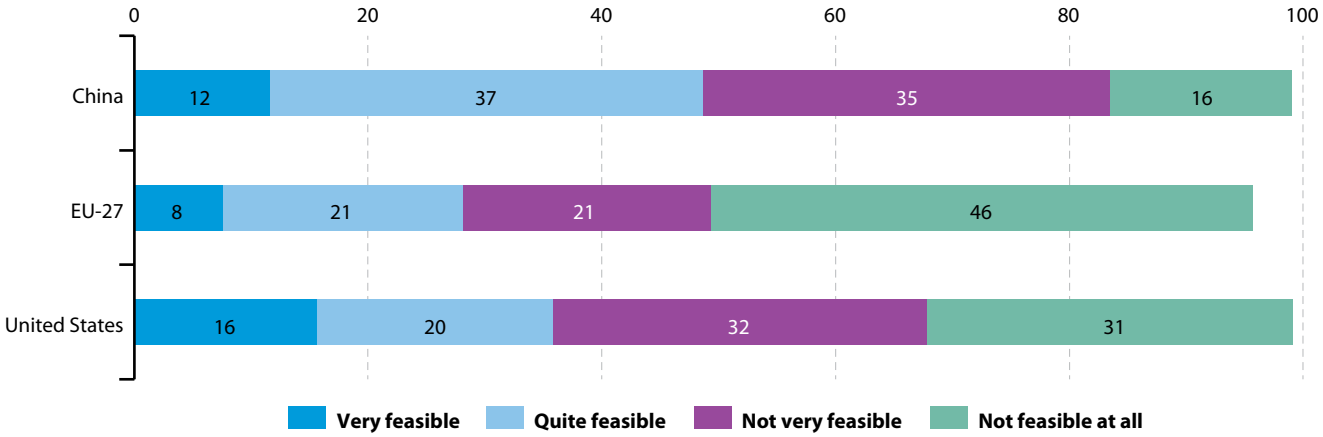
Figure 5: Image of entrepreneurs against other professions, EU-27
(% of answers given)



Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

It is clear that, in general, the opinion on entrepreneurs is rather positive. If this is true, then we should expect to see a high number of people who would like to become entrepreneur, so as to become part of a group with a good image. On the basis of the results of the Eurobarometer possible reasons for becoming self-employed can be studied. Respondents who were not self-employed at the time of the survey were asked about their perceptions as to how feasible it would be for them to become self-employed in the next five years. However, what is also important, this part of the survey was conducted regardless of the respondent's preferred status (self-employment or employee).

Figure 6: Feasibility of becoming self-employed
(% of answers given by non-self-employed)



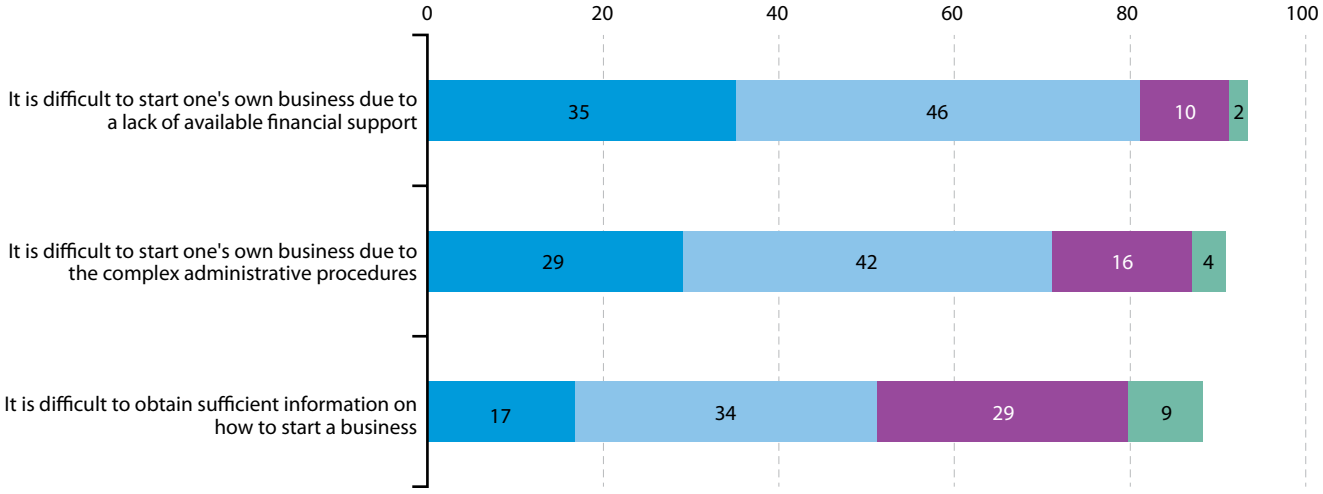
Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

The goal of becoming self-employed in the next five years was seen unrealistic by two-thirds of EU citizens who were not self-employed at the time of the survey. Just three out of ten non-self-employed EU citizens thought that it was feasible for them to become self-employed in the next 5 years. The picture was not similar, however, across all Member States. Throughout the EU, the proportion of respondents who considered it feasible to become self-employed in the next five years ranged from less than one out of six in Belgium, the Czech Republic and the Netherlands to about half of Swedish respondents. Other EU countries where at least a third of respondents saw self-employment as a possibility were Finland (45 %), Cyprus (37 %), Poland and Denmark (both 36 %).

It is interesting to compare the shares of *preference* for being self-employed with those concerned with its *feasibility*. In most countries, the proportion of non-self-employed who considered it feasible to become self-employed in the next five years was lower than the proportion of non-self-employed respondents who would like to be self-employed. For example, almost half of Latvians who were not self-employed would prefer to be self-employed; however, just a forth of them considered it feasible to achieve this in the next five years. The opposite trend was recorded in the Nordic countries. For example, about half of non-self-employed Swedish respondents said it would be feasible to become self-employed in the next five years, but not even a third part of them had an actual preference for changing their status.

A more detailed look at the perceived barriers to entrepreneurship can give some explanation for the differences shown above. Roughly 8 out of 10 EU citizens agreed that it was difficult to start up a business due to lack of available financial support. A large majority of respondents also agreed that business start-ups were difficult due to complex administrative procedures.

Figure 7: Barriers to entrepreneurship
(% of answers given)

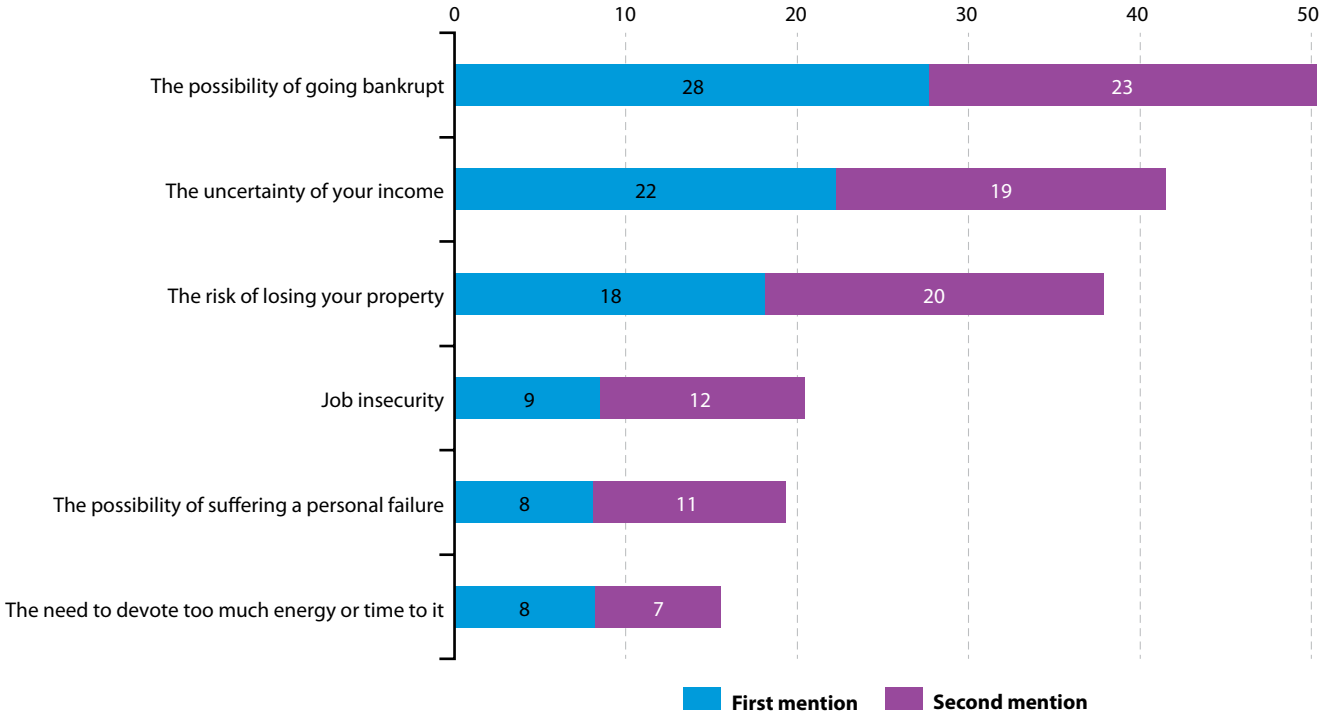


Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

EU citizens were, however, less likely to agree that it was difficult to obtain sufficient information about how to start up a business. A large majority (eight out of ten persons) agreed that entrepreneurs who had failed should be given a second chance. It is very interesting to highlight that at the aggregated level of the EU the results for the groups of the people with and without business experience were quite close to each other.

Some additional reasons for the differences in preference and feasibility can be found by looking in detail at the risks foreseen to be taken by the would-be entrepreneur. When EU citizens were asked what they would fear most if they were setting up a business in today's economic climate, about half (49 %) replied that to be the possibility of going bankrupt. The uncertainty of not having a regular income was mentioned by 40 % of respondents, and a somewhat lower proportion (37 %) selected the risk of losing their property. Only 20 % were most afraid of job insecurity when starting up a business. Similarly, 18 % named the possibility of personal failure as one of their greatest fears and 14 % felt that that they would have to devote too much time and effort to such a project.

Figure 8: Greatest fears when starting up a business
(% of answers given)



Source: European Commission, Flash Eurobarometer No 283 'Entrepreneurship in the EU and beyond'

Respondents were also asked what they would do if they inherited a significant amount of money; to see how many of them would choose to invest the money in starting up a business instead of, for example, saving the money, using it to buy a house or to repay their mortgage. At the aggregated level of the European Union, one out of seven citizens would start their own business under these circumstances, however, the answers to this question showed notable differences between the EU countries. Four out of ten Romanians and a third of Bulgarians would start a business if they inherited a significant amount of money, but in 8 Member States less than a tenth of respondents considered this an option. In most countries, a relative majority of respondents would either save the money or use it to buy a house or to repay their mortgage. Finally, spending the money on things that one always wanted to buy (e.g. a holiday or a car) was the preferred option for more than a fourth of Latvians and Maltese. The proportion of respondents who said they would work less or even stop working if they inherited a considerable amount of money remained below 10 % in all countries except for Sweden, where 10 % selected this response.

When the results for respondents' preferences for being self-employed, rather than employed (see figure 1) were compared with the results of the current chapter, some similarities could be seen. The correlation between the proportion of respondents who would prefer to be-self-employed and the proportion that would start a business if they inherited a significant amount of money was rather high for EU countries. Romania and Greece were countries with a very high proportion of

respondents who would prefer to be self-employed (52 % and 60 %, respectively). Furthermore, Romanians were the most likely in the EU to answer that they would start a business if they inherited a significant amount of money (42 %), while the corresponding proportion for Greece was almost twice as high as the EU average (21 % vs. 14 %). Respondents in Belgium and Denmark, on the contrary, were among the least likely to prefer self-employment (30 % – 32 %) and less than a tenth of Danes and Bulgarians thought they would start a business with the money that they inherited (5 % – 7 %).

Entrepreneurship in Luxembourg

The Luxemburgish government has recognised the need to measure the entrepreneurship activity and culture to have the possibility of influence entrepreneurial behaviours. However, the situation in Luxembourg is complex and rather unique.

The population of the country consists of 43 % of foreigners, of which more than a quarter are Portuguese, every tenth is French and every fifteenth Italian. In addition, every tenth foreigner is coming from outside the European Union. This population structure means a wealth of cultural backgrounds, also for entrepreneurship, and it makes for considerable differences in entrepreneurial behaviours within the country.

The situation on the labour market in Luxembourg is likewise specific. Commuters from abroad constituted 41 % of the total workforce (figures for October 2010). Half of them were coming from France and a quarter each from Belgium and Germany. In addition, almost every third worker with Luxembourgish citizenship was employed as a state or municipal civil servant or employee. The structure of the labour market also influences and probably biases measures of entrepreneurship in Luxembourg, as the financial sector accounts for a disproportionately high share in the national economy.

Nevertheless, the Luxembourgish government monitors all the available data that can help measure entrepreneurial activity and indicate the direction of actions needed to be undertaken by the authorities, but there are not many of them. The following four indicators ([5]) are gathered and regularly updated by the national competitiveness agency ([6]): tendency for entrepreneurship (based on the Eurobarometer survey); share of self-employed in the total workforce; net change of the population of enterprises; and business churn (based on Eurostat structural indicators ([7])). The European Commission Eurobarometer surveys are closely analysed by the government, as well as pilot studies conducted by Eurostat, such as the one on factors of business success ([8]) (2006). In addition, the number of business licences issued per year is recorded.

Out of the measures mentioned above, the Luxemburgish government recognises three main (classical) entrepreneurship indicators. Firstly, the share of self-employed in the total employment: In 2010, this share was not even 6 % and it located Luxembourg next to the lowest-ranked EU Member State, Sweden, while the EU average reached the level of 16 % and in Greece, the highest-ranked, 35 %. Secondly, the tendency for entrepreneurship, based on the Eurobarometer question concerning the status preferred as being self-employed, was just one percentage point lower than the European average of 45 %. This share is higher than in Belgium (30 %) and Germany (41 %), but lower than in France (51 %). Thirdly, the net change in enterprise population is recorded. According to this indicator Luxembourg, with a rate of 2.84 % in 2010, was one of the eleven Member States that ranked above the EU average (1.98 %).

In summary, the analysis of the three indicators does not show a clear picture of the phenomenon of entrepreneurship in Luxembourg.

According to the study on factors of business success (2006) only a fourth of all entrepreneurs in Luxembourg were Luxembourgish citizens. There was almost the same number of entrepreneurs with French and Belgian origin, and one out of ten was German. But the unique population structure was not the only reason for the extraordinary structure with regard to entrepreneurs' nationalities.

Monitoring entrepreneurship in Luxembourg then firstly needs to answer the question which entrepreneurship should be taken into consideration – only among residents, or including those from the border regions who registered a company in Luxembourg?

Looking at the example of Luxembourg, with its unique population structure and labour market, it is not possible to measure a global indicator of entrepreneurship. In addition, an atypical labour market creates a specific entrepreneur culture. On top of this, the situation and framework conditions in border regions can change sharply and regardless of any intervention or regulatory measure by the Luxembourgish authorities.

The authorities at local ([9]), regional and national levels spare no efforts to give high priority to actions fostering entrepreneurship culture. They realize the importance of measuring entrepreneurial activities and its necessity for taking right decisions to achieve success in their actions focused on entrepreneurship's support. The joint OECD – Eurostat Entrepreneurship Indicators Programme (EIP) ([10]) is a good example of successful efforts made at international level to develop the common framework of indicators, as a tool which allows recognizing a global picture of the phenomenon as well as also making the comparisons and benchmarking possible. The EIP consists of three pillars measuring various determinants, entrepreneurial performance and its impact on economy. Culture is recognised as an important factor which influences entrepreneurial behaviours and can be affected by decision makers at all levels. In these terms development of the measures that allow benchmarking of entrepreneurial culture supports efforts made by local, national and international authorities.

([5]) See, www.odc.public.lu/indicateurs/tableau_de_bord/index.html
([6]) Observatoire de la Compétitivité, see www.odc.public.lu/
([7]) See, http://epp.eurostat.ec.europa.eu/portal/page/portal/structural_indicators/introduction
([8]) See, http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/factors_business_success

([9]) For municipal entrepreneurship culture, see chapter 7
([10]) See http://www.oecd.org/document/58/0,3746,en_2649_34233_44441658_1_1_1_1,00.html

How to Develop an Entrepreneurial Culture — The Example of Söderhamn

How to Develop an Entrepreneurial Culture — The Example of Söderhamn

Margareta Högberg ([1])

Söderhamn, a city in the middle of Sweden

Söderhamn is a small city on the east coast of Sweden, about a two hours' drive north of Stockholm. It is situated by the Baltic Sea; the archipelago outside Söderhamn's coastline consists of about 500 islands. The infrastructure is well developed with two deep harbours, high speed trains and one of Sweden's main freeways, E4. The city was founded in 1620 and in those days the trade and industry were mainly focused on manufacturing rifles, paper mills, power systems etc.

The past two decades there have been big company closures. Current problems are a diminishing population, an increasing number of elderly, a high rate of unemployment, and increasing immigration.

Today there is a political unity on strategically important issues and a well- known vision for the future. Many exciting future focused projects are creating positive changes in the municipality and we have a strong growth within the service sector.

The municipality of Söderhamn's vision has got seven strategies for how to attain the desired future goals:

- Stimulate entrepreneurship and trade and industry development
- Further develop Söderhamn as a centre for learning
- Develop attractive living environments
- Cooperation and teamwork
- Focus on people interacting and meeting eye to eye
- Converge upon our strengths for a stronger cultural life and thriving climate for non-profit organisations.
- Highlight our progress

Söderhamn has changed completely the last ten years and gone from a situation where most of Söderhamn's inhabitants worked for a few big companies, to a situation with a high rate of unemployment, due to big company closures. Söderhamn has also got an increasing number of elderly, a diminishing population, and increasing immigration.

([1]) City Manager, City of Söderhamn

Influencing the entrepreneurship culture by focusing on education

The new situation led us to a point when it was realized that change was necessary. Söderhamn decided to influence the future by changing the culture through promoting an entrepreneurial culture in education from pre-primary to higher education.

Before starting, a definition of what is meant by the word entrepreneurship and was needed and Söderhamn chose the definition from the Swedish Agency for Economic and Regional Growth:

'Entrepreneurship is a dynamic and social process in which individuals, alone or in partnership, identify opportunities and make something with them to transform ideas into practical and targeted activities in the social, cultural or economic context.'

The next step was to identify the three different components of entrepreneurship.

The first component in entrepreneurial learning is the base for developing an entrepreneurial culture. It is a matter of how students can be supported to develop ideas and believe in themselves.

The second component is how to develop cooperation between schools and companies by work experience training/ learning

The third component is entrepreneurial training.

After that Söderhamn had to decide the skills that should be practiced in entrepreneurial learning and we identified the following skills:

- ability to see possibilities
- unrestrained thinking
- entrepreneurial spirit
- wealth of ideas
- ability to act
- stamina
- creativity
- courage
- ability to co-operate
- ability to express oneself
- self-esteem
- curiosity
- feeling of responsibility

By practicing these skills it was expected that children and young people of Söderhamn are allowed to cultivate ideas, dreams and imaginations. It was also expected that they will be able to make their own choices and take responsibility for those choices. They will also be given time to reflect (learn to learn) and most important of all, become entrepreneurs within their own lives.

Entrepreneurial components

Entrepreneurial learning

Entrepreneurial learning is about how students can be supported to develop ideas and believe in themselves. The preschools and schools have to offer learning environments that encourage everyone to become entrepreneurial individuals.

This shall be implemented by an entrepreneurial approach that is characterizing of all operations, labeled 'The future is NOW!' In all school activities, Söderhamn's pupils must be allowed to:

- develop ideas, cultivate dreams and imagination
- deliberately make their own choices and take responsibility for their own choices
- increase the involvement / influence
- train a 'helicopter view'
- become an entrepreneur in their own life.

Entrepreneurial skills is part of the curriculum, the basic view of man, learning and knowledge. Entrepreneurial competences are encouraged by entrepreneurial learning, which develop the abilities and attitudes that generate a dynamic thinking and actions what is already outlined in the curriculum goals.

Activities

In 2005 the project named Drivkraft Söderhamn, started. The purpose was to develop an entrepreneurial culture by doing entrepreneurial activities from preschool to adult education. First of all it was important that the teachers and the principals themselves had an entrepreneurial attitude and knowledge of how to develop those competences every day in school. Therefore it was necessary to educate those two groups.

Entrepreneurial learning in school is a strategy, a structure, an educational form of working with the curriculum goals to strive for. The aim is to create an educational environment that stimulates students' entrepreneurial skills, enduring skills that will lead to increased self-confidence, motivation, responsibility and optimism.

The project has carried out mandatory activities for all educational staff in Söderhamn. There have also been specific activities for principals and for the teachers. The project 'Drivkraft' coordinated courses for teachers in order to help them 'daring do' entrepreneurial school. In order to create legitimacy for the project objectives, it was important that through information, dialogue and education, translate the objectives, entrepreneurial attitudes and skills to the school governing documents, thereby creating a common ground — a teaching language for the desired development.

Several mandatory activities for school leaders has been carried through in order to provide training, opportunity for dialogue about the projects objectives etc., and information on the project's processes and activities. They have also been informed about process support and been given expertise in order to run an improvement project.

In addition to principals' educational work with their employees, have the project enhanced teachers' learning through different courses and activities. Teachers have been offered the opportunity of further education, dialogue about the project objectives, and been continually informed about the project's processes and available process support. Furthermore, good examples, exciting activities, improvements etc. have been shown in two exhibitions. Scholarships have helped to focus on the task and ensured entrepreneurial development within the school environment.

In addition to the above, there have been activities in the project such as lectures and inspirational days for principals and teachers, who gave evidence to reflect on the objectives and to find a balance between the two approaches regarding performance improvements that exist in schools, focusing on the shortcomings and weaknesses through training and control (external motivation) and focus on interests, ideas and strengths through emancipation (internal motivation). The main mission of the 'Drivkraft' project is to provide support to the entrepreneurial skills of managers and teachers. Principals and teachers' task is to 'take the process' to develop innovative and creative solutions, create environments within schools that encourage entrepreneurial skills, and to have an outlook in their teaching to do the same. That will allow students to learn for life and not just for school.

Cooperation between schools and companies by work experience training / learning

Entrepreneurship in education refers to activities where students are trained in working life, or may try to run a temporary business. This provides experience and knowledge of both working, and self-employment conditions. Within the project Drivkraft many ways of cooperating between schools and working life have been developed.

As mentioned above, Söderhamn's model for students to interact with companies and organizations is named 'The future is NOW!' and reinforces interaction between school and work, from preschool until the students are 15 of age, in the compulsory school. The model has been developed by the 'Drivkraft' project with representatives from schools and businesses during 2006-2007. The model was initiated in schools in 2008. Implementation took place in 2009. In preschool and grade 1-6 in the compulsory school the activities for example can be role plays, industry boxes, company visits and work experience in the neighborhood. The students in grade 8 have to write a CV and then they can search for a job in the special job magazine. When they have got a job they do half a day per week at the workplace and half a day at school to do their workplace report and to prepare the final trade fair in which they make a presentation of their companies and their job.

