

## **9. Linking creativity and entrepreneurship: a description of the joint OECD/Eurostat Entrepreneurship Indicators programme**

*Manfred Schmiemann  
(Eurostat)*

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### **Abstract**

*The OECD-initiated programme to collect internationally harmonised indicators on entrepreneurship is complemented with work done by Eurostat since 2007. A comprehensive set of performance indicators has already been agreed and data have been made available. Work continues in getting more countries involved and in setting up a framework to measure determinants for entrepreneurship, like the regulatory framework or the area of 'access to finance'.*

### **Creativity is universal**

The online issue of the American Journal 'Proceedings of the National Academy of Sciences' (PNAS), 28 May 2009, reported on scientific findings by researchers from Cambridge and Queen Mary Universities in the UK (Birth and Emery, 2009) that challenge our notion of *Homo sapiens* or even primates being the only creative species: in short, captive non-tool-using rooks (a crow species) were offered pieces of wire, and it was shown that they are able to bend the wire pieces such that they can use them as creatively altered tools to get to food. It was previously known that crows will make even successive use of tools in their search for food. But with the newly-discovered creative, 'enterprising' toolmaking, it could be argued that if those crows were to set up a business, start mass producing those tools and marketing them, and in this process notably employing other crows (preferably those previously lacking

an occupation) they should then be called veritable entrepreneurs in the best sense of the word as coined by Jean-Baptiste Say<sup>1</sup>. This, however, is an unlikely scenario, but the link between creativity and entrepreneurship merits a closer look.

## Creativity and entrepreneurship in the business economy

Entrepreneurship has long been recognised as an important driver of economic growth, innovation and employment, and it is widely credited to support economic dynamism through the creation of new firms and their subsequent growth or down-sizing. As firms enter and exit the market, theory suggests that the new arrivals will be more efficient than those they displace. Existing firms that are not driven out by the new, more creative competition are forced to innovate and become more productive. Numerous studies have offered empirical support for this process of 'creative destruction' first described by Joseph Schumpeter (1934).

While economic studies have thus long acknowledged and analysed the entrepreneurship phenomenon, policymaking has not appropriately taken account of those findings. It was often an overriding objective of national, regional and even municipal policy efforts to simply increase the population of small new firms when it would have been more beneficial at the macroeconomic scale to stimulate entrepreneurs to introduce new products, processes or organisational forms (hence introduce innovation) in order to access new markets, increase their productivity or offer more and better paid employment. Policymakers only recently have discovered entrepreneurship and innovation to be the cornerstones of economies that can compete, nationally or internationally. Entrepreneurship policies are intrinsically closely related to innovation policies, with which they share many characteristics and challenges. Both are associated with 'doing something new' (and thus requiring creativity) and, if set up and controlled properly, they can be mutually reinforcing. The dynamic process of new firm creation introduces and disperses innovative products, processes and organisational structures throughout the economy, as the theory of creative destruction suggests.

Despite the increasing importance of entrepreneurship and associated policies, measurement of the phenomenon, particularly at the international level, has long been deficient. There had been numerous ad hoc initiatives at local, regional or na-

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<sup>1</sup> Say, the first professor of political economy in France, introduced free-market economics to Europe in general and to France in particular. He presented his vision of the laws of political economy in his 1803 masterpiece, *A Treatise on Political Economy*. Say invented the term 'entrepreneur' and emphasised the vital and **creative** roles of the entrepreneur in the economy as forecaster, project appraiser, and risk taker.

tional levels, and even a few at the international level, but consistent, comparable data were scarce. Moreover few, if any, National Statistical Institutes (NSIs) recognised the concept of entrepreneurship and no international forums existed to permit agreement on definitions or measures.

The OECD itself had addressed entrepreneurship through various analytical studies and reports, but no systematic effort had been made to establish an ongoing database devoted to comparing entrepreneurship across OECD countries. In 2004, the second OECD Ministerial Conference on SMEs and Entrepreneurship in Istanbul concluded that the statistical base for entrepreneurship research was weak and urged the OECD to develop 'a robust and comparable statistical base on which policy can be developed'.

The rationale for developing entrepreneurship indicators is to help policymakers to understand how the policies they create or adjust will affect entrepreneurship and, eventually, higher-level objectives for the economy and society, like robust economic growth, reduction of poverty and unemployment, and immigration of talent. In order for countries to benefit from the experience of others, it is also essential that the indicators allow for comparisons across countries and over time.

But it is not sufficient to measure how much entrepreneurship takes place. Countries need to understand the determinants of and obstacles to entrepreneurship, and they need to analyse the effectiveness of different policy approaches. The lack of internationally comparable empirical evidence has constrained serious research and many questions remain unanswered. Ultimately, policymaking must be guided, as far as possible, by evidence and facts.