Entrepreneurial training

UF — The Young Entrepreneurship programme is an educational concept for high school students between the age of 16-20 years. UF gives the students the opportunity to experience the life cycle of an enterprise, from the start up to the closure. The UF organisation is a non-profitable organisation and was started in 1980. All regions in Sweden have a UF region office that educates interested teachers to become tutors and give students information about the concept. One of the main targets for the municipality of Söderhamn is to increase the number of students that participates in the UF-concept. In the municipality of Söderhamn all students can choose, during their last year in upper secondary school, to have a UF-enterprise as their final project work.

The number of students in Söderhamn that choose to be UF-entrepreneurs has increased, from 55 students in 2007 to 103 students in 2010. Traditionally the target groups for UF were students in economics and administration. Today students of art, construction, media, natural science, technical, health care, business and administration as well as business studies are working with the concept.

As a UF tutor a teacher must attend a qualification course and after that they can act as a coach for the students. The students work with their UF enterprises two hours per week during their whole last year. The students must decide who is in charge over which department in the enterprise and who will be the president.

Compulsory elements in the UF-concept are to register with UF-online, writing a business plan, arrange at least two selling opportunities, writing an annual report and establishing a contact with an advisor from the business world.

In addition to the above, there are a few optional elements such as creating a website, creating a logotype and creating an environmental plan for the enterprise. As a final event the UF-organisation in our region arrange the 'Young enterprise fair'. Almost every UF enterprise in the region is exhibiting the company and products at the fair. They can participate in different competitions i.e. best sales, best marketing or best website etc.

In Söderhamn there is also a concept called 'Summer entrepreneurs'. The purpose is to give young people, between the ages of 15 to 19, the opportunity to realise a business idea of their own, by putting it into action during their summer vacation. They start their very own business during the vacation. The main objective is to encourage an interest for the future, to start or run a company and to develop their entrepreneurial qualities. It is not necessarily about learning all the regulations about how to run a business. The concept starts with an inspiration and education week, a kick-off. Everyone is given 2 000 SEK to use for investments at the start of the business. Then they are working with their businesses a couple of weeks. They have a coach during the time. The concept is ended by a joint final activity and everyone gets a diploma. Business ideas have for example been self-designed stickers, café, freelance musician, IT-support, designing knives etc.

'Business Start' is a practical training program for adults with an idea for a potential company. As a researcher, innovator or entrepreneur you will be offered a foundation in preparation for founding a company. The program consists of ten workshops comprising critical areas in business such as business models, sales strategies, admission barriers, internationalisation, finance alternatives, leadership etc. Theory is alternated with practical work and experienced entrepreneurs and experts inspire and motivate. Between meetings there are some assignments and individual coaching is offered.

'Business Lab' is designed for people with a product idea or research results, that they want to develop and test — but at a very early stage. A highly experienced business coach will help half day/ week, analysing the technical and commercial preconditions for building a company. Fully equipped office space is offered to a reduced cost and it is possible to utilize other support functions from the business par, Faxepark, for example financial support. The enterpriser is helped in forming exactly the right network filled with competent people and organizations. Acceptance to Business Lab is a quality stamp among our customers, contractors, and financiers.

'Business Accelerator' (BA) offers a possibility to get support for companies with potential of becoming a future export company. To ensure a powerful realization of the business idea there is access to a business coach half a day per week. To get access to BA the company should be done with the initial phase, go away with product development, and be ready for marketing activities.

Research undertaken

The project 'Drivkraft Söderhamn' has been evaluated by Dr Lotta Svensson, who has studied the effects of all activities that have been done within the Drivkraft project. The objective of the evaluation consisted of two parts, a study of teachers' learning and effects the project has got on students. The work was intended both to be evaluative and to give the process support.

It seems that the risk of a narrow concept of entrepreneurship has been avoided in the Drivkraft project by showing the personnel the connection between the projects objectives and the main national objectives of Swedish schools. The activities in the project, what is perceived as an entrepreneurial approach, has already been written into the current curricula and objectives. The project has shown that a broad definition of entrepreneurship is very much consistent with the school's goals and guidelines.

Just because something is written in the school objectives and guidelines does not mean that it is practiced in daily operations. Drivkraft employed a project manager with a background as a teacher and had the project team initially working on the question of how entrepreneurship and the school's

values and objectives are related, and how to anchor this in the school's own curriculum with a focus on how to work with 'the conditions for entrepreneurial learning.

To develop an entrepreneurial culture requires new ways of thinking and practicing within the organisation. Developing teachers, leaders, teams and the organisation is essential. From the beginning, it is about one's own courage, reflection, inspiration and support from colleagues — but eventually it creates the need for organizational support and co-ordination.

Conclusion

Changing the entrepreneurship culture is not a quick fix, it takes a long time. Söderhamn decided to focus on children and students from preschool to adult learning and to work with the three entrepreneurial components.

It is a question of taking every chance to promote good examples of entrepreneurship and entrepreneurial attitudes on the web, in newspapers and in different fairs. At the same time it is a question of working very hard to offer good conditions for existing companies in the municipality and to have an organisation for developing good relations between the municipality organisation and companies.

Working with entrepreneurial learning and entrepreneurship from preschool to adult learning, why? The short answer is that this is the way to develop an entrepreneurial culture and the big challenge is to be sustained.

8

Evaluating Content Dimensions in Entrepreneurship Education

Evaluating Content Dimensions in Entrepreneurship Education

Kåre Moberg, Christian Vintergaard and Lene Vestergaard ([1])

Introduction

The interest in entrepreneurship education is growing all around the world, especially in innovation based economies, such as Denmark (GEM, 2010). However, we know rather little about the outcomes of entrepreneurship education, in particular with respect to which type of course content produces the best results and how this affects different types of students. There is a great variety of different views in the field of research concerning the content and structure of entrepreneurship courses, but no comprehensive study has as yet been done in which these competing views are clearly articulated as rivals and tested against each other. There is also a lack of programme evaluations that use control groups and have a longitudinal design (Gorman et al., 1997; Matlay, 2008). Those that have this setup often experience methodological problems due to their conceptual framework (Krueger, 2009), or they have a view of entrepreneurship that does not take into account the advancements within research that have been made during the last decade (Sarasvathy, 2008). Thus, we clearly need to dig deeper into this field in order to create methods and models that allow us to evaluate the outcomes of different types of entrepreneurship courses.

With the beginning of 2011, the 'Danish Foundation for Entrepreneurship — Young Enterprise' initiated a research project with the aim to further our understanding of the type of impact entrepreneurship education and different educational designs have on different types of students. Two longitudinal quasi-experimental surveys, one with a focus on elementary- and secondary-level and one with focus on tertiary-level, will be performed and databases with students from all parts and levels of the Danish educational system will be created. The surveys will use entrepreneurial self-efficacy (Mauer et al., 2009) as a performance indicator, but in order to generate robust results development of new measurement tools is needed.

In this paper the initial phases of this project and the research design of these two surveys will be presented. The text will begin with a contextual description and a short presentation of the Danish Foundation for Entrepreneurship — Young Enterprise. In order to identify the problem a discussion about the theoretical background of the field of entrepreneurship education and different types of outcome measurements will follow. We will then describe the methodological approaches that will be applied in the two longitudinal surveys. The text will end with a description of how we will develop new measurement tools and how these have the potential to further our understanding of which type of content (theoretical focus and didactical methods) in entrepreneurship education that fits different types of students.

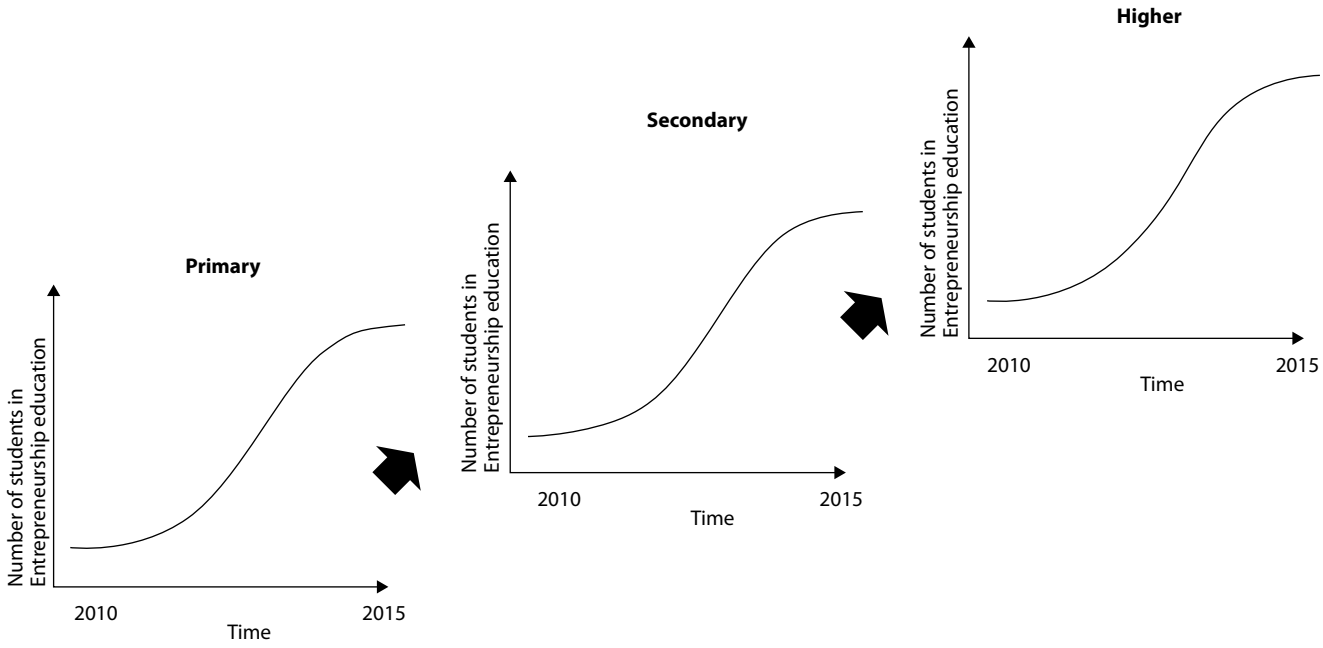
The case of Denmark

In 2010, the Danish government brought together several organisations in order to create a new organisation which should have the responsibility of developing entrepreneurship education holistically throughout the whole educational system in Denmark — from ABC to PhD, so to speak. The Foundation for Entrepreneurship, Activities and Culture — Young Enterprise Denmark, IDEA Denmark and Øresund Entrepreneurship Academy became one organisation with the name The Danish Foundation for Entrepreneurship — Young Enterprise. The organisation shall function as a coordinating actor and connect education within the field so that the progression runs like a red thread through all levels. In Figure 1 the vision of the organisation is graphically illustrated.

To accomplish this outcome the organisation performs activities that both focus on the demand-side, such as information and inspiration campaigns, and on the supply-side, such as the development of new courses and further education for educators. It functions foremost as a fund for innovative initiatives, both curricular and extra-curricular, that are initiated by local actors within the educational system. In Figure 2 the outcome line of the Danish Foundation for Entrepreneurship — Young Enterprise is presented.

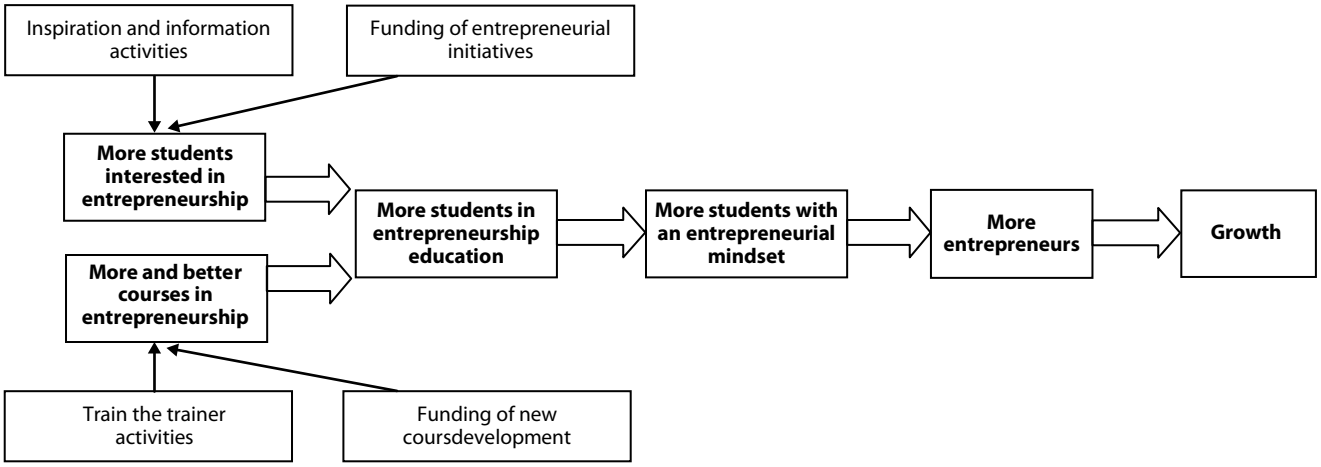
([1]) The Danish Foundation for Entrepreneurship — Young Enterprise Denmark

Figure 1: The vision of how the number of entrepreneurship students will grow over time at all levels of the educational system in Denmark



Source: Authors

Figure 2: The activity and outcome line for the Danish Foundation for Entrepreneurship — Young Enterprise



Source: Authors

One important assignment for this organisation is to assess the outcomes, i.e. the effects and impact of the programme. Each year the organisation makes a survey of how the number of courses in entrepreneurship and the students taking these courses has developed. A specific coding-scheme that identifies the subject and phase in the entrepreneurial project that the course focuses on and which didactical methods that are used (see Moberg, Vintergaard and Vestergaard, 2008, for a description), allows the organisation to assess the quantitative progress of the field. Little is although revealed regarding which types of impact and effects these initiatives have. In order to assess the outcomes of entrepreneurship education the organisation has put together a research group whose work will be presented in this paper, but before we can find the cure to a problem we first need to identify the problem. This will be done in the two following parts of the text, where the theoretical background, the diverging views and perspectives of entrepreneurship education, and the different ways to measure outcome within the field, are presented.

Theoretical background

Although the interest for entrepreneurship education has grown explosively in the recent years, the field still lag behind advances made within entrepreneurship research (Rasmussen & Sørheim, 2006; Honig, 2004). Much curricular design is based on theoretical assumptions, and entrepreneurship viewed as an activity is often divided into two fields, the science of entrepreneurship and the art of entrepreneurship (Henry et al., 2005). The science part, which is often being viewed as more or less being the same as business management skills, is perceived as being teachable, whereas the art part is being mystified as something that individuals learn by practice, experience and reflection, and is therefore not suitable for educational institutions to address (Timmons & Stevenson, 1985).

As the field can be said to have its roots within American business schools and the field of strategic management (Katz, 2003; 2008), planning, management and business skills have traditionally been the main focus for educational programmes, and it has often been taught by using case-based learning methods and business plan development activities (Honig, 2004). This traditional perspective has been challenged foremost by British researchers who argue that the focus should not be on how to perform a business start-up but on how to act and live as an entrepreneur (e.g. Gibb, 2002; Gibb & Hannon 2006). This research tradition argues that entrepreneurship cannot be viewed as a discipline that thus should be targeting a small and specific group. Entrepreneurship education should instead focus on providing students with enterprising skills, which are useful to all students, and it should thus be embedded in every programme (Gibb, 2002). An assessment of the impact of learning in the field should be broad and include all positive outcomes, such as increased motivation and interest in learning, resulting in better educational results and higher work satisfaction later on.

Another perspective that lately has influenced actors within the field is Saras Sarasvathy's concept of effectuation. By studying how expert entrepreneurs reasoned about how to make decisions under true uncertainty (Knight, 1921), she found that they used a different logic that was based on effectuation rather than causation. The expert entrepreneurs tended to ignore predictive methods which focus on future goals such as market research, competitive analysis and calculation of future gains, and instead relied on means-based, non-predictive control methods such as partnerships, affordable loss and leverage of contingencies. Instead of relying on the traditional notion that 'to the extent that we can predict future, we can control it', which is typical for management methods (e.g. Kotler, 1991), the effectual logic postulates that 'to the extent that we can control future, we do not need to predict it' (Sarasvathy, 2001). In this sense, the 'art' part of entrepreneurship is demystified and understood as something that can be investigated, codified and thus taught.

These new perspectives have rapidly gained ground within the field and many educators have moved away from a strict focus on start-up activities and altered their learning goals to a more skill-based approach of their educational programmes, both on elementary- and secondary- as well as on tertiary level. Little is known, though, about which effects and outcomes this has (Baron, 2009).

Another debate within the field revolves around the level of focus that should be given to either theory or practice (Fiet, 2001a; 2001b). In a simplified manner, the field is often divided in three groups: education about, for, or in entrepreneurship, which is said to depend on what target group the programme has. Knowledge lacks, though, about how these learning methods should be combined in a progressive manner though-out the whole educational system or in an extensive entrepreneurship programme. Many researchers within the field acknowledge that entrepreneurship educators need to apply a different type of didactics in order to teach entrepreneurial skills effectively (Gorman et al., 1997). Entrepreneurship in this perspective is viewed as a practical activity that requires doing, and educational programmes in the subjects should thus be based on action-based didactics with a functioning focus as those advocated by the educational researchers Biggs and Tang (2007), with classical declarative learning as solely a complement (Johannisson, 1991; Politis, 2005). Still, much curricular design within the field relies foremost on classic declarative teaching methods, often being the result of institutional pressure from study boards (Honig, 2004).

This short review of the theoretical background of the field clearly shows that both the disciplinary content and didactical methods are heavily debated and no clear consensus can be found regarding which approach to entrepreneurship education that should be applied to what type of students. There is a lack of studies that dig deeper into this problem. The studies that have been performed mainly focus on whether entrepreneurship education has a positive impact or not, and do not problematize the lack of consensus. This, in combination with institutional pressure from both study boards and the business system, has led to the result that many educational programmes within the field stick to classic teaching methods and curricular design and do not acknowledge the latest advancements within the field. In the next part of the text we will discuss different ways that researchers within the field have used to measure the outcomes of entrepreneurship education.

Different measurements

To understand what type of content, i.e. theoretical focus and didactical methods, that works best we need to be able to assess the outcomes of entrepreneurship educa-

tion effectively (Gartner & Vesper, 1994; Gorman et al., 1997; Matlay, 2008). A common way to measure the outcome of entrepreneurship education is to assess the impact it has on students' behaviour, intentions and skills (Krueger & Brazeal, 1994; Kolvereid & Isaksen, 2006; Kickul et al, 2009). Behaviour is hard to assess because there is often a significant time-lag between graduation and start-up activity (Bird, 1988; Lent et al., 1994). Most surveys therefore focus on either nascent behaviour (e.g. Reynolds et al., 2004), intentions (e.g. Krueger & Brazeal, 1994) or skills (e.g. Chen et al., 1998). Especially entrepreneurial intentions have gained a growing interest in the last decade and many rigorous studies have been performed in which social psychological theories have been applied, foremost Ajzen's (1991) Theory of Planned Behaviour (e.g. Tkachev and Kolvereid, 1999; Peterman and Kennedy, 2003; Fayolle et al., 2006; Souitaris et al., 2007, Graevenitz et al, 2010). From the viewpoint of a policy maker, the measurement of entrepreneurial intentions and entrepreneurial behaviour is of special interest (European Commission, 2008). However, it is hard to argue from a normative point of view that learning goals of a university course should concern these outcomes (Karlsson, forthcoming). An enhancement of entrepreneurial skills should, though, fit learning goals well, because the enhancement of knowledge and skills is education's *raison d'être* (Biggs & Tang, 2007), and thus, a model that allows us to measure this should be preferred.

The Self-Efficacy model, developed by Bandura (1977; 1997), has been widely used within many fields to assess the impact of different programmes, and it has been applied extensively by researchers within the field of entrepreneurship education (Mauer et al., 2009). It is a model that allows us to measure 'people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances to the extent that their level of motivation, affective states and actions are based more on what they believe than on what is objectively true' (Bandura, 1986, p. 391; 1997, p.2). It thus fits the field of entrepreneurship education well; because it to some extent has been established that individuals' perception of their abilities have a greater impact on their behaviour than actual abilities do (Krueger & Dickson, 1994).

To get precise measurements, we need to develop context specific scales (Bandura 1977; 1997). Researchers within the field of entrepreneurship education have mainly used scales developed by Chen et al. (1998) and De Noble et al. (1999) (according to Mauer et al. 2009). Cox et al. (2002) have taken the development a step further and anchored their entrepreneurial self-efficacy scale to Stevenson's et al. (1985) entrepreneurial stage model. This measurement design fits educational programmes better, because it allows us to follow the progression and development of the students in a clearer manner. This model was later refined by McGee et al. (2009). At Cambridge, UK, they have for many years used entrepreneurial self-efficacy scales developed by Mclellan et al. (2010). The scales mentioned above are fairly biased towards a traditional view of entrepreneurial activity, though, and little of the latest advancements within the field have been included, with perhaps Mclellan et al. (2010) as an exception. Kickul, et al. (2009) found that individuals with a cognitive preference for analysis scored higher than individuals with an intuitive cognitive style on the Cox et al. (2002) scale.

This is perhaps not the common view we have of the entrepreneur. As a model, it thus remains empirically underdeveloped (Kolvereid & Isaksen, 2006), and although it has been established that ESE is strongly connected to entrepreneurial intentions (De Noble et al., 1999; Krueger et al., 2000; Jung et al., 2001), little is known about which ESE construct that relates strongest to entrepreneurial intentions, behavior and performance (Kickul, et al., 2009).

Even though there are some examples of studies that have a longitudinal design and use control groups (e.g. Peterman and Kennedy, 2003; Fayolle et al., 2006; Souitaris et al., 2007, Mclellan et al., 2010; Graevenitz et al, 2010), this is more the exception than the rule (Gorman el al, 1997, Matlay, 2008), and a literature review of the field shows that no study within entrepreneurship education, known to us, that applies social psychological variables so far have followed their subjects for a sufficient time period (Matlay, 2008). All of the five ESE scales mentioned above (Chen et al., 1998; De Nobel et al., 1999; Cox et al., 2002; McGee et al., 2009; Mclellan et al., 2010) use a phrasing that is very biased towards entrepreneurship and business startup, which makes them unsuitable to use with non-entrepreneurship oriented control groups. Consequently, they need to be refined in order to generate reliable data to a quasi-experimental comparative change survey (Mohr, 1995). The challenge for a researcher that wishes to assess the impact of educational programmes will therefore be to develop non-biased but still context specific measurement variables, and design a survey that allows for a longitudinal tracking of the subjects for many years. In the next part of the text we will describe how this type of survey has been designed by the research group at the Danish Foundation for Entrepreneurship — Young Enterprise, in order to evaluate the entrepreneurial initiatives in the Danish educational system.

Two longitudinal surveys

As the discussion above illustrates, there are quite many challenges posed to an evaluation of entrepreneurship programmes. The time-lag issue is one, the role of education another. In this finish part of our text we will describe how we have chosen to handle these problems, and why we have chosen this particular research design.

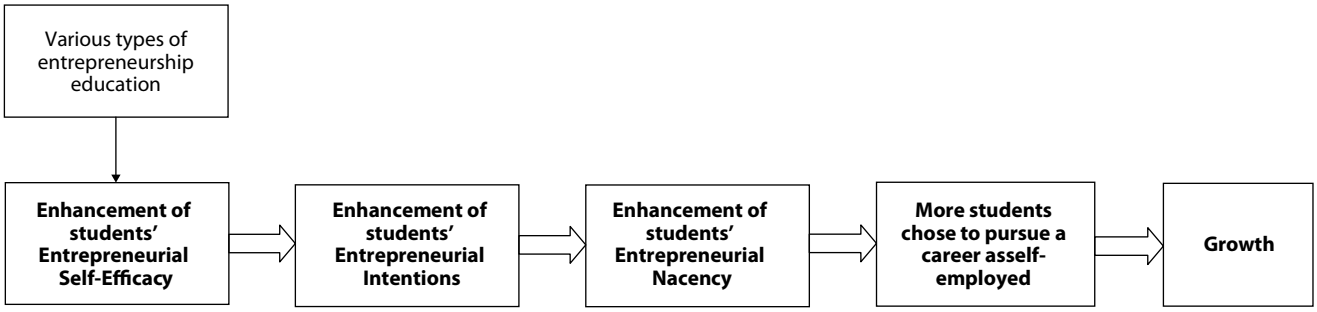
Two longitudinal surveys will be performed. One that focuses on elementary and secondary level where we follow students at lower-secondary level, and one that focuses on tertiary level where we follow university students at six entrepreneurship programmes and six non-entrepreneurship programmes. Even though the research design for the surveys has many commonalities, there are some important differences in the set up and in the outcome analysis. In both surveys we strive to use a quasi-experimental design (Campbell and Stanley, 1966), with a focus on how the students develop entrepreneurial self-efficacy (Bandura, 1977) and how this relates to start-up intention and entrepreneurial behaviours (Krueger& Dickson, 1994).

The structure of the field at elementary and secondary level is very different from tertiary level, though. At tertiary level, the educational programmes are structured in a way that makes it suitable for a classical impact analysis such as advocated by Mohr (1995) for example. At elementary and secondary level this is, unfortunately, not the case, and we will therefore use different research designs in the surveys. The goal for both of the surveys is to build databases which allows for accurate analysis and rigorous research. The survey at tertiary level, which allows for more sophisticated measurement tools, will be described first.

Tertiary level

At tertiary level, we are foremost interested in understanding *why*, not just if entrepreneurship education works or not. A formative impact analysis will thus be performed in which we will pay significant attention to each sub-objective (see Figure 3). The programme evaluation is designed in accordance to Mohr's (1995) impact analysis and we apply the quasi-experimental design that was pioneered by Campbell and Stanley (1966) 'Experimental and quasi-experimental designs for research', and later refined by Cook and Campbell (1979) and Cook et al. (1990); with some modifications that will be described below. The activity of interest in our impact analysis is various methods and ways of teaching entrepreneurship education to master level students at universities, technical universities and business schools. As illustrated in the outcome line in Figure 3, the outcome of this activity will be assessed by measuring what effect the education programmes has on the students' level of entrepreneurial self-efficacy. This performance indicator is presumed to have a positive effect on the following outcomes to the right in Figure 3 below, but this relationship still needs further empirical evidence. We will, thus, also measure the impact of entrepreneurship education on entrepreneurial intentions, enterprise birth rates, behaviour and performance.

Figure 3: The activity- and outcome-line of our programme assessment with all sub-goals included



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We are also interested in finding out which other different effects entrepreneurship education and entrepreneurial self-efficacy have on students' career choices. We will therefore measure variables such as work satisfaction, employment position, salary and wealth, in later stages. Master level students of six entrepreneurship programmes (experiment group) and six non-entrepreneurship programmes (control group) at three Danish universities and business schools will be followed for seven years (at the least).

A classic comparative change design in a quasi-experiment are structured as follows (Mohr, 1995):

$$\begin{array}{ll} \text{A/C:} & X_{1e} \quad T \quad Y_e \\ \text{A/C:} & \overline{\qquad\qquad\quad} \\ & X_1 c \quad Yc \end{array}$$

This longitudinal design is subjected to various threats to internal validity, such as selection, history, spuriousness and contamination (Mohr, 1995). The threat of history, i.e. that something else besides the treatment (T) accounts for all or part of the change over time (Mohr, 1995; p 67), is eliminated with the use of control groups (c). Eventually significant events will have the same impact on both of the groups (e and c). This is the main reason why we use this design. In our survey we are dealing with self-selecting groups. This is in conflict with the use of quasi-experimental design, because it generates selection bias and spuriousness.

Our experiment group (e) and the control group (c) can be suspected to differ significantly regarding levels of initial entrepreneurial self-efficacy (X_1), the so called P-selection variables in programme assessment (Mohr, 1995), but also on other variables which are not expected to be affected by entrepreneurship education (T), the so called Q-selection variables. By the use of pre-test (X_1) and post-test (Y) we can measure the

change in our two groups (e and c), and thus, the impact of the treatment (T). The problem is to control for the other variables that might affect the outcome (Y).

These Q-selection variables can also be expected to differ significantly between the two groups due to the self-selection. In entrepreneurship research these variables are fairly known, though, and we will control for variables such as parents' occupational status, entrepreneurial intentions, entrepreneurial experience, work experience, demographics such as age and gender, and educational background. Selection biases will thus be turned into selection effects, and the spuriousness will be eliminated in a large extent. The contamination problem that is a threat in all quasi-experimental designs (Mohr, 1995), will in our survey be controlled for simply by asking if the students have experienced any event that has had a significant impact on their entrepreneurial attitudes which cannot be related to their educational activities.

How the treatment affects the students can also be expected to vary depending on initial characteristics. As illustrated in the equation below, we suspect that the level of initial entrepreneurial self-efficacy (X_1i), will affect how the educational process (Ti) affects them.

$$Yi = a + b_1X_1i + bTTi + b_2X_1iTi + ui$$

The outcome (Yi) is thus not only dependent on the effect (b_1) of the treatment (Ti). A high initial level of entrepreneurial self-efficacy (X_1i) will probably lessen the effect of the treatment and thus render b_2 negative. ui is the disturbance term assumed to have mean of zero and to be randomly distributed across the subjects and a is the Y intercept.

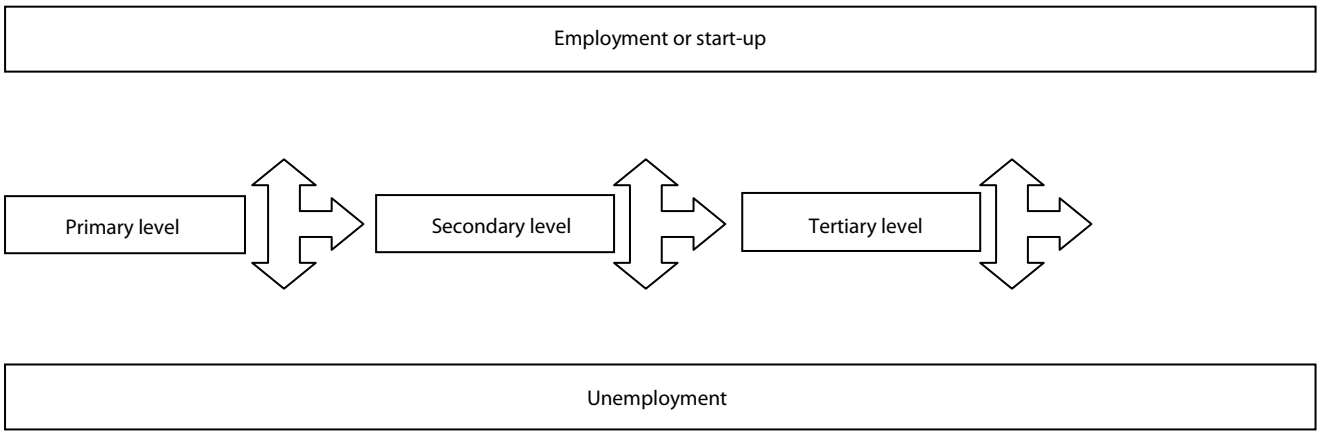
Out of the twelve programmes (six belonging to the experiment group and six to the control group), six will target management students, four will target engineering students and two will target humanities students. During the first two years, when the students attend their programmes, they will be asked to fill in a questionnaire three times: before they start the programme, after the first year and after graduation. They will then be asked to fill in the questionnaire three more times: one year after graduation where the focus will be on nascent entrepreneurial behaviour; three years after graduation where focus will be on actual behaviour, and then, finally, five years after graduation where the focus will be on performance (see Figure 3 for a graphic illustration of the time-line).

Elementary and secondary level

To assess the impact of entrepreneurship education on elementary students, in detail, we would have to follow them from the first day of school, which would be a very time consuming and impractical project. We have therefore decided to select students that are to begin their second year at lower secondary level (the same year the turn fifteen). Students at this level have their elementary schooling fresh in mind and are just one year from a very important decision: are they going to continue to upper secondary level or not? We will select 400 students at lower-secondary level, from 20 classes and 7 schools in Denmark, and analyse their experience with entrepreneurship education during elementary school.

A pre-test that measures their initial entrepreneurial self-efficacy will allow us to analyse the effects of entrepreneurship education during the last year at elementary level. The students will be asked to fill in the questionnaire annually, which allows for an analysis of their experience with the field, their entrepreneurial progression and their decisions. With regard to their decisions, special attention will be paid to their choice of school. In Figure 4 a description of the outcome model for the survey is presented. At each stage the students can choose to drop out from the educational process and get a job, become entrepreneurs, become unemployed, or choose to study further. In Denmark a political goal is that 95 % of students at lower-secondary level should continue on to secondary level. It is therefore of interest to analyse if entrepreneurship education at elementary and on lower-secondary level increases the students' propensity to continue on to secondary level, and whether entrepreneurship education at this level increases their propensity to finish their degree and continue to tertiary level.

Figure 4: Outcome model of the longitudinal survey of students at lower-secondary level



Source: Authors

The problem posed by this design is that we cannot initially identify an experiment group and a control group, and the selection of the subjects cannot be properly randomized. We will have to use a centralised autonomous selection process and the students (subjects) will then self-select into the experiment group, (i.e. those that have experienced entrepreneurship at one or more times during the process) and the rest will function as the control group.

Both of the surveys will be performed annually, so that the sample will grow steadily and allow for more rigorous and precise analysis.

New measurements

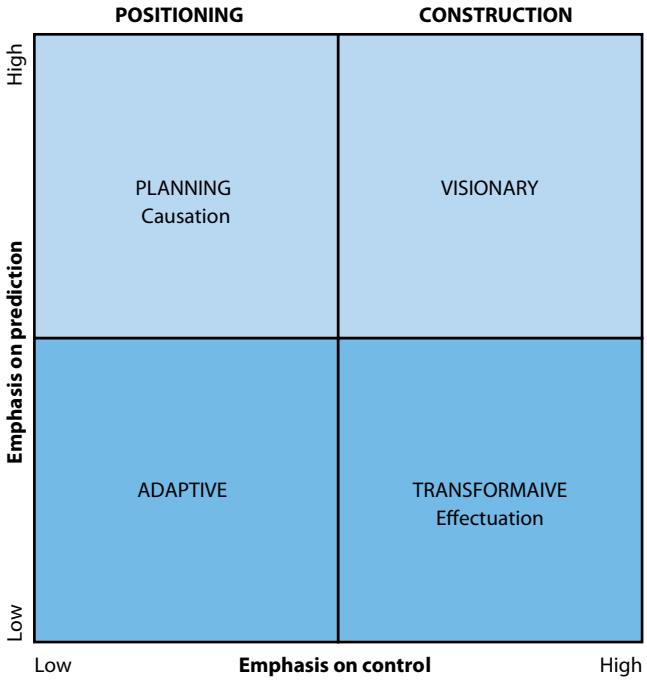
Before these surveys can be performed new measurements need to be developed. The surveys will be based on the entrepreneurial self-efficacy scales developed by Chen et al. (1998), De Noble et al. (1999), McGee et al. (2009) and Mclellan et al. (2010), but the items and constructs will be refined. Another type of phrasing will be used in which typical entrepreneurship words (such as entrepreneurship, innovation, start-up, venture capital, etc.) will be left out. The measurements will be developed in collaboration with the educators and researchers in the sample and then tested in a pilot survey on both students and active entrepreneurs. A specifically challenging issue here is to adapt the phrasing of the scales to suit students at lower-secondary level.

In order to understand what type of entrepreneurship education that builds entrepreneurial self-efficacy (and in order to generate interesting theoretical advancements of the field), we need to develop a categorization model. On the content level we will divide the educational substance into two groups: effectual approach or causational approach. Or model for this is inspired by Wiltbank's et al. (2006) dichotomy model, which outlines different management perspectives by assessing their focus on control or prediction.

We will apply these on different entrepreneurship education perspectives in order to relate and separate the different views. See Figure 5 for an outline of the model. The model will be derived from a literature review of conceptual and theoretical work within the field of entrepreneurship education and tested with a qualitative pilot study in which we interview entrepreneurship educators and relate their answers to the content of their courses, before the same process is carried out in our survey.

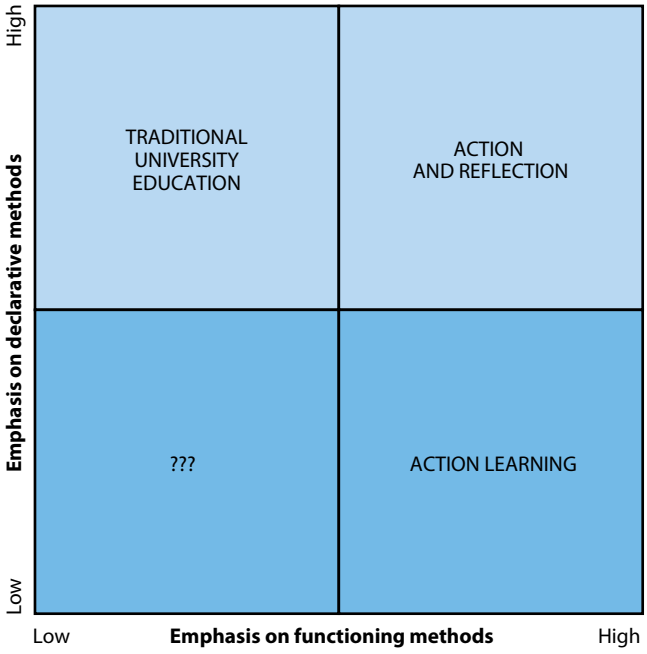
The model that will be applied to assess what type of didactical methods is being used in the programmes is inspired by Biggs and Tang (2007), and here declarative learning methods are contrasted against functioning learning methods. This will allow for an assessment of which type of learning methods that dominates the programme, by assessing each course separately.

Figure 5: A categorisation model that places perspectives according to their emphasis on prediction or control (Wiltbank et al. 2006)



Source: Authors

Figure 6: A categorisation model that place courses according to their emphasis on declarative methods or functioning methods



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These models that focus on educational content allows for an analysis that is both specific, yet inclusive. The curricular design

of the programmes, which often are very context specific and complex, can thus be compared on an aggregated level, and the outcomes of the design can be related to theory. The design will hence be externally valid and the results will thus be generalizable and of importance for curricular development within the field.

Summary

Impact evaluation and programme assessment is of mayor importance to the field of entrepreneurship education, but it is accompanied by a great deal of problems. Because there is a lack of consensus regarding teaching methods within the field, we cannot simply perform an impact analysis that gives us the answer if it works or not. Of greater interest is to find out what methods that works with which students. In order to do this we need to articulate different theoretical perspectives as rivals and test their effects on entrepreneurial outcomes. In our surveys we will use entrepreneurial self-efficacy as an outcome measurement, because it harmonize with learning goals of educational programmes and have a strong connection to entrepreneurial intentions and behaviours.

The biggest problem in performing an impact analysis of entrepreneurship programmes has to do with self-selection. In our research design we use pre-tests and post-tests and follow our subjects longitudinally, in order to handle these threats to internal validity. There are although a great deal of methodological issues that remain unsolved. We would although like to remind the reader that we still are in the very early phases of our project, and different tests and methods will be applied along the way in order to deal with these issues. Our project is both of theoretical interest for researchers and of practical interest for educators and policy makers.

Theoretically, we will advance the field with new measurements and insights on the effects of different theoretical perspectives within entrepreneurship education. On praxis level, we will further our understanding regarding which outcomes different educational methods have, to different types of students and at different levels of the educational system.

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9

Measuring Entrepreneurship Education

Measuring Entrepreneurship Education

Anders Hoffmann ([1]), Trine Fuglsang ([2]) and Lene Vestergaard ([3])

Introduction

Entrepreneurship education is an integrated part in most countries attempt to stimulate entrepreneurship. This chapter presents a framework that can be used to measure the input, output, outcome and effects of entrepreneurship education at the national level. A similar framework is needed for the program level but this is not developed here. The chapter's annex list existing and possible new indicators needed for tracking the evolution of entrepreneurship indicators at the national level. The indicators are selected to provide policy makers a snapshot of how their country is performing in the area of entrepreneurship education. The indicators are not useful for understanding the dynamics of how these outcome and effects are created.

The chapter shows that very little indicators are available at the international level. However, it also shows that great progress can be made in the area of input, output indicators even in the short run. The chapter uses examples from Denmark to illustrate that these collections are possible. Many other indicators would be nice to have but it is important to priorities in the international efforts for collecting indicators. Several indicators only need to be collected at the national level in order to be useful for analysis. Before starting any international collections it is therefore always important to ask whether these indicators need to be compared across countries in order to be useful for policy development.

It is recommended that an international organisation take up the task of developing these indicators, as they will provide invaluable input to the policy process in the EU Commission and in the EU member countries and other OECD countries. Measuring impact of entrepreneurship education does require much further work. It is recommended that some of the leading countries like Finland, Denmark and the United Kingdom work together on developing these measurements further.

Defining entrepreneurship education

No common definition of entrepreneurship education exists. The OECD/Eurostat Entrepreneurship Indicator Program defines 'Entrepreneurial activity as enterprising human action in pursuit of the generation of value through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.'

Entrepreneurship education will increase a person's ability to perform entrepreneurial activities, which therefore include creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance.

Essential knowledge, skills and attitudes related to this competence

Necessary knowledge includes the ability to identify available opportunities for personal, professional and/or business activities, including 'bigger picture' issues that provide the context in which people live and work, such as a broad understanding of the workings of the economy, and the opportunities and challenges facing an employer or organisation. Individuals should also be aware of the ethical position of enterprises, and how they can be a force for good, for example through fair trade or through social enterprise.

Skills relate to proactive project management (involving, for example the ability to plan, organise, manage, lead and delegate, analyse, communicate, de-brief, evaluate and record), effective representation and negotiation, and the ability to work both as an individual and collaboratively in teams. The ability to judge and identify one's strengths and weaknesses, and to assess and take risks as and when warranted, is essential. An entrepreneurial attitude is characterised by initiative, pro-activity, independence and innovation in personal and social life, as much as at work. It also includes motivation and determination to meet objectives, whether personal goals, or aims held in common with others, including at work.

Measuring entrepreneurship education at a national level

The starting point for the analytical framework for measuring entrepreneurship education at a national level is two essential questions concerning national policies on entrepreneurship education:

- Which effects do we desire to achieve?
- How do we achieve the desired effect?

The first question concerns the desired effects of entrepreneurship education for society. Policy makers might want higher growth by having more growth-oriented entrepreneurship

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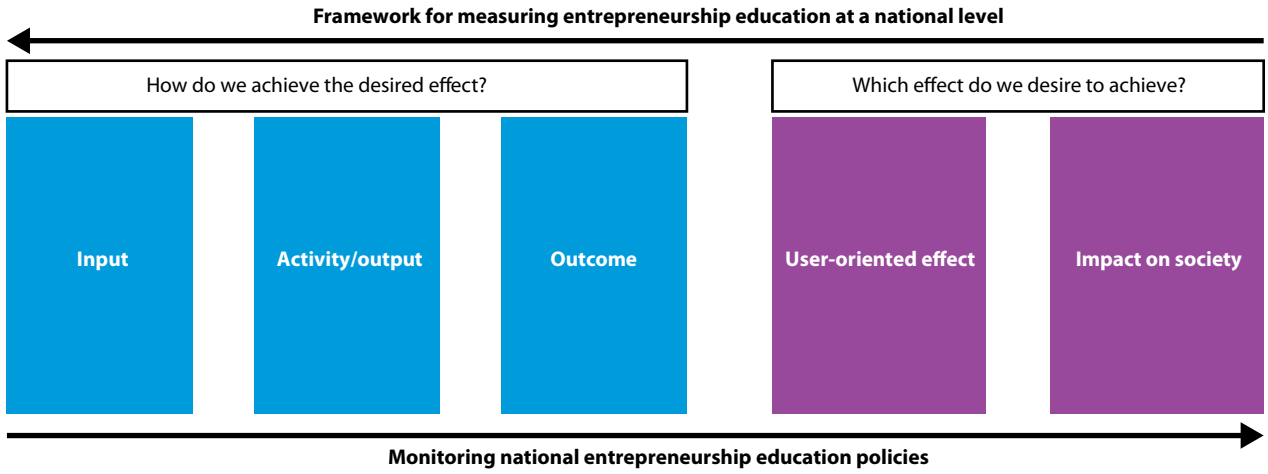
that is the desired impact on society. The OECD has defined three possible impact of entrepreneurship — higher growth, more employment and social inclusion (OECD, 2008).

The impact is created by entrepreneurs that act. Some of these have had entrepreneurship education and are therefore perceived to have better skills and therefore a greater impact on society. Students that have participated in entrepreneurship education are assumed to have better skills and confidence in their ability to start up and grow a firm, which is precondition for more high — growth enterprise that in many countries is the overall political goal. The effects of the education on the individual taking part can be names user-oriented effects. These effects are under very little control of the policy makers.

The second question concerns the factors in control of national policy makers and how to design good policy. Policy makers can provide inputs in form of resources spend on activities or institutions engaged in entrepreneurship activities, and policy makers can support entrepreneurship education through the legal/regulatory set-up. These inputs more or less control the level of activities for example number of entrepreneurship courses. The number of activities does to some degree determine the outcome, which constitute the immediate results of these activities like number of students' participation in the activities etc.

The analytical framework for measuring entrepreneurship education at a national level is illustrated in Figure 1 below.

Figure 1: Analytical framework



Source: Authors

Each element in the framework is presented in more details in the next sections.

Inputs

Integration of entrepreneurship into the education system is a long and complicated process. As any other evolutionary process it requires a deliberate allocation of resources. That is any intangible or tangible asset that will enhance and support the integration. Such resources or assets are all labeled 'inputs' referring to the above framework.

The fact that most education systems in developed economies are governed by some sort of centralized political level indicates that an obvious category of input is to be found here. Any profound change in the education system will have to materialize itself as a broadly accepted political wish or intention for change. Otherwise no change can occur. This implies that political support, in all its different forms, is relevant as input.

Broadly accepted political support is of course only a necessary but not sufficient condition for change. As the education system typically consists of a governing upper level it also consists of a wide range of institutions. Such institutions can ideally be viewed as formalized vehicles for fulfilling the above political intentions. They actually take the necessary steps and realize the relevant actions. But they can also be seen as vehicles of knowledge. And in the case of entrepreneurship this often means knowledge about new methods, activities and curricular content. Whether such new behavior and new knowledge need to be integrated in the existing institutions in the education system or have to integrated in new supportive institutions it all implies that the presence of the right institutions are to be seen as relevant input.