## **The Entrepreneurship Indicators Programme**

The OECD began the Entrepreneurship Indicators Programme (EIP) under the mentorship and academic leadership of Tim Davis in 2006 in order to build internationally comparable data on entrepreneurship and its determinants (see Davis, 2006), in cooperation with NSIs. In 2007, Eurostat's official involvement launched the joint OECD-Eurostat EIP, and work began on defining core indicators as the basis for the collection of empirical data.

Since entrepreneurship is a multifaceted concept that manifests itself in many different ways, no single definition has been generally agreed upon. Furthermore, many definitions have an essentially theoretical basis and are not concerned with measurement. The European Commission has developed their definitions in the context of the Green Paper on Entrepreneurship (European Commission 2003).

The OECD-Eurostat approach has built upon the conceptual definitions of entrepreneurship but with a view to the empirical measures relevant for policy interests. Drawing on the theoretical contributions of Richard Cantillon, Adam Smith, Jean-Bap-

tiste Say, Alfred Marshall, Joseph Schumpeter, Israel Kirzner and Frank Knight, among others, the following definitions were established:

- **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 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.

In this context, creativity seems to be a necessary but not sufficient precondition of entrepreneurship — more input factors are needed. Audretsch and Thurik (2002) are to be credited to have widely established the term ‘determinants’ for input factors such as access to capital, provision of talent, and the regulatory framework. Also inspired by a number of other previous scholarly and policy-oriented studies, a simple, three-stage entrepreneurship model was proposed as the first component of a framework for empirical indicators that are both relevant and feasible. The first stage of this model (Figure 1) comprises various determinants which policy can affect and which in turn influence entrepreneurial performance, or the amount and type of entrepreneurship that takes place. The final stage is the impact of entrepreneurship on higher-level goals such as economic growth, job creation or poverty reduction. While the entrepreneurship framework is presented here in a linear fashion, it was explicitly recognised that there are complex relationships among the different main components and subcomponents.



Figure 1: Topic categories for entrepreneurship indicators

Within each of the three main stages of this model, several subcategories are identified to flesh out the overall framework and guide the selection of indicators.

Given the multifaceted nature of entrepreneurship, the EIP does not propose any single measure as the key to understanding and comparing the amount and type of entrepreneurship that takes place across countries. It is very important for policy analysts to be able to understand and distinguish different types of entrepreneurial performance.

The goal of the EIP is to establish a framework of relevant indicators as well as a core list of indicators with standard definitions, methodologies and classifications. The steering group that developed the metadata comprised policy analysts and, importantly, the responsible data experts from NSIs. This approach assured relevance and also feasibility. The core entrepreneurship indicators selected were either available or potentially available, from existing data sources <sup>2</sup>.

## Determinants for entrepreneurship and their link to creativity

As Figure 1 shows, the preliminary grouping of determinants is as follows:

- regulatory framework
- access to finance
- R & D and technology
- entrepreneurial capabilities
- culture
- market conditions

The determinant group '**R & D and technology**' is perhaps the main link between creativity and entrepreneurship, and is to be understood as 'access to R & D and technology' via university technology transfer, for example. An international workshop at Copenhagen in October 2008 attempted to provide an internationally harmonised list of potential indicators, yet to be approved by the EIP's Steering Group <sup>3</sup>. Based on the discussions at the workshop it was proposed that the determinant group 'R & D and Technology' be changed to '**Creation and diffusion of knowledge**'. Moreover, the policy areas previously included are proposed to be modified. For instance, one important proposal is to move the policy area 'Patent system, standards' to the 'Regulatory framework' pillar in the EIP.

<sup>2</sup> A unique (OECD and Eurostat) website entry to all available data, as well as a repository of background documents, is available (<http://www.entrepreneurship-indicators.net>) which gives access via a masked hyperlink to a secure European Commission data server.

<sup>3</sup> The workshop proceedings are available via the above mentioned website by clicking the 'Copenhagen workshop' icon.

All proposed subgroups of the 'R & D' determinant pillar have a clear link to creativity:

### **1. R & D activity**

Research and experimental development (R & D) creates opportunities for entrepreneurship and covers a wide variety of activities that raises and drives the availability of knowledge. R & D activity can be devoted to human and financial resources, also referred to as R & D input (OECD 2002). Thus, two main R & D inputs are normally identified: R & D personnel and R & D expenditure. The R & D can both be privately and publicly funded. Moreover, local knowledge created by firms conducting R & D may spill over to other firms run by entrepreneurs.