Finally, any deliberate politically induced intention and setting up or changing supportive institutions typically require funding. Funding pays the rent, wages and supports any other relevant activities that take place in the education system.

Inputs at the national/regional level are thus to be divided into 3 main categories:

- Political support and legal/regulatory
- Institutions supporting the agenda
- Money/resources spend on the activities

Political support and legal/regulatory issues

Political commitment for the provision of entrepreneurship education takes many forms. The introduction of a national strategy, an action plan, a set of specific policies or even a law are all vital inputs which indicate a strong political commitment. More specific indications of the political commitment include the adoption of broadly accepted definition of entrepreneurship education, the appearance of entrepreneurship in national education curriculum guidelines, explicit targets and timeframes and a prior stocktaking of the extent to which entrepreneurship is included in the educational system (OECD, 2006).

The actual measurement of the strength of political support is of course no easy task. Any comparable measurement of this will require the development of a common methodology. One obvious solution is a questionnaire for policymakers in the relevant countries. These questions should be based on a fact seeking approach, where the answer can be verified by others. Questions like has the government a strategy for implementing entrepreneurship education into the education sector. Some prior studies (See for example OECD, 2006) have already taken the first steps developing building blocks for such a methodology.

The prior work done by OECD also highlights another important caveat regarding measurement. In some countries, Canada and Belgium for example, educational policy is regulated at the provincial level. This should be taken into account when developing the methodology.

Institutions supporting the agenda

Relevant inputs also include supportive institutions promoting the actual realization of the above mentioned political strategy or legislative setup. Has there for example on a national level been established a steering group or committee on entrepreneurship and education? And does this body include representatives from relevant ministries to oversee integration of entrepreneurship in the educational system? (OECD, 2006). Other relevant institutions include entrepreneurship centers promoting entrepreneurship and developing the didactic framework to be applied at different levels in the education system. Also, the presence of private organizations, such as NGOs promoting the agenda can be vital in promoting entrepreneurship.

The difficulties measuring to what extent institutions have adopted the agenda for entrepreneurship are similar to the ones facing the measurement of political commitment. This will also require a common framework which addresses whether or not supportive institutions exists at all, how many and to what extent their activities corresponds to any overall strategy.

Money/resources spent on the activities

It is often argued that public funding is needed as an initial catalyst to start programmes but also that sustainability in the long run requires further attraction of private funding. Funding therefore includes both a national budget allocation and private funding for development and implementation of entrepreneurship education, i.e. the funding of institutions and entrepreneurship programmes throughout the school system.

Quantification of the total funding channeled for entrepreneurship education will require national policy makers to identify all relevant sources of finance. In some cases this must be suspected to include a decomposing of the overall national budget allocation for education. Both tasks emphasize the need for developing a common framework for such quantification.

All of the needed input indicators can be based on questionnaire to national expects. The OECD pilot project provides a good starting point for such questionnaire. These data will not be too complicated to collect.

Activities/Output

The immediate results of the inputs can be measured as the number of entrepreneurship courses offered. The spread of entrepreneurship education can be measured by identifying and quantifying the courses and subjects offered at the various levels of education. For that purpose a categorization model is needed. The model needs to define, which actives that should be included and excluded. Furthermore, the model should be flexible enough to courses where entrepreneurship is not the key objective but where it is integrated to such an extent that it provides real knowledge about entrepreneurship for the students.

No such model exists for primary and secondary level of education but is under development in Denmark. At the university level, a model has been developed and used since 2006 to map entrepreneurship courses regionally, nationally and internationally. This model allows you to analyse which topics, pedagogical methods and phases within the entrepreneurial project that a course or a lecturer focuses on. The model is developed for use at university level but has proven useful at other higher education as well. The model has been presented in academic fora, e.g. the Academy of Management to test its robustness (see Moberg, Vintergaard and Vestergaard, 2008).

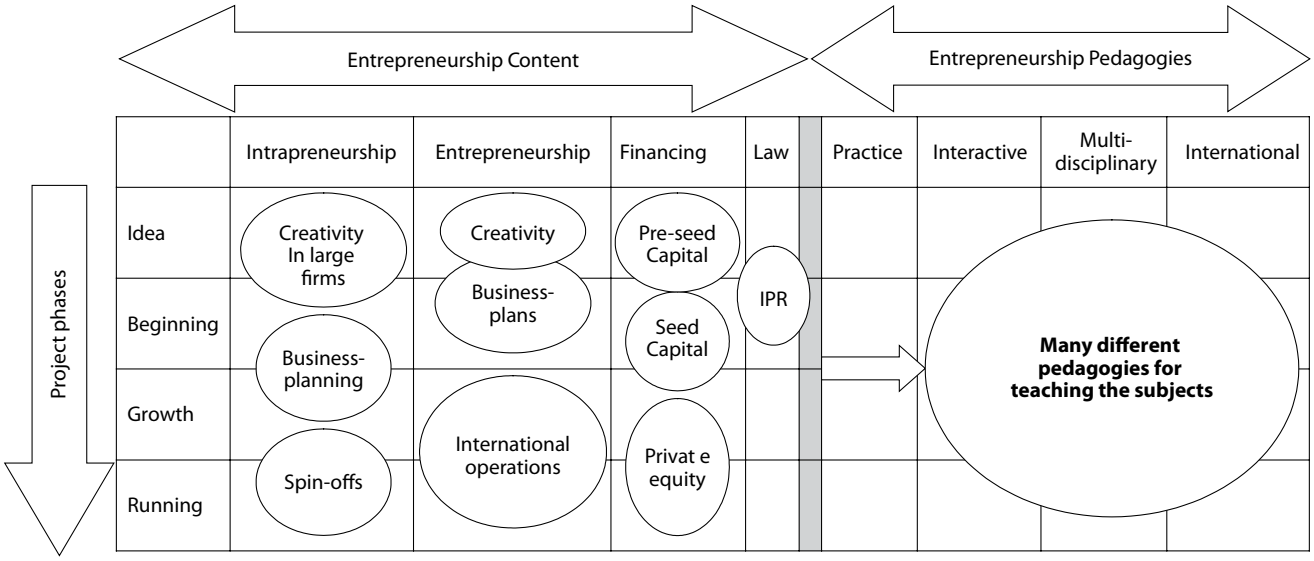
The model takes into account that entrepreneurship is an extensive academic and practical subject with a great variety of topics. The categories are selected on the basis of the general understanding of which topics should be included in entrepreneurship education as well as a review of the range of courses offered at universities. The key topics are: Entrepreneurship, Intrapreneurship/ corporate entrepreneurship, Venture Capital and Law (e.g. IPR).

In research, empirical complexity has often been accommodated by describing the development of entrepreneurial action as a sequential planned process with different critical phases and activities. The competencies required during the different phases of the entrepreneurial project, differ.

Therefore it is important that entrepreneurship curriculum cover all the phases — from the idea stage to the growing organisation or project.

It is commonly agreed that entrepreneurship cannot be taught effectively using traditional pedagogical methods and didactics. Practical dimensions and student participation are of great importance, as well as interdisciplinary and international elements in teaching. Each of the categories and phases mentioned above is considered an important determinant for successful teaching of entrepreneurship education. The model makes it possible to pinpoint in what topic and phase the course or the lecturer places focus. Figure 2 below shows how the content, phases and pedagogical methods can be illustrated. The model also illustrates the different kinds of well-known course contexts that can be taught (business plans, spin-offs, IPRs, etc.). In this model the different courses can be located according to their content.

Figure 2: Content, phases and pedagogical methods of entrepreneurship education



Source: Authors

The courses and their corresponding pedagogical methods can be given a grade ranging from 0 – 3, where 0 equals no focus on the specific subject, and 3 equals extensive theoretical and practical focus on the specific subject. The model thus serves not only as an identification tool but also as a means to categorize and get an understanding of which topics are mainly in focus and the pedagogical methods and didactics that are used.

Table 1 below shows an example of a course that has high degree of focus on the idea phase of intrapreneurship and entrepreneurship. The course also has a high degree of student participation, but very little attention to interdisciplinary and international perspectives.

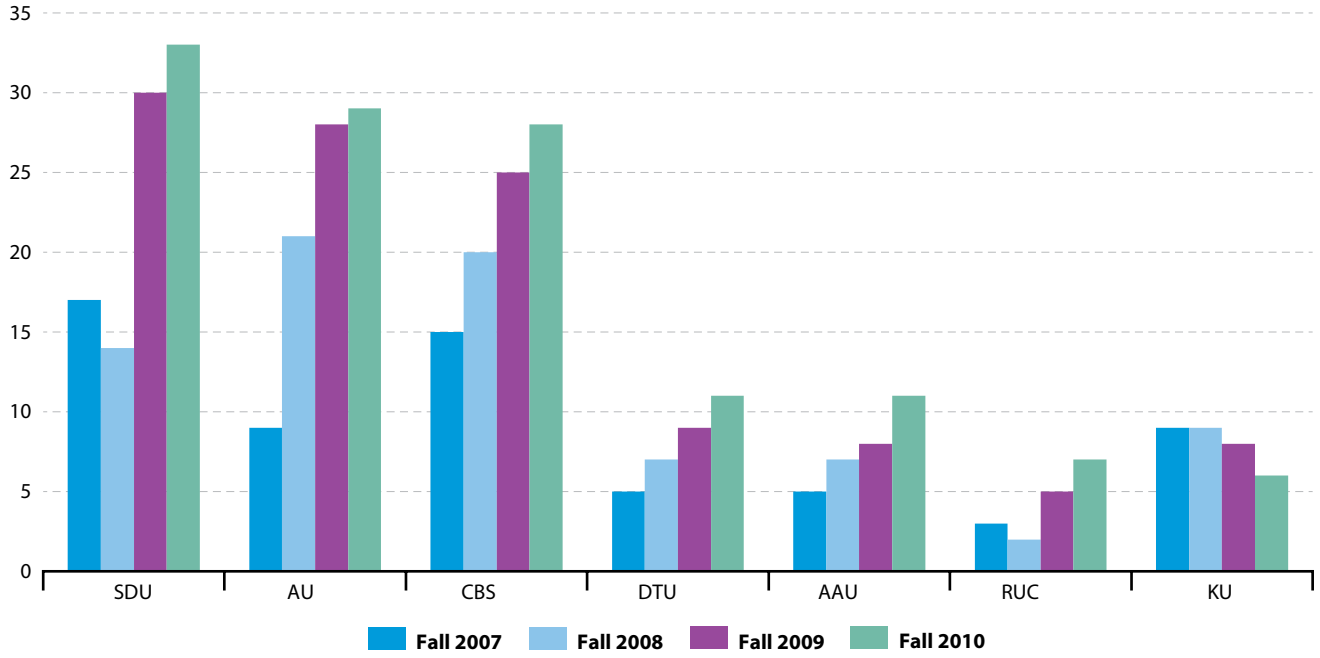
Table 1: Example of a course outline

Phases/ Categories	Intrapre neurship	Entrepre-neurship	Finance/ VC	Law	Practical dimensions	Student participation	Inter-disciplinary	International dimensions
Idea	***	***	*	**	**	***	*	*
Beginning								
Growth								
Running								

These types of data can be collected by a search of the university homepages and course catalogues using key words (e.g. entrepreneurship, innovation, etc.) forms the basis for identifying courses to which the model can be applied. Secondly, all course descriptions are evaluated and a chart is drawn up for each course. The chart is subsequently sent to the professor or course responsible for verification before a final registration. Registration of other specifics of the course allows for an accurate mapping of entrepreneurial focus, credit (ECTS-points), and level of education.

A mapping of this kind will show the extent to which the individual university offers entrepreneurship courses and their focus in this field and also allow for a comparison between the universities. Doing this mapping once a year, will also allow for tracing a development over time. Figure 3 below is an example from a mapping of the spread of entrepreneurship at all eight universities Denmark showing the number at courses offered in the fall semesters of 2007 to 2010.

Figure 3: Number of entrepreneurship courses at Danish universities



Source: Authors' research

The categorization model has not been used at the primary and secondary levels of education. There is reason to believe that a different method has to be used because entrepreneurship at these levels is more often embedded in the regular curriculum as separate activities than as a course.

Collecting these data is possible but will require a large investment in setting up a system and work is still need to develop a model for primary and secondary school.

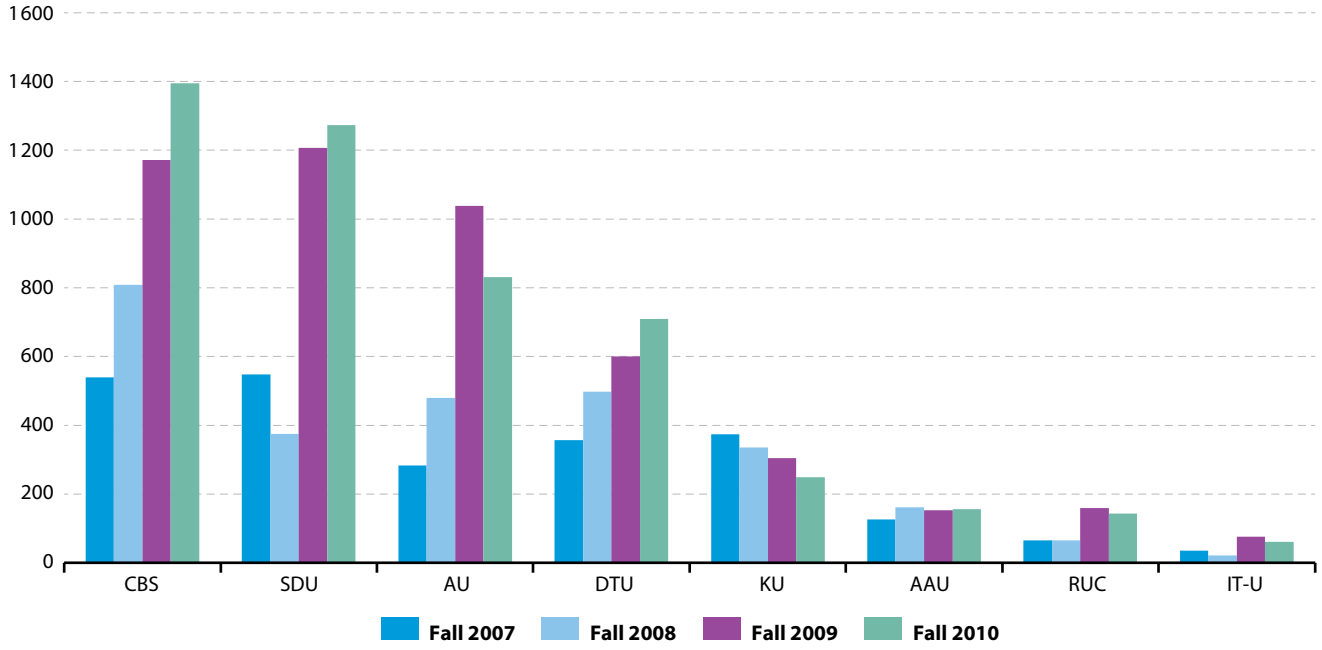
An additional output measure is number of trained teachers. It is very difficult to collect this data so it is recommended that this indicator is not included in the first attempt to collect the data.

Outcome

The outcome of entrepreneurship education has to be students that finish their studies and are able to pursue careers, either as employed or self-employed, with the confidence that they will have success in life. The number of students that have participated in entrepreneurship education can be documented in connection with the identification and mapping of entrepreneurship courses. Once a course is identified as an entrepreneurship course, the host educational institution can be approached and asked for an exact number of participants. In this process it will be possible also to get an overview of the distribution of men and women in entrepreneurship education.

Not only is it in this way possible to give an account of the number of students that do entrepreneurship courses in total and at the individual university, it will also be possible to compare the level of participation at all the universities. The number of students doing entrepreneurship courses combined with data of the total number of students registered at the individual university will give an indicator of how 'entrepreneurial' the universities are. Figure 4 below shows the development in the percentage of the students at the individual university participating in entrepreneurship education in the fall semesters of 2007 to 2010.

Figure 4: Percentages of students participating in courses



Source: Authors' research

Formal teaching is not the only activity that affects students' ability to become great entrepreneurs. The none-curriculum activities at educational institutions also have a great impact but these are again very difficult to measure as students participating in such activities are often not registered. Much further work is needed to understand how we can measure this.

Impact

Impact of entrepreneurship education is very difficult to measure, as the time-lag from when the education takes place and when the impact appears can be very long. Measurement of impacts will therefore always involve tracking of people over a long time period. Impact in the short run is the increase in entrepreneurial skills of the students (user-oriented effects). The long run effects are better performance of firms started by people with entrepreneurship training (impact on society). Some studies (e.g. Charney & Libecap, 2000) have also shown that entrepreneurial students also get higher wages in regular jobs. Ideally, impact should therefore be measured in both the short run as changes in skills and in the long run as superior performance of entrepreneurial students compared to others.

The enhancement of knowledge, skills and competences are the *raison d'être* of education, and education in entrepreneurship should thus be evaluated in accordance to this; the student who participates in entrepreneurship education should acquire the capacity to become an entrepreneur either as self-employed or employed in an existing business. The increase in the students' actual entrepreneurial skills is hard to assess, but research (Krueger & Dickson, 1994) has shown that perceived skills is of more importance than actual skills, when it comes to start-up intentions. Research within social psychology has been proven potent and of use to assess this. The concept of individual self-efficacy (Bandura 1979; 1997) has during the last decades grown popular within many fields to assess the impact of different programmes, and it has been applied extensively by researchers within the field of entrepreneurship education (Mauer et al., 2009). It is a model that allows us to measure 'people's judgments of their capabilities to organize and execute courses of action required attaining designated types of performances to the extent that their level of motivation, affective states and actions are based more on what they believe than on what is objectively true' (Bandura, 1986, p. 391; 1997, p. 2).

By tracking entrepreneurship students and comparing them with a control group we will be able to assess what type of impact different educational designs have on students' entrepreneurial self-efficacy. This longitudinal design would allow us not only to assess if entrepreneurship education works or not, but also what type of entrepreneurship education which suits different type of students best. The surveys will also generate databases of entrepreneurship students which will allow us to investigate what type of impact the education has on a long term. These data bases can measure to which extent the students pursue a career as self-employed and how successfully they do this, but also how successful they are compared to 'ordinary students', if they choose to pursue a career as employees in established organisations.

However, in this area much can be gained by following national initiatives. With the start of September 1, 2011, a research group at the Danish Foundation for Entrepreneurship will begin to build these data bases. At university level, students of six master programmes in entrepreneurship and six non-entrepreneurial master programmes will be tracked. The sample will consist of students within the fields of management, engineering and humanities and will be drawn from five different regions in Denmark. They will follow the students for seven years and test them how their entrepreneurial self-efficacy, entrepreneurial intentions and entrepreneurial behaviour, changes. They will fill in a questionnaire before they begin the program, after one year, after graduation, and then one, three and five years after graduation.

They will also track students at lower-secondary level and analyse their experience with entrepreneurship education at elementary level and current level, and evaluate what type of impact this have on their future choices, such as if they decide to continue with their studies at secondary and tertiary level.

Annex 1: Possible Future Entrepreneurship Indicators

INPUTS	
Indicator	**Potential data source**
1. Whether entrepreneurship is part of education policy/strategy at the national/regional level	Online search or information provided by governments directly
2. Is entrepreneurship education required at all level of education?	Online search or information provided by governments directly
3. Amount of government funding for entrepreneurship education programmes	Information provided by governments directly
4. Amount of private funding for entrepreneurship education programmes (alumni entrepreneurs, companies, foundations, NGOs)	Online search supplemented by information provided by schools

OUTPUT	
Indicator	**Potential data source**
5. Number/percentage of schools (at each level) offering entrepreneurship education	National survey of schools
6. Percentage of students having access to entrepreneurship education	National survey (currently in GEM)
7. Number of educators teaching entrepreneurship	National survey of teacher training and development
8. Student access to extracurricular entrepreneurship offerings	Online search supplemented by information provided by schools

OUTCOME	
Indicator	**Potential data source**
9. Percentage of students trained in entrepreneurship (at each level)	National survey
10. Percentage of population with training in entrepreneurship	National survey (currently in GEM)
11. Percentage of entrepreneurship educators trained in topic.	National survey of teacher training and development

IMPACT	
Indicator	**Potential data source**
12. Increased interest in starting a company/desire for business ownership	National survey (currently in GEM)
13. Increased entrepreneurial skills	Evaluations of students participating in courses
14. Number of students/alumni starting businesses/becoming involved in entrepreneurial ventures	Alumni tracking
15. Additional survival and growth in firms started by entrepreneurship students	Alumni tracking
16. Higher productivity in firms hiring entrepreneurship students	Alumni tracking

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10

Indicator Development: The Culture Determinant

Indicator Development: The Culture Determinant

Amisha Miller (1)

Introduction

This chapter reports on a session of a topical seminar dedicated to analyse potential indicators on 'culture'. Culture is the sixth column of the EIP and is widely billed as the most difficult to measure. The topical seminar successfully looked at a wide range of ways to measure culture, and suggested indicators to measure under each one. However, many of these methods are not tested, and will have to be proven over time.

The analysis of potential indicators starts with the EIP framework designed by the OECD. Under 'culture' this framework proposes the following indicators: Risk attitude in society; Attitude towards entrepreneurs; Desire for business ownership; and Entrepreneurship Education (mindset).

Background for indicators

Before the discussion, two ways to measure culture were discussed – taking bottom-up individual opinions leading to the whole picture, or using top-down indicators to demonstrate culture. It appeared that many of the existing indicators were bottom-up. Initially the group focused on bottom-up indicators, looking at top-down in the second session.

Another suggestion was to prioritize indicators in order of reliability, looking at observations first, followed by perceptions and then beliefs about the future.

The indicators had to be usable for policy-making. It was suggested that, particularly given the effects of the recession, the group should look at necessity entrepreneurship. As part of culture this would result in an indicator such as whether people were afraid of losing their job. This idea was rejected, as it was felt that policy-makers would not be able to act on the information.

Bottom-up indicators

The group began by selecting the most important bottom-up indicator and agreed that it was attitudes towards risk. An important part of this is failure, as the cost of failure can have an effect on both the perception of risk and actual risk. A problem that remained unresolved was how to measure the perception of failure within a society.

- The World Values Survey and Eurobarometer both had questions on this to individuals
- National statistics such as a guaranteed minimum income (such as benefits) over a year could be a indicator to show mitigated risk of failure

Other points were networks and role models. There was much discussion about networks as they show the culture of creating businesses in groups rather than as individuals, helping to include businesses that begin in communities as described in Italy and Sweden. This discussion continued and led to some top-down and bottom-up indicators on this point, but there was little agreement on whether this section fitted into the culture part of the framework, or whether it fitted better into capabilities.

Role models were discussed as a clear part of the network discussion that fitted into culture. They were seen as important to help people gain more knowledge about starting a business, as well as providing an inspiration.

- GEM and the Eurobarometer survey both had questions that could be used to measure whether someone had access to a role model.

Perceptions and attitudes were selected to collect a wide range of views from individuals. Perceptions focused on what people thought of entrepreneurs, and whether they thought they themselves had the confidence skills and knowledge to be an entrepreneur. Attitudes focused on whether someone would choose self-employment, their determination, and their level of ambition. Both sections contain many suggested indicators, which need to be tested and selected.

Top-down indicators

There were a few top-down indicators. The major ones fall into the three main categories of media and formal businesses.

Media was selected as the most important top-down indicator to measure culture. However, it was difficult to find an indicator that could be measured using existing information, and also to compare it globally. In the absence of a perfect solution, the group proposed to use Google trends.

As the OECD aims to strengthen the formal business sector, it was proposed that the size of the formal sector should be measured. This would reflect the culture of businesses in the country and would show whether new businesses created are likely to be formal or informal.

The group aimed to measure political involvement and will in the issue of entrepreneurship by selecting a political strategy document that could be made subject to qualitative analysis. This posed some problems in global comparisons and perhaps it should be seen more as a recommendation for countries.

The other top-down suggestions fit into the existing columns: risk attitude (as seen above), attitudes and network. See Table 1 below.

(1) Endeavor, Sao Paulo, Brazil.

Table 1: Potential Indicators (see full details further below)

CULTURE INDICATORS					
Attitudes towards risk	**Role models**	**Perceptions**	**Attitudes**	**Media**	**Formal sector**
% of people willing to take risks – Eurobarometer	% of population that know someone who has started a business – GEM	% of people that see entrepreneurship as a good career choice – GEM	% of people aiming to start a business – Eurobarometer	Number of times entrepreneur and entrepreneurship is mentioned in news and in web searches – Google trends	Size of the informal economy – World Bank
% of people willing to take risks – World Values Survey[1]	% of population that have seen stories about successful entrepreneurs in the media – GEM	% of people that respect entrepreneurs – GEM	% of people aiming to start a business – GEM		
% of people unwilling to take risks – WVS	% of population whose close family have started a business – Eurobarometer	Opinion of entrepreneurs compared to other groups – Eurobarometer	% of business owners that aim for growth – GEM		
		Opinion of entrepreneurs compared to other groups – Gallup poll	% of population that is determined – WVS		
		% of population that believe they have the confidence, skills and knowledge to start a business – GEM	% of population that is ambitious – Eurobarometer (3 indicators)		
			% population that is passionate about their work – WVS		

Table 2: List of potential network indicators

Network	Indicator	Source	Rationale
Network Capabilities or culture?	Average number of owners per start-up	registration statistics	Proxy for network
	Average experience (in years) of start-up team	registration statistics	Proxy for network
	% of population involved in trade associations / memberships	GVS	Proxy for network

Further actions

The following further development axes were discussed:

- Test indicators and choose the best under each column;
- Ask the World Bank to find their best indicator to measure a formalizing economy;
- Decide whether network indicators are relevant, and where they best fit within the EIP framework;
- Pull together the other suggested indicators and see whether any fit into the EIP.

Indicators (detailed):

Area	Indicator	Source	Rationale	Comments
Media	Number of times entrepreneur and entrepreneurship is mentioned on web and in web searches	Google trends	Proxy for how entrepreneurs are viewed by a society	Would be better with rating to see whether mentions are positive
Formal economy	Size of the informal economy (percentage of whole)	World Bank	Proxy for how integrated / involved entrepreneurs are	

Area	Test indicators	Source	Rationale	Comments
Risk attitude and fear of failure	Number of people willing to take risks. In general, I am willing to take risks (strongly agree, agree) (D10.a)	Eurobarometer	Attitudes to risk	
	Number of people willing to take risks. Adventure and taking risks are important to this person; to have an exciting life. (V86).	World Values Survey (WVS)	Attitudes to risk	
	Number of people avoiding risks. ...most important [things] if you were looking for a job: 1: A good income so that you do not have any worries about money, 2: A safe job with no risk of closing down or unemployment (V48 and V49).	WVS	Proxy for risk avoidance	
Role models	% of population who know someone that has started a business. Do you know someone who has set up a business or become self-employed over the last 3 years?	GEM	Proxy for having access to a role model	
	% of population whose close family have started a business. Occupation of parents – D7: father self-employed, D8 mother self-employed white-collar employee in private sector, blue-collar employee in private sector, civil servant or without a professional activity?	Eurobarometer	Proxy for having access to a role model	
	% of population who have seen stories about successful entrepreneurs in the media. In [insert country], do you often see stories in the public media about successful new businesses?	GEM	Proxy for having access to a role model	
Perceptions	% people that see entrepreneurship as a good career choice. In your country, most people consider starting a new business a desirable career choice.	GEM	Societal view of entrepreneurs	
	% people that respect entrepreneurs. In your country, those successful at starting a new business have a high level of status and respect.	GEM	Societal view of entrepreneurs	
	What is your opinion about the following groups of persons? Is it ... [rather favorable, neutral, rather unfavorable, DK] a) Entrepreneurs (Self-employed, business owners). (Q15.)	Eurobarometer	Societal view of entrepreneurs	
	Please tell me how much confidence you, yourself have in each one [institution].A great deal, quite a lot, some, or very little?	Gallup	Societal view of entrepreneurs	Similar to Eurobarometer question
	% of population that believe they have the confidence, skills and knowledge to start a business.	GEM	Indicator for confidence	
Attitudes	% population choosing self-employment. Suppose you could choose between different kinds of jobs, which one would you prefer: being an employee / being self-employed / none / DK (Q1.).	Eurobarometer	Number of people that want to be an ent	
	% population choosing self-employment. In the next three years, do you aim to start a business?	GEM	Number of people that want to be an entrepreneur in the next 3 years	Similar to Eurobarometer question above
	% population determined. Work should come first even if it means less spare time (CO41).	WVS	Proxy for determination	Is this too 'dark side'?
	% population that is ambitious. ...most important [things] if you were looking for a job: Doing an important job that gives you a feeling of accomplishment (V48, V49).	Eurobarometer	Proxy for ambition	

Area	Test indicators	Source	Rationale	Comments
Attitudes	% of population that is ambitious. Being very successful is important to this person; to have people recognize one's achievements. (V85) scale.	Euro-barometer	Attitudes on ambition	
	% population that is passionate about their work. I would work even if I didn´t have to (CO42).	WVS	Proxy for joy	
	% business owners that aim for growth.	GEM	Proxy for ambition	

Network indicators:

Network	Indicator	Source	Rationale	Comments
Network Capabilities or culture?	Average number of owners per start-up	registration stats	Proxy for network	
	Average experience (in years) of start-up team	registration stats	Proxy for network	
	% of population involved in trade associations / memberships	GVS	Proxy for network	
	% population that is well supported. Do you have good human relationships? (A169)	WVS	Proxy for network	
	% population that are well networked. Voluntary organizations – active member, an inactive member or not a member (V27). Labour Union (V30). Professional association (V32). Consumer organization.	WVS	Proxy for network	

Other suggested possible indicators:

Political	Number of times entrepreneurship mentioned in economic strategy of government	Econ strategy document	Proxy for how important entrepreneurship is to policy-makers and the nation	How to define which document? Whether it's about change or level. Is this just a suggestion?
Ambition	Number of people that work for young enterprises	Business register	Proxy for how many people are entrepreneurial in a society	
Risk attitude and fear of failure	Level of guaranteed income in a country (benefits)	National stats	Proxy for opportunity cost or risk of failure	
	Level of minimum wage / average wage in country	National stats	Proxy for opportunity cost or risk of failure	
Network	Density of other entrepreneurs in area	Registration stats	Proxy	
	Number of entrepreneurship professors / teachers in area	To be decided.	To be decided.	

11

Indicator Development: The Capabilities Determinant

Indicator Development: The Capabilities Determinant

Sonja Djukic ([1])

Introduction

This chapter reports on a dedicated seminar session on indicators to measure entrepreneurial skills. The objective of this session on entrepreneurial capabilities was to bring together international experts on entrepreneurship and come up with a concrete list of indicators of entrepreneurial capabilities. A diverse group of experts was present during the two sessions: Entrepreneurship Indicators Steering Group (EISG) members, representatives from different governments and statistical agencies, representatives from various foundations, research institutes and international organizations, survey designers, entrepreneurs, academics, etc. The session started with a brief description of the previous work of the EISG related to determinants of entrepreneurship and more specifically, with an overview of existing indicators related to capabilities.

Existing groups of indicators for capabilities:

- Training and experience of entrepreneurs;
- Business and entrepreneurship education;
- Entrepreneurship infrastructure;
- Immigration and entrepreneurship.

Participants were invited to reflect on the existing indicators and develop new ideas on how to measure capabilities. Some indicators have been published in the collection of indicators within the joint OECD/Eurostat Entrepreneurship Indicators Programme and many studies have been done on most of the themes enumerated above. However, there is no general consensus on a specific set of indicators that define capabilities. In group discussion, it was recognized that indicators need to be widely available and regularly updated.

Key issues discussed

Note: A table with a list of indicators is provided at the end of this chapter.

Entrepreneurship education

One of the points of discussion regarding entrepreneurship education (in universities in particular) is the difficulty of obtaining the information about what courses are offered and how much entrepreneurship is taught in a particular program. For example, sometimes entrepreneurship is not formally included in the curriculum, but is nonetheless taught in courses. Some of the indicators discussed were: the number of students taking entrepreneurship courses and whether those courses are included in their program of studies or not.

Universities are considered as the main sources of data for this group of determinants. However, the general agreement is that it is hard to obtain the information needed from universities. There are surveys on education in general as well as on entrepreneurship education, which are good potential sources. The problem is that they usually only include a few countries, the surveys from universities are not always widely available or are not regularly updated.

Follow-up surveys done by some universities were identified as a useful source to track their alumni to find out:

- how many students became entrepreneurs;
- how the university prepared them for their entrepreneurial career;
- what courses they have taken.

Another potential source for indicators linked to education is the OECD's Programme for International Students Assessment (PISA). It has been suggested that the skills, knowledge and key competences in specific fields of younger students (15 year-olds) could be assessed through this programme.

The discussion then turned to students in secondary schools and a potential indicator identified was: the number of students that participated in entrepreneurship programs and/or courses in secondary schools. (Source: Junior Achievement Young Enterprise)

Some of the existing indicators were discussed, as to determine whether they should be used in the future, modified or not used at all. Those that were kept are:

- population with tertiary education;
- quality of universities, business schools;
- population with entrepreneurship education.

Europe 2020 Strategy having education as its 4th target was identified as an opportunity to gather more data on specific issues regarding entrepreneurship education.

Entrepreneurial skills and experience (skills and abilities)

One of the comments made often in the discussion is that an entrepreneur does not need to have a particular educational attainment in order to be successful in his/her business. Some participants indicated that we would be missing on capturing a comprehensive picture of entrepreneurial capabilities if the informal training and experience in general were not included.

This group of indicators was divided in two: skills and abilities.

([1]) Industry Canada.

Skills

The type of training provided by firms and their spending were identified as a potential indicator of skills. Other potential measures discussed were:

- measuring the proportion of resources firms devoted to R&D;
- the entrepreneurs' ability to engage in new markets and/or export (example: look at the number of countries the firm exports to, etc.).

Furthermore, lifelong learning statistics from the Labour Force Survey (EU) were identified as a potential source on learning activities, whether formal, non-formal or informal, undertaken with the aim of improving knowledge, skills and competence.

The idea of measuring government investment/support in training was also discussed, but no source was identified.

Abilities

To measure abilities of entrepreneurs, it was suggested to look at serial entrepreneurs; for example: how many businesses they have created and/or owned or simply the number of serial entrepreneurs. Two other indicators that were identified were the age and the number of years of experience of business owners. The sources for this would be business surveys (example of Canadian SME Financing survey was given and a possibility of having a similar survey in the EU)

Entrepreneurship Infrastructure (Networks)

This 'box' of indicators was of great interest to the participants and some time was spent on trying to define what that infrastructure is and how it could be measured. The participants had a lot of ideas as to what could be included there and after giving this title more thought, we agreed that 'networks' would be more suitable for the title of this box.

The importance of transfers of knowledge and centres for entrepreneurship was highlighted. Whether they are in universities or not, the common agreement was that data on the number of entrepreneurship support centres (including knowledge transfer centres or technology transfer offices, etc.) would be of value. Furthermore, other useful indicators identified were:

- number of businesses established out of universities;
- number of patents (out of universities);
- number of volunteer hours / internships offered by centres or universities;
- availability of mentorship programs (use sources such as Chambers of Commence or other business associations to determine the number of programs).

It was proposed to explore LinkedIn to identify the networks that entrepreneurs belong to. This could also be helpful in enhancing the definition of networks.

Immigration and Entrepreneurship (Diversity)

The existence of this group of indicators of capabilities was questioned in order to determine why it should be included in the measurement of capabilities and how useful it might be. The idea behind the inclusion of data on immigration is to measure the diversity within the workforce. Some participants have mentioned the importance of the exchange of ideas and experience in business practices. For example, some immigrants may bring innovative ways of doing business. At the end, it was agreed that this box should remain as a part of indicators of entrepreneurial capabilities but that it should be changed to 'Diversity' to better reflect what we are trying to measure.

Indicators discussed included:

- self-employment by place of birth;
- inflows of foreign labour;
- international students in tertiary education;
- diversity and creativity of cities (potential sources: work such as that of Richard Florida, etc.).

Concluding Remarks

The final list is presented at the end of this chapter. Most of the comments received from the participants indicated that all of the indicators identified were important and would be a good way measuring entrepreneurial capabilities. Five themes have been identified, each of them including indicators to measure a certain aspect of entrepreneurial capabilities.

During the two sessions, the participants have worked on identifying the indicators with an available source of data that would allow for international comparisons and provide regular updates. However, for some indicators the sources identified are not the most appropriate. The group agreed, however, that those indicators should be left on the list and should be kept in mind when developing future projects.

Finally, the next step would be to have the EISG take a closer look at the list of indicators that have been identified during the two sessions. The group would further discuss the validity and quality of particular indicators as well as the feasibility of obtaining the data (including the number of countries that would be able to provide such data). It can be seen from the list that indicators can be split in many different levels: individual, firm, industry and national level. Further discussion on these levels and to what extent each should be linked to capabilities would be useful.

Table 1: Potential list of indicators to measure capabilities

Indicator	Source
EDUCATION	
Key competences of young students	PISA
Number of students in entrepreneurship programs in secondary schools.	Junior Achievement Young Enterprise
Number of students taking entrepreneurship courses	Education Surveys
Number of students outside of business faculty taking entrepreneurship courses	Education Surveys
Population with tertiary education	OECD
Quality of universities, business schools	EQUIS, World Economic Forum – Global Competitiveness Report
Number of teachers teaching entrepreneurship	Education Surveys
Population with entrepreneurship education	GEM
Alumni: • how many students became entrepreneurs, • number of entrepreneurship courses taken.	University follow-up surveys
SKILLS	
Firm spending on training (type and amount of training provided by firms)	EU: enterprise training surveys
Government investment	To be decided.
Lifelong learning/ labour	Labour Force Surveys
International sales, exports, engagement Spending on R&D	Innovation surveys, other business surveys
ABILITIES	
Number of serial entrepreneurs	Business Surveys
Age and number of years of experience of entrepreneurs	Business Surveys
NETWORKS	
Number of entrepreneurship support centres/ transfer of knowledge centres	University surveys, innovation surveys
Number of firms providing advice in entrepreneurship	Business register, NAICS codes for firms providing services in to entrepreneurs
Number and/or availability of mentorship programs	Chambers of Commerce, Business Associations
DIVERSITY	
Inflows of foreign labour	OECD, International Migration Outlook
Self-employment and managers by place of birth	OECD, International Migration Outlook
International students in tertiary education	OECD, International Migration Outlook
Quality of cities	Richard Florida's work or similar studies

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Access to Finance by Small Firms in the EU: A Comparison of Situations in 2007 with 2010 and an Outlook into the Future

Access to Finance by Small Firms in the EU: A Comparison of Situations in 2007 with 2010 and an Outlook into the Future

Perrine Bamps, Manfred Schmiemann ([1])

Summary

This paper describes a recent survey carried out by Eurostat on the access to finance for small and medium-sized enterprises (SMEs). Even if it isn't the first survey on this subject, its particularity is due to two characteristics. First, the survey had been conducted in twenty European countries with harmonized methodology and in the respective national languages, so it makes comparisons between countries possible. The second, more important, characteristic is the period of time considered. In addition to 2010, the reference year for the survey, the data were collected for the situation in 2007 as well, which represents the last year before the crisis following the demise of Lehman Brothers. It enables, therefore, analyses of the scale of the crisis as regards small firms' access to finance. In addition to that, a few questions were focused on the immediate future at that time (2011 to 2013) with a view to identifying future financing needs and possible obstacles to businesses' growth. This paper presents the context of the survey, explains the statistical methodology, and discusses some results and trends deducible from the data.

Introduction

From the current perspective of boosting growth and jobs in Europe ([2]), it seemed useful to study the conditions for access to finance by small enterprises. External finance and easy access to it are important growth factors for businesses. It affords the possibility to foster innovation (Czarnitzki and Hottenrott 2011), increase productivity and create wealth and employment. Access to finance for small and medium-sized enterprises can be one of the main obstacles to their growth and/or their survival, and access problems might prevent new enterprises to be created.

A survey on access to finance has been conducted by Eurostat across twenty countries, all being Member States of the European Union (EU) ([3]). The aim of the survey was mainly to examine the constraints in obtaining finance and to identify the sources from which small businesses expected various types of finance in 2010, the reference year of the survey, and in 2007, the last year before the crisis. Businesses were also asked about their predictions on the need for finance in the immediate future at the time of the survey, 2011 to 2013.

The purpose of this survey was to point out the difficulties for small and medium-sized enterprises (SMEs) on access to various types and sources of finance, especially when they are young and/or high-growth. The focus was on small and medium-sized enterprises since they account for the majority of firms and provide most of the employment in economies around the world. Birch (1979, 1981, 1987) highlighted this in his work on job creation in the U.S. (and he also coined the term 'gazelle' for the young fast-growing firms; see below). Audretsch (1995) observed a reversal of 'the trend of the century' in the U.S. regarding the growth potential by small firms, which he found to create more new jobs than large firms. The impact of SMEs on economic growth and employment has been studied in Europe and some other economies (Mulhern 1995; Ayyagari et al. 2003; Kozak 2007; Erixon 2009; Haltiwanger et al. 2010). The European Commission, in a press release of January 2012, highlighted the much higher employment growth rate (1 % annually) than large firms (0.5 %) of SMEs in Europe ([4]).

The survey results will be used to consider political actions in an attempt to render easier access to finance especially for those small firms.

Whereas this survey focussed on the consequences of the financial crisis of 2008 on access to finance for SMEs, other analyses allowed an identification of other crisis-related constraints on small firms (Visinescu and Micuda 2009; Campello et al. 2010).

Since 2009, the European Central Bank and the European Commission collaborate on a survey on the access to finance of small and medium-sized enterprises (SAFE), but its scope is somewhat more limited than the survey presented here. Every six months, the European Central Bank conducts this survey in the Euro area, and every two years, the European Commission conducts it in all EU countries and other countries participating in the European Commission's Entrepreneurship and Innovation Programme of the Competitiveness and Innovation Framework Programme (CIP). In addition to that, the European Commission has published two Flash Barometer surveys on access to finance in the EU countries, a first one in 2005 for the 15 old Member States and a second one in 2006 for 10 new Member States. ([5])

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([2]) http://ec.europa.eu/economy_finance/articles/pdf/2011-10-12_communication_roadmap_en.pdf; http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

([3]) Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.

([4]) http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/11&format=HTML&aged=0&language=EN&guiLanguage=en

([5]) http://ec.europa.eu/enterprise/policies/finance/data/index_en.htm to be found under Commission — ECB surveys on SME finance.

This paper is structured as follows: A first section describes the scope of the survey and the statistical methodology that has been used. A second one shows some results obtained with the survey. Different breakdowns of those results, such as a geographical one allowing comparisons between countries, by businesses' NACE sectors ([6]), or by growth characteristics, have been considered to allow possible further analyses based on the data collected.

Methodology

The survey has been coordinated by Eurostat in consultation with its users for business statistics ([7]) under a flexible module ([8]) of the recast of the Structural Business Statistics Regulation ([9]). In this context, 20 Member States of the European Union were obliged to deliver results based on the sample size required to ascertain statistical validity in relation to the size of the economy of participating countries. In those countries, the official authorities for statistics, the national statistical institutes, were the executing organs of the survey. They also represent the 'provider' side of interested parties. Users of official business statistics were also formally involved.

Both users and providers of statistics on business finance established the concept and design of the survey through a series of 11 task force ([10]) meetings. This task force created a harmonized questionnaire, which then had to be translated into the national languages of participating countries. It also decided on the statistical methods to deal with item non-response, the sampling methodology, the possible methods of grossing up, and the overall methodology to be employed.

Enterprise target population

In all participating countries, their national statistical institutes identified enterprises to be sampled from the business registers, where unique identifiers allow the tracking of enterprises continuing to be in operation across years since establishment of such registers. Only small and medium-sized enterprises ([11]) that fit all the following characteristics:

- has existed at least since 2005,
- was active in 2008,
- had between 10 and 249 persons employed in 2005,
- had at least 10 persons employed in 2010,
- is independent, i.e. not a subsidiary of another business,
- is classified in NACE Rev 2 sections B to N, excluding K (financial services).

Businesses in the financial sector were excluded from the survey because their means of obtaining finance are quite different than in other economic sectors. Micro enterprises with less than 10 persons employed were also excluded to avoid the administrative burden for them.

To be able to compare enterprises that have shown high growth in employment in recent years with those that have not, to separate, amongst the former, younger enterprises from older ones, and to structure respondent businesses by economic activity classification, several subpopulations were defined.

First, the survey allowed enterprises to be broken down by activity groupings:

1. Industry	NACE Rev. 2 codes B to E
2. Construction	NACE Rev. 2 code F
3. Services	NACE Rev. 2 codes G to N excluding J, K and M
4. ICT services	NACE Rev. 2 code J
5. Professional and other services	NACE Rev. 2 code M

Second, enterprises have been separated into three sets of growth characteristics.

Following the Eurostat/OECD Manual on Business Demography Statistics ([12]), high-growth enterprises are defined as follows:

'All enterprises with average annualised growth greater than 20 % per annum, over a three year period should be considered as high-growth enterprises. Growth can be measured by the number of employees or by turnover.'

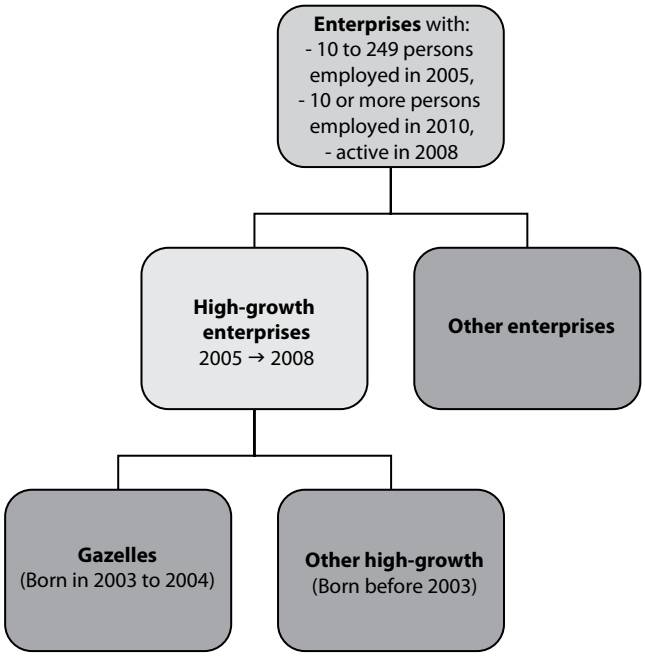
In the case of this survey, growth has been measured by employment and the three year period of growth assessment was 2005 to 2008. This criterion is captured by the following formula:

$$\sqrt[3]{\frac{\text{number of persons employed in 2008}}{\text{number of persons employed in 2005}}} - 1 > 0.2$$

Amongst these high-growth enterprises, the so-called 'gazelles' ([13]) are distinguished from the others in that they were born in 2003 or 2004.