### **2. Transfer of non-commercial knowledge**

Effective technology or knowledge transfer regulation might open and speed up the process of transferring non-commercial research into the business economy, thereby effectively creating new opportunities for potential entrepreneurs. Non-commercial research might be conducted at universities, at other higher education, in non-profit organisations or in government agencies. The regulatory framework can for instance be enhanced by policies encouraging universities or other institutions engaged in research and development activities to facilitate the development of ventures, spin-outs, or other forms and manifestations of knowledge and technology transfer based on publicly funded research.

Universities often commercialise their research whereby their knowledge transfer has a commercial side effect. However, as research at universities originates as a non-commercial activity it is considered as a transfer of non-commercial knowledge.

### **3. Cooperation among firms**

In general cooperation among firms is important. Firms can benefit from cooperation activities with different partners, i.e. private or public partners from different countries.

Cooperation manifests itself in for instance clusters or through joint ventures. Moreover, knowledge created in clusters due to cooperation may have spillover effects.

One possible way of cooperation is for existing firms to play a role in developing entrepreneurship in new and younger firms either through corporate venturing or by actively working with these firms. For example, the success of Silicon Valley compared to the Boston 'Route 128' area in the early 1990s has been explained by the more open attitude towards cooperation in Silicon Valley (Herbig and Golden, 1993).

#### 4. *Technology availability and take-up*

This policy area refers to the general availability of technology in societies. The spread and use of existing and new technologies — both products and processes — are important to firms. Examples include advanced technologies for energy efficiency, high-speed networks and new communication platforms. Many entrepreneurs may use existing technology in new ways and may benefit from the uptake and diffusion of technologies in general, i.e. among partners and consumers. For instance the wider use of the Internet is hugely beneficial to entrepreneurial activity. Entrepreneurs can buy patents to protect their own technology products or processes through the IPR system. Patent protection provides the availability of technologies and knowledge for entrepreneurs.

**'Access to finance'**, another determinant pillar, has regrettably also seen some creative input before the onset the economic crisis (and triggering it?). Although this was not yet investigated or discussed by statistical experts, a planned data collection of small firms' problems with access to capital will deliver results on this phenomenon in 2010/11.

**'Entrepreneurial capabilities'** will be the topic of another workshop of the Copenhagen type — venue and exact dates to be determined.

The **'Regulatory framework'** is for the moment best documented on the World Bank's 'Doing Business' database and website <sup>4</sup>. The determinant pillars **'Culture'** and **'Market conditions'** can be further researched via the EIP's unique website entry <sup>5</sup>.

## Conclusions

Creativity, like innovation or education, is a necessary but not sufficient precondition of entrepreneurship. The right framework conditions and the fitting research, educational, financing and marketing systems can fuel the creative spirit to bring about marketable products of creativity. It cannot be assessed from the point of view of an entrepreneurship expert how creativity can flourish over and beyond its marketable output, but the incentives to provide a functioning market economy with well defined business and entrepreneurship conditions seem to pay off. At least this is the primary results of a joint OECD/Eurostat EIP that aims at identifying and internationally harmonising indicators and determinant groups for entrepreneurship, with a clear link to their impact, such as economic growth and immigration of talent. This programme will ultimately, if extended to the regional level, also allow for a comparison of regions attracting the 'creative class'.

<sup>4</sup> <http://www.doingbusiness.org/>

<sup>5</sup> <http://www.entrepreneurship-indicators.net>, click on 'Determinants' field and then access library.

### **References**

- Audretsch, D. B., Thurik, R., Verheulm, I. and Wennekers, S. (Eds.) (2002): *Entrepreneurship: Determinants and Policy in a European – U.S. Comparison*. London: Kluwer Academic Publishers.
- Bird, C. D. and Emery, N. J. (2009): Insightful problem solving and creative tool modification by captive nontool-using rooks. *Proceedings of the National Academy of Sciences*. Retrieved May 28, 2009 from: <http://www.pnas.org/content/early/2009/05/28/0901008106.abstract>
- Davis, T. (2006): Understanding entrepreneurship: Developing indicators for international comparisons and assessments. *OECD strategy paper*, Paris 2006. Retrieved in June 2009 from [http://www.oilis.oecd.org/oilis/2006doc.nsf/linkTo/STD-CSTAT\(2006\)9](http://www.oilis.oecd.org/oilis/2006doc.nsf/linkTo/STD-CSTAT(2006)9)
- European Commission (2003), *Green Paper Entrepreneurship in Europe*. COM(2003) 27 final, Brussels: European Commission
- Herbig, P.A., J.E. Golden (1993): The rise of innovative hot spots: Silicon Valley and Route 128, *International Marketing Review*, vol. 10, issue 3.
- OECD (2002): Proposed Standard Practice for Surveys for Research and Experimental Development, Frascati Manual. Paris: OECD.
- Schumpeter, J A. (1934): *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA: Harvard University Press.