([6]) For a broad structure of NACE Rev 2, see p.57 of http://www.geodirectory.ie/Downloads-(1)/NACE-Rev-2.aspx
([7]) European Commission policy departments, the OECD, the European Investment Fund (EIF) and the European Central Bank (ECB)
([8]) This flexible module is detailed in the Commission Regulation (EC) No 97/2009 of 2 February 2009: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:033:0006:0007:EN:PDF.
([9]) Regulation (EC) No 295/2008 of the European Parliament and of the Council of 11 March 2008 (recast): http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:097:0013:0059:EN:PDF.
([10]) Composition of task force: EUROSTAT (chair), National Statistical Institutes from 20 participating countries, OECD, ECB, EIF, European Commission departments DG ENTR, DG EFIN and DG REGIO.
([11]) Commission recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF.
([12]) http://ec.europa.eu/eurostat/product?code=KS-RA-07-010&mode=view
([13]) A term first coined by David Birch (1987).

The sets of growth characteristics are therefore:



Questionnaire

The questionnaire has been designed with the aim of limiting as much as possible the burden imposed by statistics on respondents (business owners or managers with insight into the firm's financial situation). The number of questions did not exceed the maximum of 20 questions allowed by Regulation 97/2009. And moreover, none of them requires quantitative figures, so there was no need for respondents to access company accounts.

The questionnaire exhibited a division of the questions into five sections: one section for each main finance type (loan, equity and other type), one for the perceptions of the changes having occurred between the two surveyed reference years, and finally one for the outlook into the immediate future.

It was left up to the national statistical institutes to decide in which way they would send out the questionnaire: paper-based, online, or via electronic means. Telephone interviews were considered not to be sufficiently valid.

Sampling and sample size

Five activity groups and three sets of growth characteristics yield a total of 15 strata per country. Random sampling without replacement was applied to each stratum.

Unlike many surveys, the required sample sizes per country meant the actually required number of replies. This net sample size relates roughly to the size of each country's economy. As the number of responses actually received back cannot a priori be guaranteed, national statistical institutes were expected to dispatch more questionnaires to account for non-replies. To determine how many questionnaires have to be sent out, the response rate was assessed based on previous similar surveys conducted.

The sample sizes required for each country and a rough calculation of how many enterprises have to be approached to deliver the required response rates are given in Table 1.

Table 1: Sample sizes per country and required data sets

Member States	Net sample size	Dataset size required	
		60 % response	80 % response
DE, ES, FR, IT, UK	1 800	3 000	2 250
BE, BG, IE, EL, NL, PL, SK, SE	900	1 500	1 150
DK, FI	500	850	650
LV, LT	300	500	400
CY, MT, LU	233	400	300

Item non-response

The quality of a survey can be reduced if there are too many item non-responses within forms (item non-response is the lack of an answer to certain questions). National statistical institutes were asked to minimise item non-response as much as possible.

Some item non-response can be reliably inferred if the answer is trivial from other answers given. If the lacking answer is not so obvious, contact to respondents may be necessary to supply the missing information. In some cases, if the form is riddled with non-response, it may be better to just exclude it and count it as a non-responder. If a question remains without answer, the enterprise should not appear in the count of respondents to that question, but this complicates the establishment of the total for the given reference population.

Estimated totals and grossing-up

The subdivision of enterprises into subpopulations increased the risk to have isolated enterprises in some strata, especially in small countries. To avoid confidentiality problems ([14]) and to prevent identification of the answers delivered by individual enterprises, Eurostat decided to publish results only as percentage values. Nevertheless, estimated totals for the whole business population of each country were needed to be able to combine figures from different countries.

There are basically three different techniques for grossing-up results of the survey to country enterprise population totals. In short, the first one is simple grossing, another one uses groups within strata to gross up, and a third one uses an auxiliary variable for the estimation of total populations. Member States were free to choose which method(s) to use.

'Simple grossing' works as follows. Question by question, the number of responses to a cell is multiplied by a factor that is the ratio of the number of enterprises eligible to the question compared with the number of respondents to the question:

Let $h = 1,\ldots, H$ denote the strata. The grossed-up total for a peculiar cell c of question q in stratum h is defined by:

$$\hat{t}_{hqc} = \frac{N_h}{n_{r,hq}} \sum_{i=1}^{n_{r,hq}} y_{hqci} \ ,$$

where $n_{r,hq}$ is the number of respondents to question q in stratum h, y_{hqci} is the response of unit i in stratum h to cell c of question q (1 if the unit tick this cell, 0 otherwise) and N_h is the number of eligible businesses in stratum h.

If the proportion of respondents does not reflect the size structure of the stratum, a second method of grossing up using groups of respondents based on their employment figures can be used.

In this case, each stratum is split into groups based on employment, and a simple grossing-up is applied to each group. For example, a split of the sample into two groups can separate those that have between 10 and 49 persons employed with those that have 50 or more persons employed.

Let denote $g = 1,\ldots G_h$ the different groups. The estimated total is then:

$$\hat{t}_{hqc} = \sum_{g=1}^{G_h} \sum_{i=1}^{n_{r,gq}} \frac{N_h}{n_h} \frac{n_g}{n_{r,gq}} y_{gqci} \ ,$$

where N_h is the number of units in the population in stratum h, n_h is the number of units sampled in stratum h, n_g is the number of sampled units in group g, $n_{r,gq}$ is the number of respondents to question q in group g and y_{gqci} is the response of unit i in group g to cell c of question q.

A third technique, more complex, makes use of an auxiliary variable. This auxiliary variable can be, for instance, the employment. It is important to note that in this technique, the sum of employment of all observation units in the population and the sum of employment for the respondents to the question have to be known. The grossed-up total is estimated by applying a weight to each stratum.

Let $h = 1\ldots H$ denote the strata and x the auxiliary variable. The estimated total in a stratum h for a cell c of question q is given by:

$$\hat{t}_{hqc} = \frac{N_h}{n_{r,hq}} \sum_{i=1}^{n_{r,hq}} g_{hq} y_{hqci} \ ,$$

with the g-weight: $g_{hq} = \frac{n_{r,hq}}{N_h} \frac{\sum_{j=1}^{N_h} x_j}{\sum_{i=1}^{n_{r,hq}} x_{hi}}$,

where x_{hi} is the value of the auxiliary variable for unit i in stratum h, $n_{r,hq}$ is the number of respondents to question q in stratum h, y_{hqci} is the response of unit i in stratum h to cell c of question q (1 if the unit tick the cell, 0 otherwise), and N_h is the number of units in the population in the stratum h.

The last two approaches inevitably add complexity; there may not be the correlations between company details in the business registers and responses that would make this complexity worthwhile.

Access to finance for SME — Results of the survey

As already mentioned, twenty countries took part in the survey, with a combined sample of about 25 000 enterprises interviewed EU-wide. Each Member State collected micro data in their own country and furnished to Eurostat aggregated results. Many of them had or will issue national press releases and analyses. Only Eurostat can draw comparisons between countries and combine country aggregates. After applying the routine quality checks upon collected data, they were published as percentages in the Eurostat database ([15]).

The results of the survey highlight the difficulties in obtaining finance during the economic crisis, point out the main reasons for rejection, and identify the growth obstacles for small and medium-sized enterprises.

([14]) Even if the survey does not collect any quantitative data, Member States and Eurostat still have a duty not to reveal the results for individual respondents. That means that any figure that is based on the results from a single contributor should not be published.

([15]) See http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/access_to_finance ; see also http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Access_to_finance_statistics

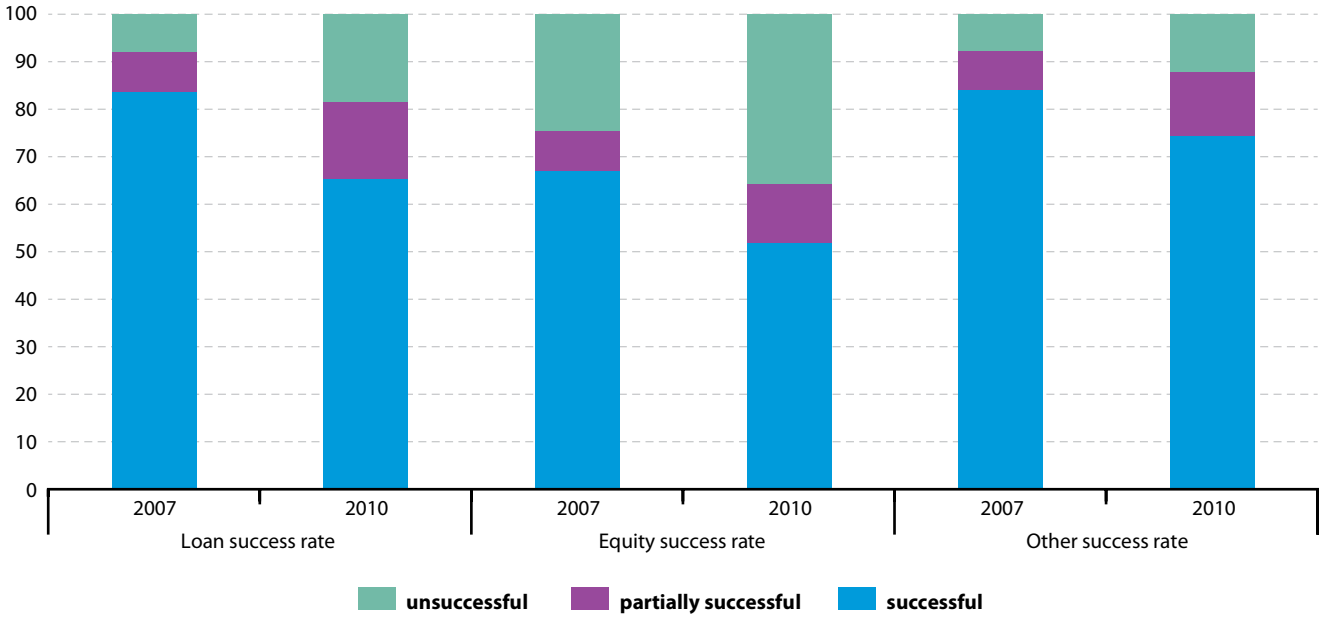
This section deals with the results of the survey under various dimensions (for instance, comparison between: countries, enterprises' high-growth characteristics, enterprises' NACE classification, etc.) and covers among others the following questions: Which are the sources of various finance types? How were they successful in their requests? What were the reasons for unsuccessful applications? What are firms' perceptions of the effect of the crisis on their business? Will they need finance in the coming future? Where do they expect to obtain the finance from? What are the most important factors limiting the growth of their business?

Loan, equity or other type of finance: Success rates

In 2010, the percentage of firms that applied for some type of external finance increased compared with 2007. 31.2 % of all enterprises asked for loan finance in 2010, which is 3.4 percentage points more than in 2007. Only 3.1 % asked for equity finance in 2010, but this is still an increase compared to 2007. The sharpest rise in seeking finance occurred for the category 'other' type of finance, with 5.4 percentage points (25.3 % in 2010 against 19.9 % in 2007). (See Table 4 of Appendix)

At the same time, the percentage of firms who were successful in their applications dropped no matter the type of finance. (The questionnaire allowed a choice between 'fully successful', 'unsuccessful', or 'partially successful', meaning the finance type sought was offered at less favourable conditions than desired.) Those firms who sought equity finance were the least successful; barely more than 50 % were successful in their applications in 2010 (against 67 % in 2007). Loan applications returned only partially successful or unsuccessful rose from 16.4 % in 2007 to 34.7 % in 2010 (+ 7.7 percentage points for partially successful requests and + 10.6 percentage points for unsuccessful requests). Businesses who asked for other type of finance were the most successful with 87.7 % of chance to be partially or totally successful in 2010 (a reduction of 4.6 percentage points compared with 2007) (see Figure 1).

Figure 1: Success rates in obtaining finance by type, 2007 and 2010(1)
(%)



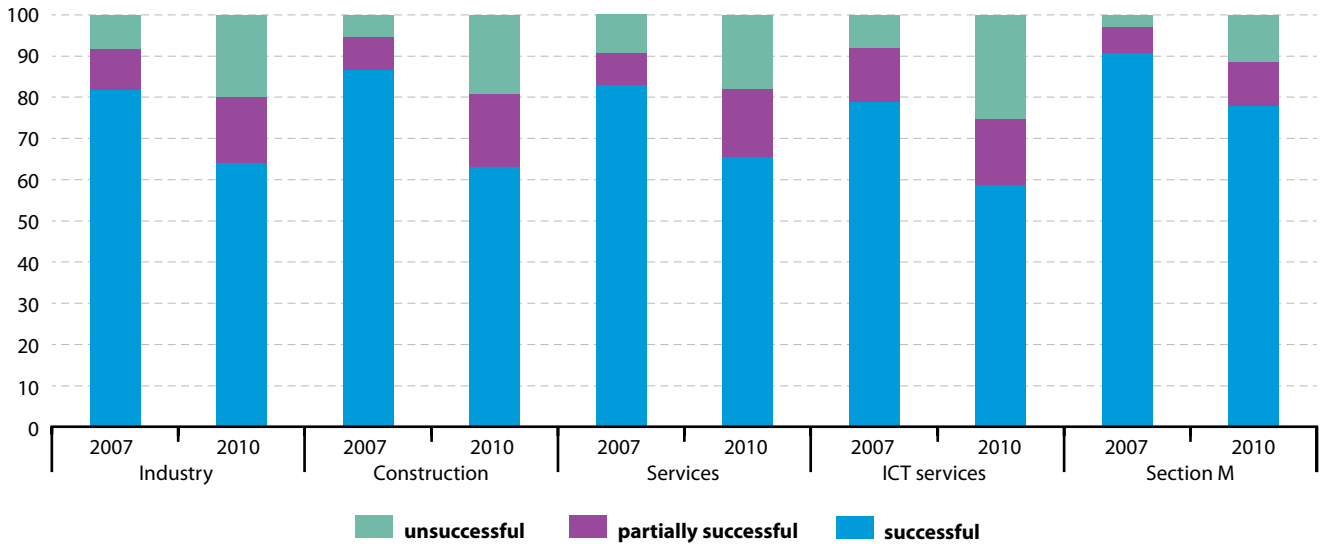
(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_deg)

Loan finance

Enterprises working in the sector of professional, scientific and technical services were slightly more successful in their application for loan finance than those in other sectors, both in 2010 and in 2007. Loan applications from enterprises in ICT services had been somewhat less successful than those from other sectors, with 25.1 % of enterprises not at all successful in 2010 (+ 17.1 percentage points compared with 2007) (see Figure 2).

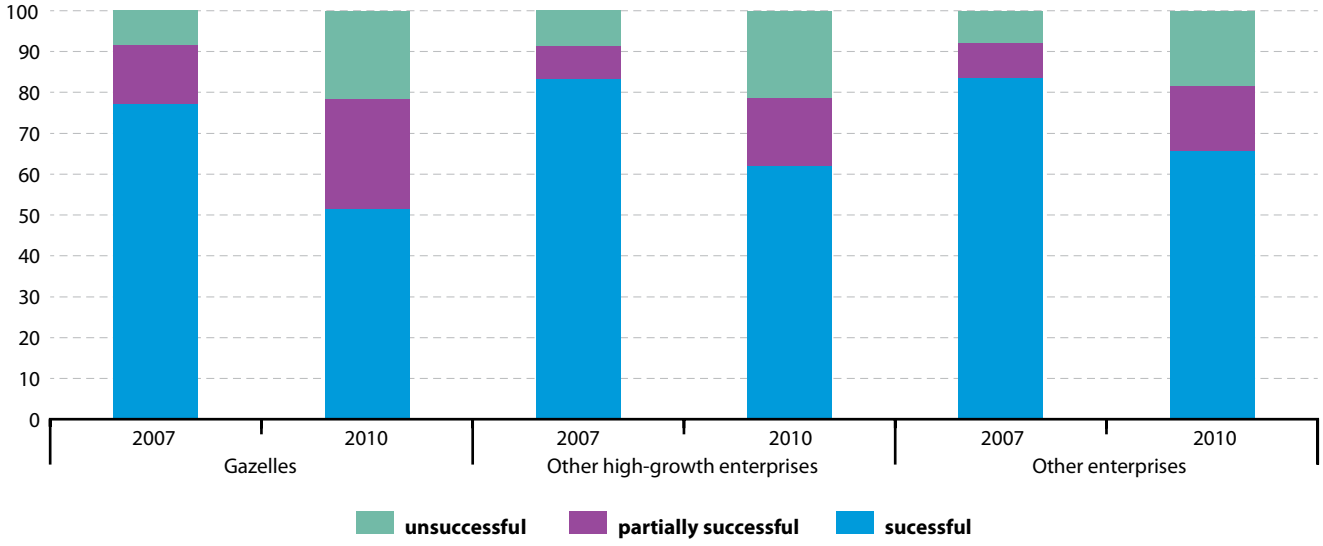
In 2007, before the crisis, proportions of applications treated favourably (i.e. partially or totally successful) were approximately equal for all enterprises independently of their growth characteristics (91.6 % for gazelles, 91.3 % for other high-growth enterprises, 92.2 % for other enterprises). In 2010, it was still approximately the same for all enterprises, but they all saw their success rate ('partially' and 'fully successful') decrease by more than 10 percentage points. Most interestingly, 27 % of the gazelles were only partially successful in their finance requests in 2010, compared with 16 % of the other enterprises and 16.8 % of the other high-growth enterprises (see Figure 3).

Figure 2: Success rates in obtaining loan finance by NACE sectors, 2007 and 2010 (1) (2)
(%)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
(2) Section M corresponds to Professional, scientific, technical services
Source: Eurostat survey 2011 (online data code: acf_d-lo)

Figure 3: Success rates in obtaining loan finance by enterprise type, 2007 and 2010 (1)
(%)



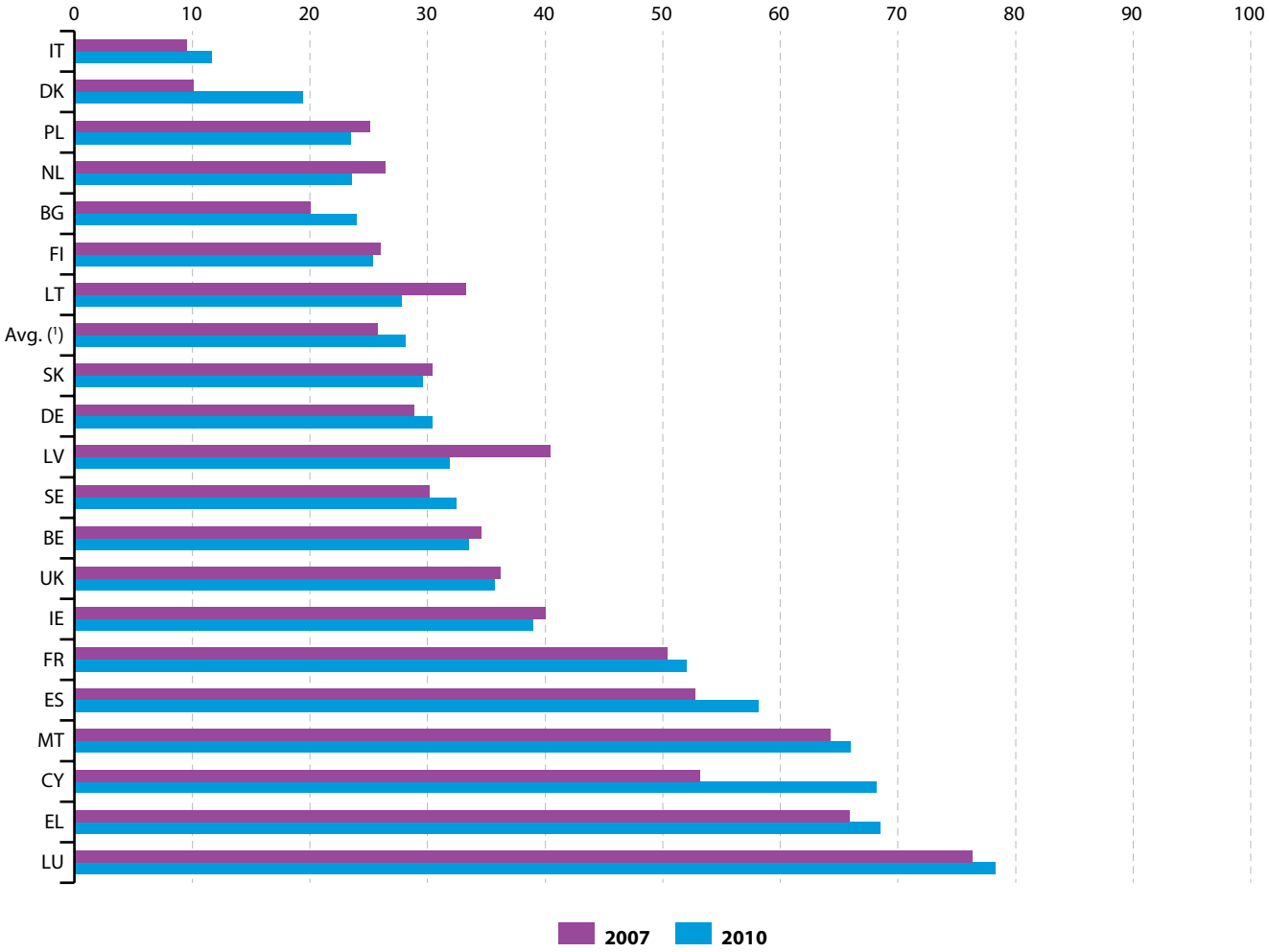
(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_lo)

Banks and the owner(s)/director(s) are the two mainly sources for loan finance: in 2010, 90.2 % of all the enterprises who sought loan finance, applied to a bank, and 19 % requested a loan to the owner(s)/director(s) of the business (see Table 5 of Appendix).

These two sources are also the two with better successful rate: 89.8 % of applications to banks were successful or partially successful in 2010 and the comparative figure for those to owner(s)/director(s) is 86.7 % (see Table 6 of Appendix).

The need of a guarantee in the case of an achieved loan request depends more on the country than on the enterprise's type or sector (see Figure 4).

Figure 4: Percentage of need of a guarantee in case of approved loan request, by country, 2007 and 2010 (%)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.

Source: Eurostat survey 2011 (online data code: acf_s_ne)

In the vast majority of enterprises who needed a guarantee to obtain loan finance, the owners(s)/director(s) of the business played the role of guarantor (more precisely, 84 % in 2007 and 83 % in 2007).

Concerning the reasons for partially or totally unsuccessful loan applications, they can come from both sides: either lenders refuse a loan to a business or the business does not accept the loan as proposed.

For the year 2007, three main reasons were given by banks to businesses (of all growth characteristics) for loan refusals: poor credit rating, insufficient collateral or lack of own capital; in 2010, at least the capital reserve of businesses seems to be less frequently a problem (see Table 2).

Table 2: Reasons given by banks for full or partial loan refusals, 2007 and 2010 (1)(2)
(% of all enterprises who sought loan finance from a bank and were partially or fully unsuccessful)

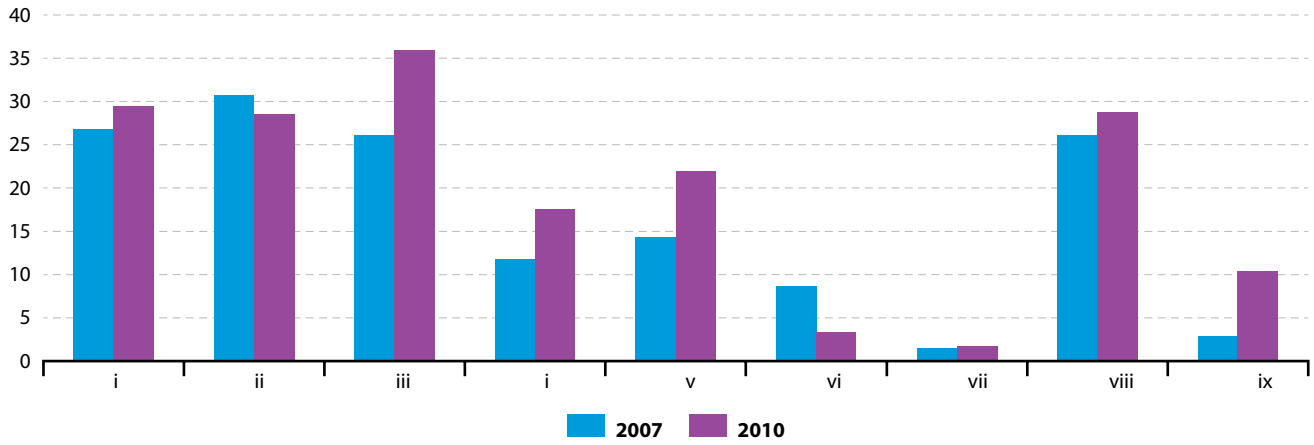
	It was the bank's opinion that the business had:	2007	2010
i.	Poor credit rating	36.5	29.8
ii.	Lack of own capital	32.7	23.0
iii.	Insufficient collateral or guarantee	32.9	30.0
iv.	Insufficient or risky potential (of the business or project)	10.9	13.4
v.	Already too many loans or too much debt	22.2	24.3
vi.	No loan history	2.7	0.6
vii.	Poor loan history	1.9	2.1
viii.	No reason given	20.2	23.8
ix.	Other reason(s)	13.0	16.4

(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
(2) Figures do not add up 100 % because multiple choice was allowed.
Source: Eurostat survey 2011 (online data code: acf_d-lo1)

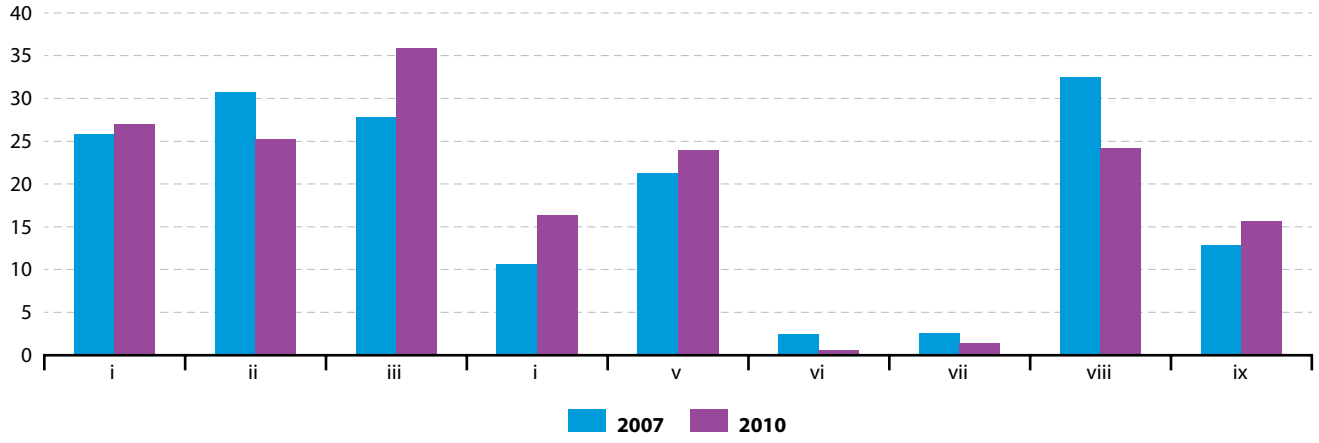
The main reason given by banks to partially or fully refuse loans to gazelles in 2007 was the lack of own capital (30.7 %). In 2010, they refused loans mainly because of the insufficient collateral or guarantee of gazelles (35.9 %). In 2007, other high-growth enterprises were told they lacked own capital but the percentage of 'no reasons given' was even higher (32.5 %). In 2010, like gazelles, they were considered to have insufficient collateral or guarantee (35.9 %). The primary reason given by banks to other enterprises was their poor credit rating in 2007 as well as in 2010 (37.4 % in 2007; 30 % in 2010) (see Figure 5).

Figure 5: Reasons given by banks for full or partial loan refusals, by enterprise growth characteristic, 2007 and 2010 (1)(2)
(% of all enterprises who sought loan finance to a bank and were partially or fully unsuccessful)

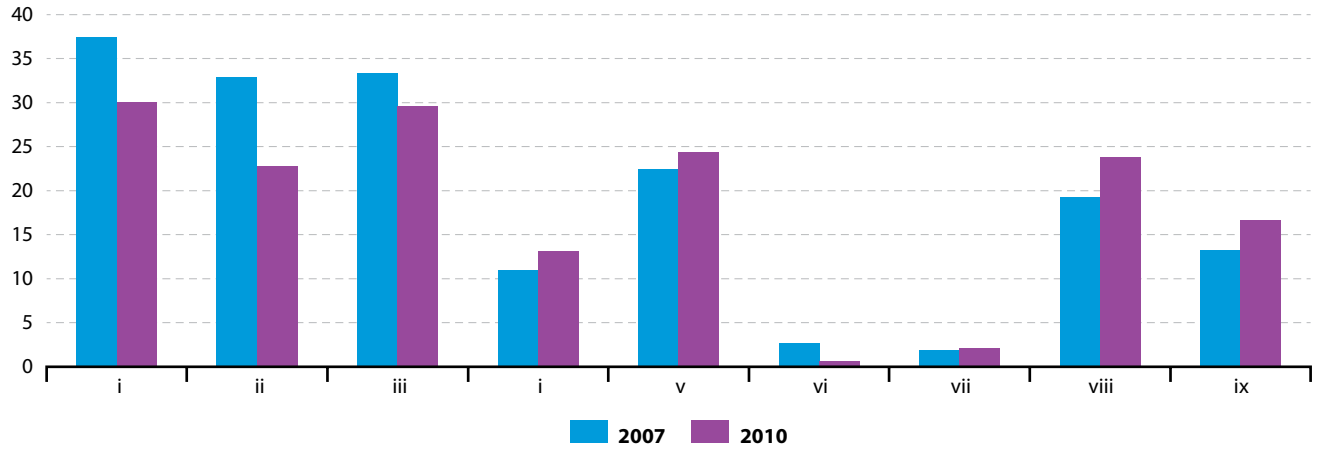
a) Gazelles



b) Other high-growth enterprises



c) Other enterprises



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
(2) X-axis labels refer to Table 2; figures do not add up to 100 % because multiple choice answers were allowed.
Source: Eurostat survey 2011 (online data code: acf_d-lo1)

In some cases, businesses decided to refuse the loan. The main reason for that was because interest rates offered were too high. It was the case for 18.9 % of enterprises who were partially successful or unsuccessful in 2007 and for 15.2 % in 2010 (see Table 3).

Table 3: Reasons given by enterprises to refuse a loan, 2007 and 2010 (1)
(% of enterprises who sought loan finance and were partially or fully unsuccessful)

	The business decided that	2007	2010
xix.	Interest rates offered were too high	18.9	15.2
xx.	Non-interest-rate related conditions of the loan were inacceptable	11.9	13.9
xxi.	Other reason(s)	10.8	14.5

(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d-lo1)

The survey also investigated the reasons why enterprises approach a certain bank for a loan. In 2007 and in 2010, almost 90 % of the enterprises who sought loan finance from a bank chose that particular bank because they were already a client. Approximately 30 % of enterprises said that it was because the bank offered the best interest rate related terms.

Equity finance

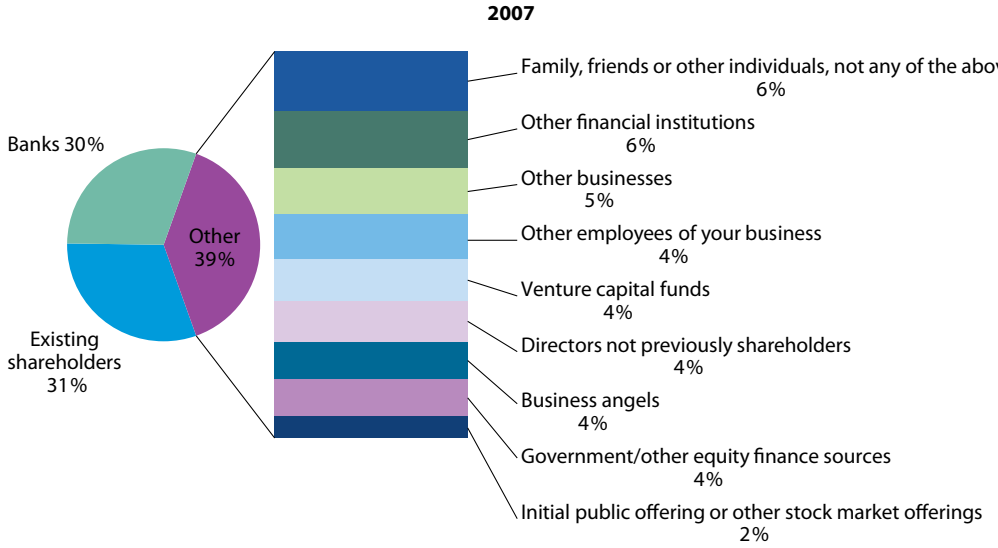
Only very few small and medium-sized enterprises applied for equity finance to obtain external finance: 2.4 % in 2007 and 3.1 % in 2010.

This small proportion of businesses asking for equity finance can be explained by the general aversion to control loss (external interference and ownership dilution) of small and medium-sized enterprises (Cressy and Olofsson 1997; Hughes 1997).

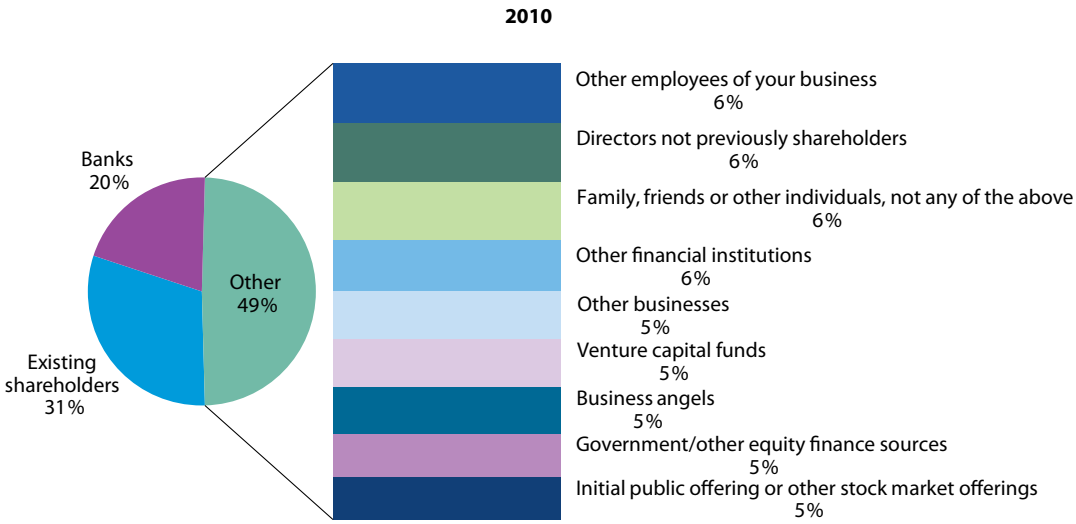
The two most important sources for equity are existing shareholders and banks. 58.8 % of enterprises who sought equity finance applied to existing shareholders in 2010, an increase of 11.8 percentage points compared to 2007. 39.2 % of enterprises chose a bank for their equity offer in 2010, 7.1 percentage points less than in 2007 (see Table 5 of Appendix).

Many other sources are, however, available for equity finance. Since an enterprise could choose more than one source for equity applications, the figures below show the percentages of number of demands (and not the number of enterprises). From 2007 to 2010, the share of demands for equity finance to existing shareholders remained the same; unlike percentage of demands to banks, which dropped by 10 percentage points, for the benefit of other sources (see Figure 6).

Figure 6: Demands for equity finance by sources, 2007 and 2010 (1)
(%)



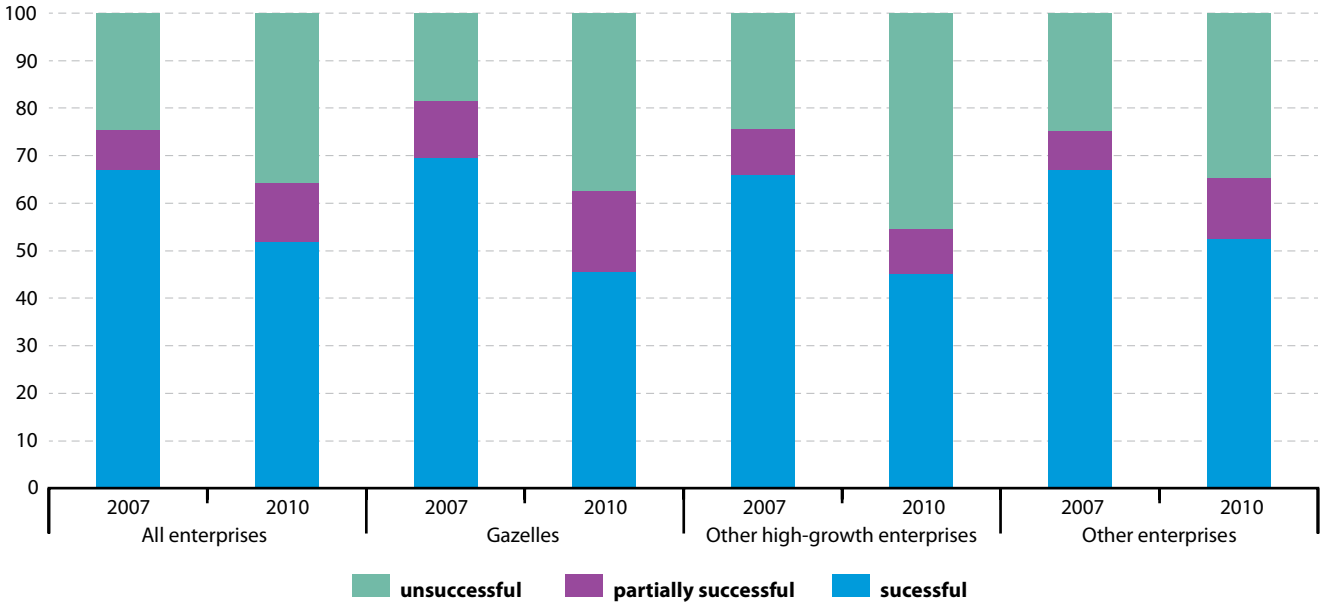
(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_eq)

Although only few enterprises sought equity finance, chances of being successful were still not high: In 2010 less than half of the gazelles and high-growth enterprises were totally successful in their quest (45.6 % and 45 % respectively), and just over half of 'other enterprises' were successful (52.6 %). In 2007 gazelles were the most successful enterprise types, with 69.3 % success rate compared to 66 % of other high-growth enterprises and 67 % of other enterprises (see Figure 7).

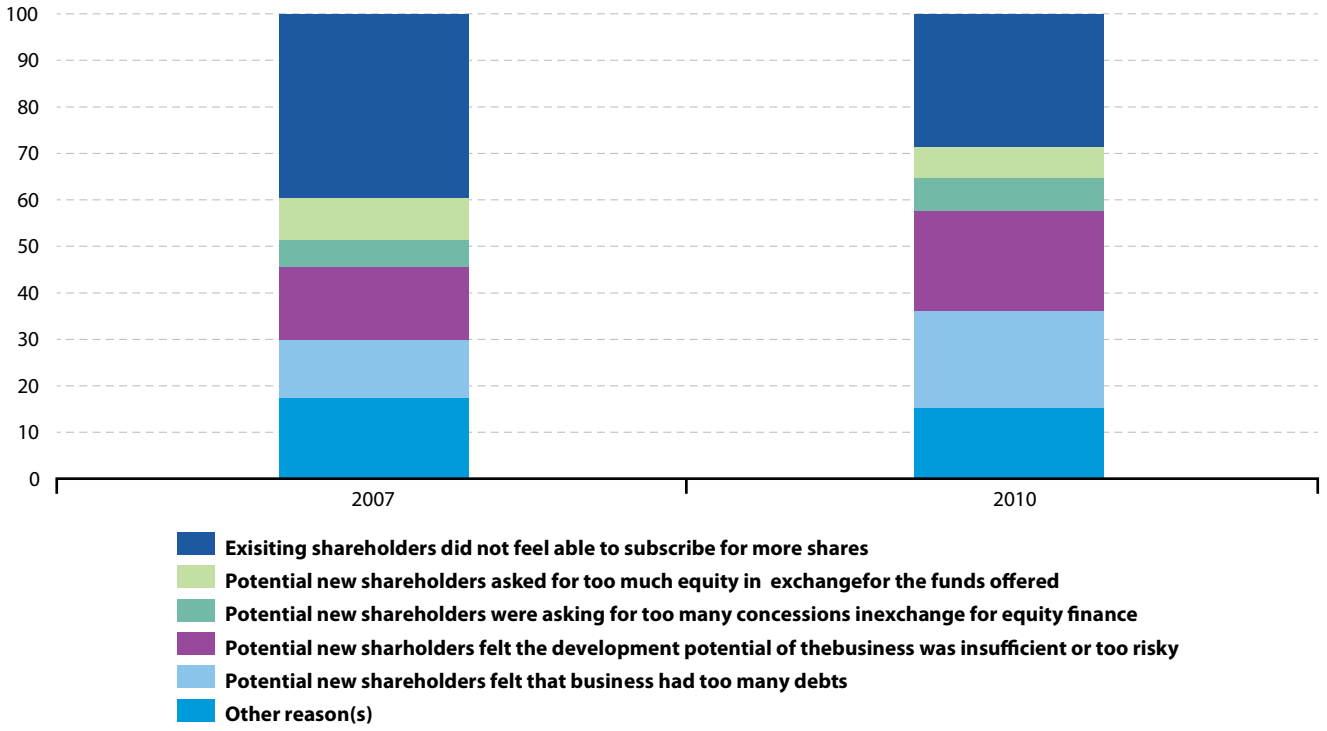
Figure 7: Success rates in obtaining equity finance by enterprises type, 2007 and 2010 (1)
(%)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_eq)

For both reporting years the same main reason was given for a full or partial unsuccessful request for equity finance: 'Existing shareholders did not feel able to subscribe for more shares'. In 2007, 'Other reason(s)' and 'Potential new shareholders felt the development potential of the business was insufficient or too risky' were, respectively, the second and third most frequent reasons given. In 2010, 'Potential new shareholders felt the development potential of the business was insufficient or too risky' became the second most frequent reason, followed by 'Potential new shareholders felt that the business had too much debt' (see Figure 8).

Figure 8: Relative importance of the reason rejection for equity finance, 2007 and 2010 (1)
(%)

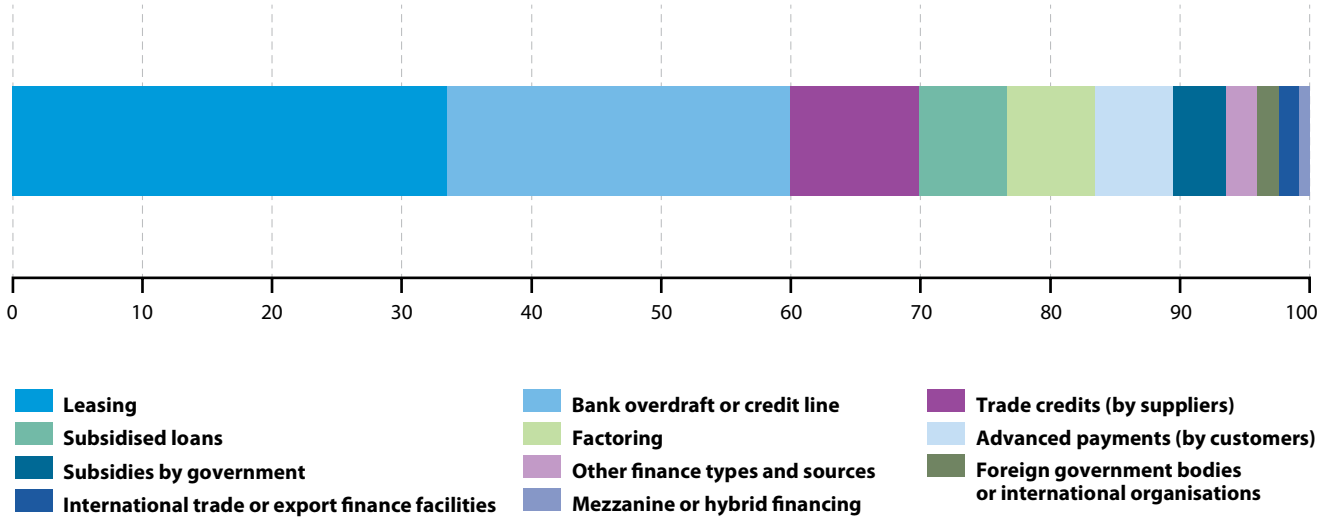


(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_eq)

Other sources of finance

Beyond loans and equity, there is a whole range of other possibilities for finance. Amongst them, 'leasing', 'bank overdraft or credit line' and 'Trade credits (by suppliers)' are the most requested, with respectively 33.5 %, 26.5 % and 10 % of the demands in 2007 (see Figure 9).

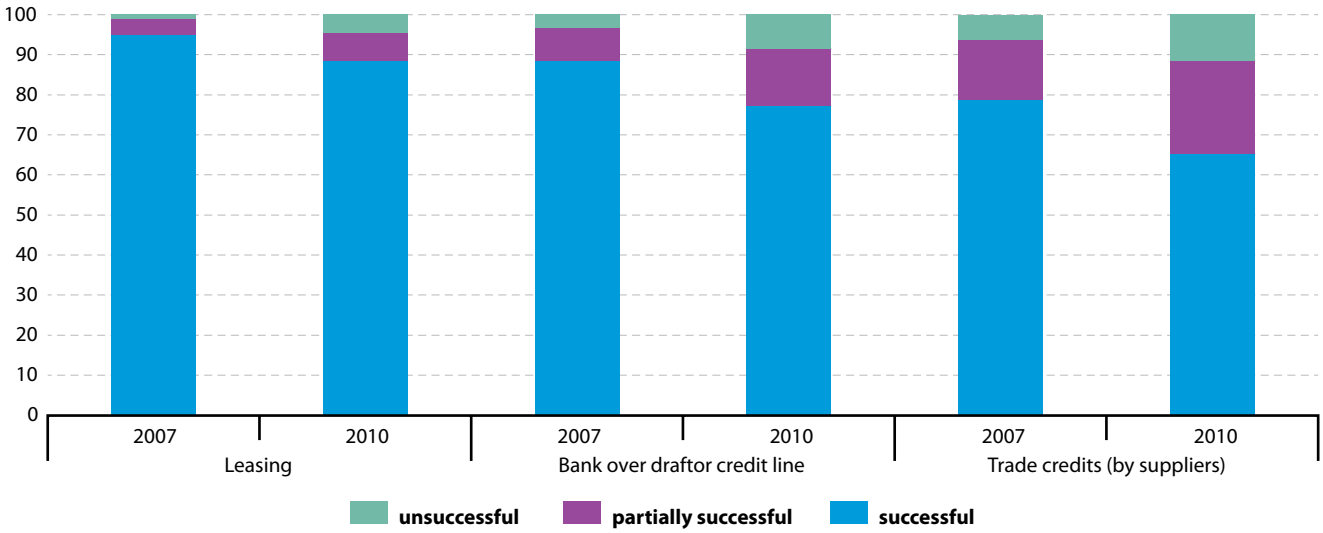
Figure 9: Shares of demands for other types of finance by sources, 2007 (1)
(%)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_oth)

These three main sources thus represent two out of three demands for finance other than loans and equity. 'Leasing' requests had the highest success rate in 2007 as well as in 2010, with only 1.1 % of applications that were not at all successful in 2007 and 4.6 % in 2010 (note the 4-fold increase though). 6.2 % of requests to 'trade credits (by suppliers)' in 2007 were unsuccessful; this figure rose to 11.5 % in 2010. The figure for 'Bank overdraft or credit line' was 3.4 % in 2007 and 8.5 % in 2010 (see Figure 10).

Figure 10: Success rates in obtaining other types of finance for the three main sources, 2007 and 2010 (1) (%)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_d_oth)

Changes over the past three years

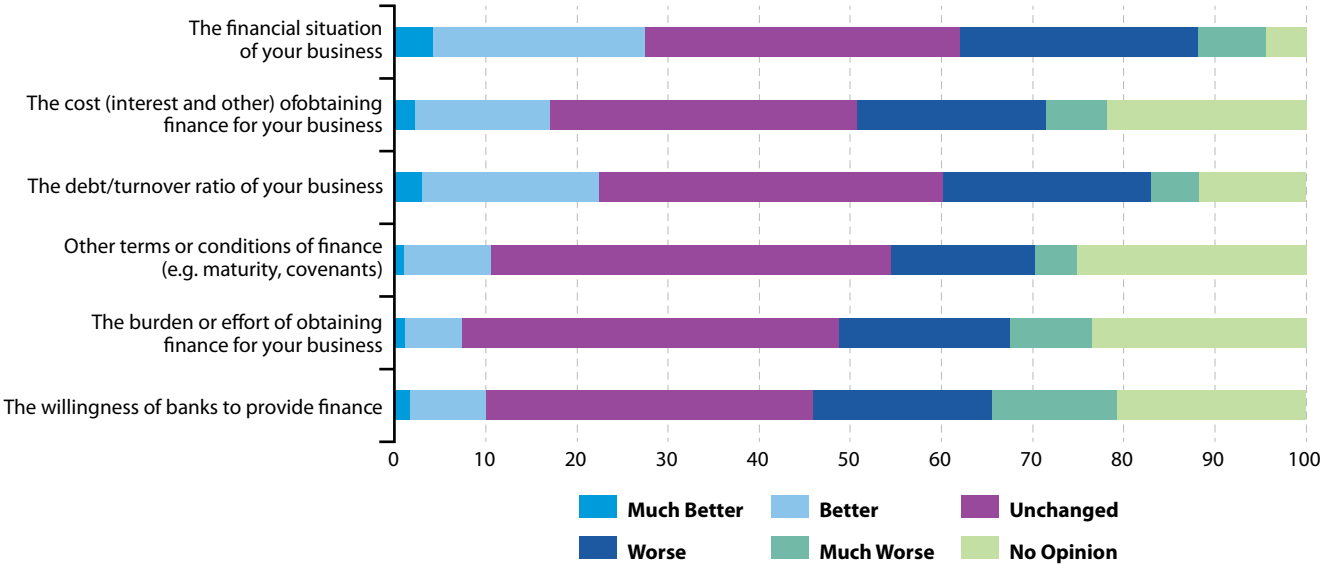
Businesses were surveyed about their perceptions of changes in the environment for external finance of all types and sources between 2007 and 2010. They were asked to evaluate on a scale from 'much better' to 'much worse' about their business situation and the access to finance during this crisis period. In an analysis of the results it should be kept in mind that all surveyed enterprises replied to this question, even the large proportion that did not ask for any external finance.

34.7 % of all enterprises feel that the financial situation of their business did not change in that period. However, more enterprises think that it got worse (reply options 'worse' and 'much worse' combined: 33.5 %) rather than improved (options 'better' and 'much better' combined: 27.4 %). The cost of obtaining finance was considered to be worse or much worse for more enterprises than better or much better: 27.5 % thought that it became worse/much worse against 17.1 % who felt it got better/much better. 33.6 % said that the cost to obtain external finance stayed the same, and 21.8 % had no opinion. About the debt/turnover ratio of their business, 22.5 % of all enterprises deemed that to have changed for the better against 28.2 % that considered it to have gotten worse. 37.7 % thought it stayed unchanged, and 11.6 % had no opinion (see Figure 11).

Amongst all the enterprises that had an opinion, the two most frequently cited conditions that worsened were the willingness of banks to provide finance and the burden or effort of obtaining finance: 42.2 % saw the willingness of banks to provide finance decline, against only 12.7 % that thought there was an improvement; 36.3 % considered that the burden or effort of obtaining finance has become heavier versus 9.7 % that thought the opposite.

Nevertheless these conditions vary widely from country to country since the crisis has been felt differently. For the majority of Spanish enterprises who had an opinion, the crisis had a negative impact on the burden or effort of obtaining finance: 60.3 % found it 'worse' or 'much worse'. In Lithuania, half of the surveyed enterprises who had a opinion saw a negative impact compared with only 6.3 % that saw a change for the better. On the contrary, in Sweden more enterprises thought it was better or much better in 2010 compared with 2007 (22.3 %) than worse or much worse (10.7 %). On the willingness of banks to provide finance, more than two out of three enterprises in Spain and in Latvia said that it got worse. In Finland, Luxembourg and Malta, slightly less than two out of three said that this condition did not change during this period. In Sweden and Finland more enterprises saw the willingness of banks increased than decreased (see Figure 12).

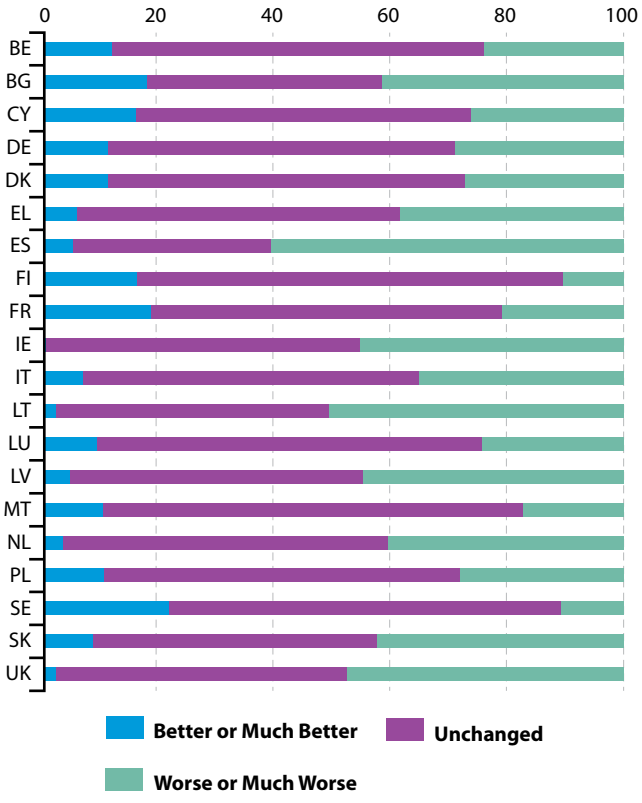
Figure 11: Perception of changes between 2007 and 2010 (1)
(% of all enterprises)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_p_ch)

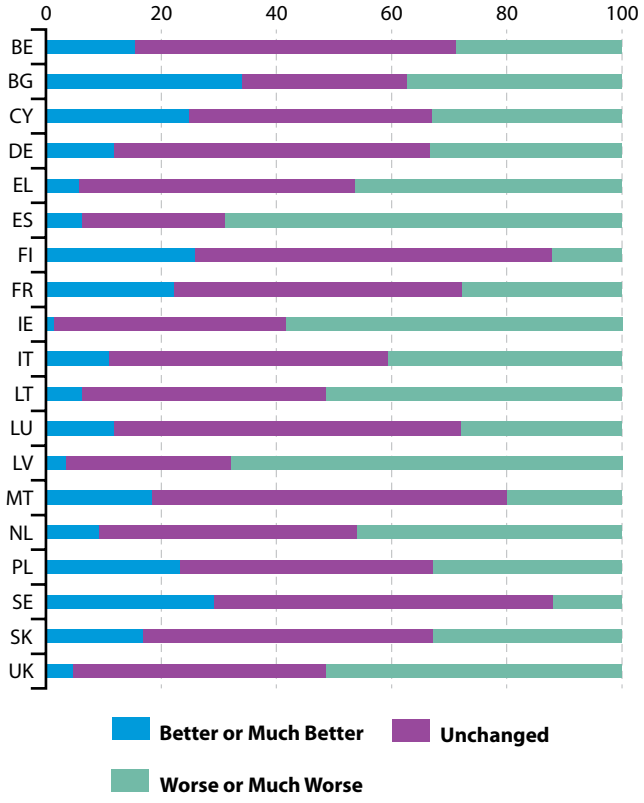
Figure 12: Perception of changes between 2007 and 2010 by country
(% of all enterprises who had an opinion)

a) The burden of effort of obtaining finance for businesses



Source: Eurostat survey 2011 (online data code: acf_p_ch)

b) The willingness of banks to provide finance (1)

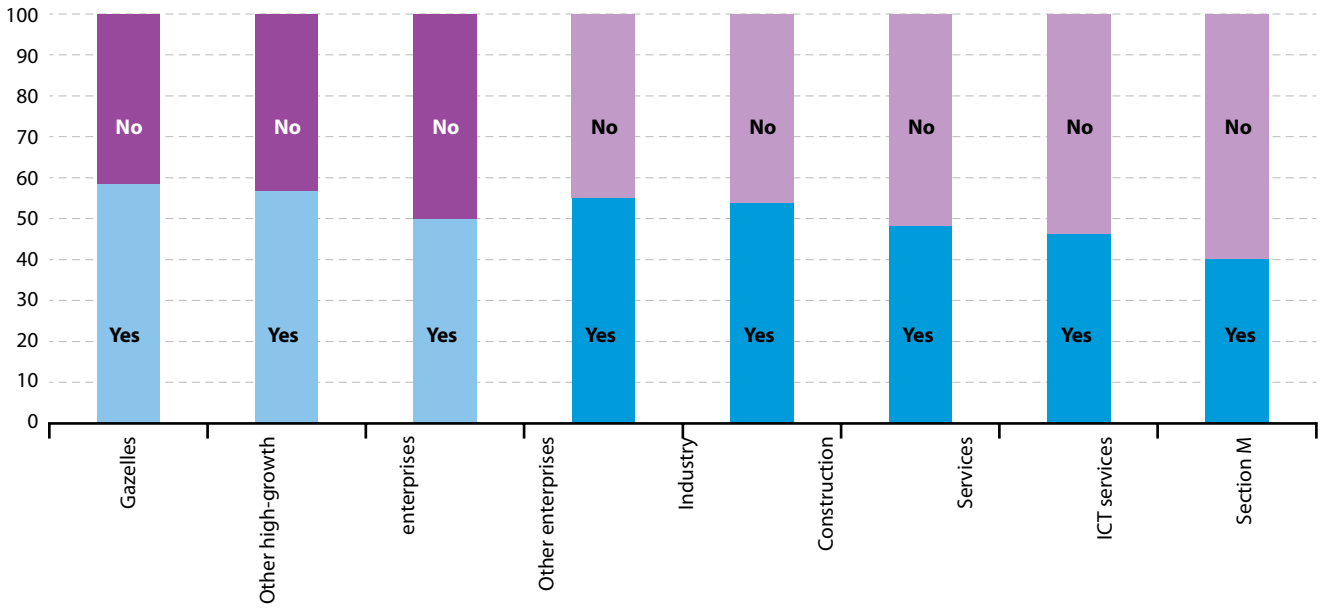


(1) X-axis labels refer to Table 2; figures do not add up to 100 % because multiple choice answers were allowed.
Source: Eurostat survey 2011 (online data code: acf_p_ch)

Looking ahead

Approximately one out of two surveyed enterprises will likely need finance in the immediate future at the time of the survey, i.e. 2011 to 2013. However, a breakdown by growth characteristics of firms points out that the respective percentages for gazelles and other high-growth enterprises are both higher than the percentage for other enterprises. More than half of the businesses in the sector 'construction and industry' will likely need finance while in the three services sectors under NACE Rev. 2, less than 50 % will be in need of finance (see Figure 13).

Figure 13: Percentage of firms that will likely need finance in 2011 to 2013 (1)(2)



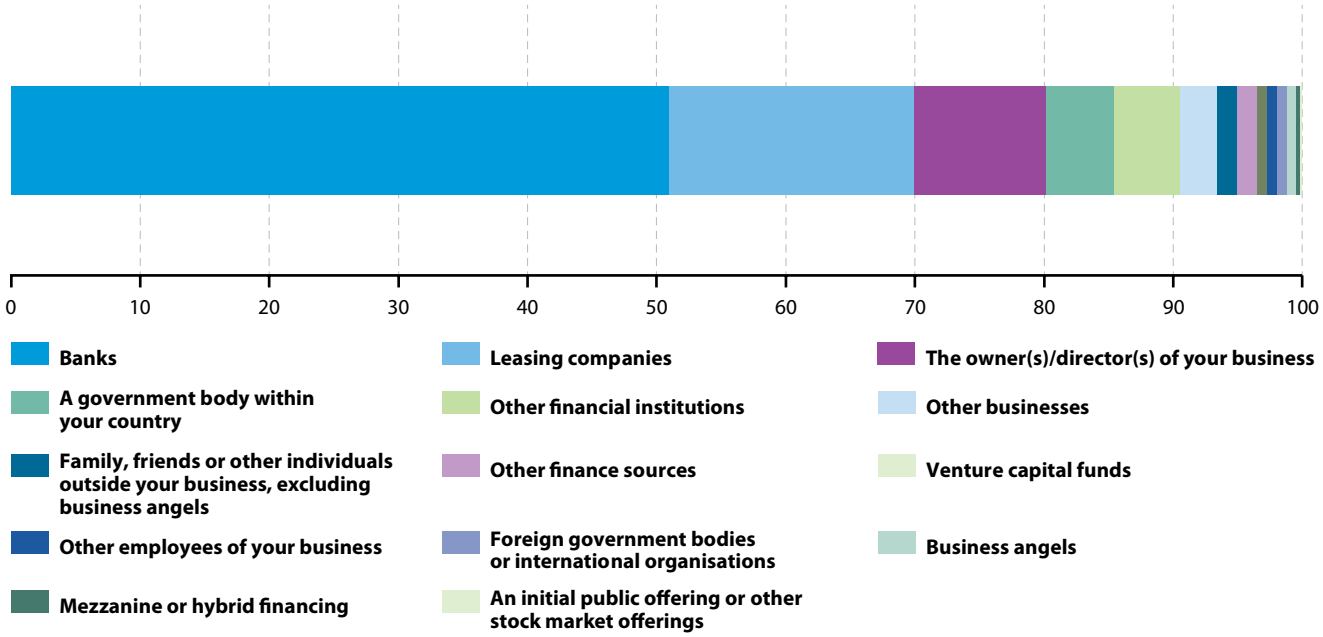
(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
(2) Section M corresponds to Professional, scientific, technical services.
Source: Eurostat survey 2011 (online data code: acf_p_ne)

Amongst those enterprises that thought they will need finance, 82.3 % will ask for loans, 31.2 % for other type finance and only 9.9 % plan to ask for equity (yet this is a change compared with the situation before, in 2007 and 2010). The most important source envisaged by enterprises for the next years remains banks with more than 50 % of the demands. But notably almost one out of five demands for external finance will be directed to leasing companies. The owner(s)/director(s) are likely to be another important source (slightly more than 10 % of the demands) (see Figure 14).

The main reason given by enterprises to explain why they might need finance between 2011 and 2013 is simply to maintain their business. Many of them will also need finance to grow their businesses' domestic activities. The third most important reason of requesting financing is the purpose to finance innovation and R&D.

The last question of the survey was directed at all surveyed enterprises, even the ones that did not and will not ask for any external finance. All surveyed firms were asked what they think will be the most important factors limiting the growth of their business during the period 2011 to 2013. The principal constraint identified was the general economic outlook. 'Price competition/small margins', 'limited demand in the local/domestic markets' and 'high cost of labour' are three other constraints frequently mentioned by enterprises.

Figure 14: Envisaged finance sources between 2011 and 2013 (1)
(% of demands)



(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011 (online data code: acf_p_so)

Conclusions

Europe 2020, the EU's growth strategy for the coming decade, aims to turn the EU into a smart, sustainable and inclusive economy. Two of the five ambitious objectives setting by the Union to be reached in 2020 concern employment and innovation. (16)

This survey has been conducted in 2010 across twenty EU Member States under Eurostat coordination. It covered approximately 25 000 businesses (representing the population of SMEs in Europe), which were asked about their attempts to obtain external finance in 2010 as well as for 2007, the year before the crisis. The resulting data permit analyses of the consequences of the crisis for small firms seeking finance. The survey also included questions about the future financing needs of SMEs and possible factors limiting the growth in the immediate future.

The results showed that success rates in obtaining finance severely declined with the crisis whatever the type of finance looked for. Loans have been the most desired finance type, and will remain to in the future. Banks and the owner(s)/director(s) were the two main sources for loan finance, and requests addressed to them had also the best success rates. Reasons given by banks to refuse, or offer only worse than desired conditions, for loans were chiefly based on their reasoning that businesses had 'poor credit rating', 'lack of own capital', or 'insufficient collateral or guarantee'. Sometimes, it was businesses that had to refuse the loan because interest rates offered were too high or other loan conditions were undesirable.

Regarding firms' perceptions of the changes between 2007 and 2010, the financial situation of their business was reported as unchanged by slightly more than one third of all surveyed enterprises. Amongst the ones who replied it changed, more thought it got worse than improved. The same conclusions can be drawn regarding the cost of obtaining finance and the debt/turnover ratio of businesses. The burden or effort of obtaining finance for businesses and the willingness of banks to provide finance seemed to have become worse or much worse in 2010 for a lot of businesses, but the perceptions of changes differed across countries. In Spain, for example, the burden of obtaining finance became heavier, and the willingness of banks decreased for the majority of enterprises. In Sweden, by contrast, this did not change from 2007 to 2010 for the majority of enterprises.

For the period 2011-2013, banks and leasing companies should be prepared to be approached by SMEs for finance. The owner(s)/director(s) of the businesses will likely be another possible source for finance. Only few enterprises found it likely that they would apply for finance from a local government body. Enterprises will need finance mainly to maintain their business, and not to venture out on new markets or work on innovative products.

Finally, and interestingly enough, amongst all surveyed enterprises, access to finance is not the foremost factor that they think will limit business growth by 2013, but rather the general economic outlook on that period.

(16) http://ec.europa.eu/europe2020/index_en.htm. Accessed 22 February 2012.

Appendix

Table 4: Percentage of firms seeking or not finance by type, 2007 and 2010 (1)
(%)

	2007		2010	
	Yes	No	Yes	No
Loan finance	27.8	72.2	31.2	68.8
Equity finance	2.4	97.6	3.1	96.9
Other type of finance	19.9	80.1	25.3	74.7

(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011

Table 5: Among the firms who sought finance, percentage of demands by source (1)
(%)

		2007	2010
Loan finance	The owner(s)/director(s)	15.1	19.0
	Other employees of your business	2.9	10.2
	Family, friends or other individuals outside your business	4.4	6.2
	Other businesses	5.0	6.3
	Banks	91.4	90.2
	Other loan sources	7.9	7.8
Equity finance	Existing shareholders	47.0	58.8
	Directors not previously shareholders	6.3	12.3
	Other employees of your business	6.9	12.3
	Venture capital funds	6.5	10.0
	Business angels	5.8	9.8
	Family, friends or other individuals, not any of the above	9.2	12.1
	Initial public offering or other stock market offerings	3.3	8.8
	Banks	46.3	39.2
	Other financial institutions	8.9	10.5
	Other businesses	7.2	10.0
	Government/other equity finance sources	5.7	8.9
Other finance	Leasing	63.5	55.4
	Factoring	12.8	16.0
	Bank overdraft or credit line	50.3	53.5
	Subsidised loans	12.9	18.6
	Subsidies by government	7.8	9.1
	Foreign government bodies or international organisations	3.4	5.4
	Trade credit (by suppliers)	18.8	18.4
	Advanced payments (by customers)	11.5	11.6
	International trade or export finance facilities	2.9	3.6
	Mezzanine or hybrid financing	1.5	1.6
	Other finance types and sources	4.4	5.5

(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom, 2007 and 2010. (Figures do not add up 100% because multiple choice was allowed.)
Source: Eurostat survey 2011

Table 6: Success rates in obtaining loan finance by sources, 2007 and 2010 (1)
(%)

	2007			2010		
	partially successful	successful	unsuccessful	partially successful	successful	unsuccessful
The owner(s)/ director(s)	11.5	81.8	6.7	14.0	72.6	13.3
Other employees of your business	12.5	36.9	50.6	20.0	13.3	66.8
Family, friends or other individuals outside your business	16.4	48.3	35.4	18.3	45.4	36.3
Other businesses	10.8	54.0	35.2	17.2	37.8	45.1
Banks	7.6	89.2	3.2	16.5	73.3	10.2
Other loan sources	6.8	77.2	16.0	11.3	60.3	28.4

(1) Average composed of available countries: Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.
Source: Eurostat survey 2011

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Entrepreneurship determinants: culture and capabilities

Anyone interested in measuring entrepreneurship – producers of such statistics or academics and policy makers who use them – will find this book useful, as will anyone concerned about the deteriorating availability of finance for entrepreneurs in these difficult times. There is much talk about entrepreneurial climates and performance; this book provides a sensible, comprehensive framework for measurement. Its concrete indicators for culture and capability are an especially valuable contribution.

(by Professor Amar Bhidé, author, A Call or Judgment, The Fletcher School of Law and Diplomacy, Tufts University)

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