

THE IMPACT OF EU GRANT SUPPORT ON INNOVATIVE ENTREPRENEURSHIP: CHARACTERISTICS OF INNOVATIVE START-UPS AND SPIN-OFFS AT NATIONAL LEVEL

Mihai CIOC¹

Minodora URSĂCESCU²

ABSTRACT

The research aimed to assess the general features of all innovative start-ups and spin-offs funded in Romania with EU grants between 2007 and 2013, in correlation with the existing policies at national and regional level, and with the implementation status of other structural funding programs. The results of the research can be harnessed in the design and implementation of new public policies for the 2014-2020 programming period, in an inclusive approach aimed at accelerating the development of the innovative start-up sector. Also, research findings reveal a number of characteristics of innovative entrepreneurship, providing a solid knowledge base at both macro (for focusing public policies) and micro-level.

KEYWORDS: *innovative start-up; innovative entrepreneurship; spin-off; EU funds; regional development; business development.*

JEL CLASSIFICATION: *O32, O38.*

1. INTRODUCTION

Romania has relatively little experience on entrepreneurship in general and innovative entrepreneurship in particular. The first generation of entrepreneurs in recent Romania was formed in the early 1990s, on an unexplored market. In this context, entrepreneurs were concerned rather to exploit market niches in every field of activity than to invest in research and innovation. Moreover, entrepreneurship has developed mainly in service sectors, while manufacturing declined. This trend has affected the Romanian companies' ability to generate benefit to the economy, in terms of product innovation and technology transfer. In addition, Romania has specializations in low-potential areas in terms of innovation, such as clothing or leather industry (MFA, 2014).

With Romania's EU integration in 2007, it became obvious that there was a competitive gap between Romanian companies and European ones. Among other causes, this gap was generated by the significant technological deficit of Romanian companies as well as by the lack of innovations in enterprises. The shortcomings regarding either the innovation or R&D activities are not particularities of Romanian economy, but common issues for many Central and Eastern European countries. During 2008-2009, in absolute terms, the number of researchers in several new EU member States (e.g. Poland and Romania) is reported to have marginally declined while the drop was even more important in Russia and Ukraine, where were reached 2 to 3.5 percent decline rates (UNECE, 2012). Otherwise, according to World Bank Database, Romania was regarded in 2008 as the country with the lowest number of researchers among the new EU member states, respectively 908 researchers/million

¹ Bucharest University of Economic Studies, Romania, mihaicioc@gmail.com

² Bucharest University of Economic Studies, Romania, minodora.ursacescu@man.ase.ro

inhabitants, level which is lower than the half-average of the other EU countries (1.869 researchers/million inhabitants).

In 2007, under the circumstances of a poorly developed innovation sector, Romanian authorities launched a national program based on European funds, in order to support the development of innovative start-ups and spin-offs, as a measure to stimulate innovation activities that create benefit based on patented or unpatented R&D results, which are applied or transferred by the respective enterprises. Even though the share of grant was 90%, only 147 financing contracts were signed between 2007 and 2013, which reflects a lack of interest from potential entrepreneurs for developing innovative start-ups and spin-offs.

2. METHODOLOGY

The study used public data available on the websites of Romanian authorities responsible for the implementation of programs and policies for innovative start-ups. For a more comprehensive approach, the research was focused on macroeconomic research, with the purpose to assess the general characteristics of all innovative start-ups and spin-offs funded within O.2.3.1 between 2007 and 2013. As primary data, the research used public information on grant application submitted and approved, and also the public list of contracts totalling €24.79 million signed between the National Authority for Scientific Research, as an implementing body, and 147 innovative start-ups and spin-offs, as beneficiaries. The quantitative results of the research were correlated with the existing policies at national and regional level, and also with the implementation status of other EU funding programs.

For a better interpretation of the results, there were also used some lessons learned from the practical experience of the authors, generally in implementing EU grants, and particularly in providing consultancy for the implementation of 2 of the 65 innovative start-up projects mentioned above.

3. CHARACTERISTICS OF INNOVATIVE ENTERPRISES AT NATIONAL LEVEL

By Decision no. 9055 of Feb 18, 2008 (NASR 2008), Romanian authorities launched the *de minimis* aid scheme 'Support of innovative start-ups and spin-offs', within Sectoral Operational Programme 'Increase of Economic Competitiveness' - Operation 2.3.1. The operation was aimed at supporting the creation of innovative start-ups and spin-offs in pursuit of new products and services. Applicants had to demonstrate that they have the legal right to use the results obtained from the research activity (know-how, prototype, license, or industrial property right). It was estimated that achieving this goal will help in increasing the value of R&D expenditures up to 2% of GDP until 2015.

According to applicant's guide for this operation (NASR, 2010), innovative spin-offs are regarded as companies which are about to be created as a consequence of certain results originating from the research activity carried out within a research institute or a university, which might be marketed with satisfactory economic results. Otherwise, innovative start-ups are microenterprises or small enterprises, with less than 2 years on the market at application date and less than 20 employees, which aim to market either a new product or service, or a substantially improved one.

The funding line functioned with continuous submission until Dec 14, 2012. According to official information (NASR 2014), between 2009 and 2013, there were 147 financing contracts signed. The total amount of funding was €24.79 million. Therefore, the average funding per project was €168,630 or 84.30% of the maximum grant of €200,000.

The above figures show a decreased interest of Romanian SMEs for accessing European funds for innovation, given the fact that only 200 applications were received, of which 168 were accepted for funding, even though the funding line was open continuously for approx. 46 months. By

comparison, in the case of another *minimis* aid scheme (Government Resolution 274/2013) aimed at supporting investments in SMEs, in only 10 days (Jan 15, 2014 to Jan 24, 2014), the Management Authority received 7.082 valid applications.

We will attempt to argue the limited interest for Operation 2.3.1., which is in contradiction with the fact that this *minimis* scheme had the longest period of continuous submission of SOP-IEC and also the highest intensity of non-reimbursable assistance (90% of eligible expenses, unlike the common 70% financing scheme for SMEs):

- Firstly, regarding knowledge generation: generally, in Romanian private companies there is only a small interest to support investments in R&D and innovation. From this point of view, Romania is at a disadvantage when compared with the EU average. In certain fields, this gap is considerable, being characterised by low productivity, a lack of R&D activities at company level, and only a small number of companies that have rapid growth. Moreover, in 2011, Romania has invested only 0.48% of GDP in R&D, and 80% of these investments were made by the public sector. This reflects an underdeveloped entrepreneurial culture based on KIBS (knowledge intensive business services), which some authors (Corrocher, Cusmano & Lenzi, 2012) consider as stimulating economic growth and industrial renewal by converting knowledge into market innovation. Paradoxically, Romanian entrepreneurs are reluctant to assert that in 2010 the government introduced a 120% tax deduction for R&D expenses, where the deduction increased to 150% in 2013 (MFA, 2014). This matter of fact could be also justified by the EU policies, where exist some variables that hinder start-up and spin-offs development: high levels of employment security, complex regulations, an ageing population, and difficulties in converting existing technological knowledge into new business activities (Parhankangas & Lindholm-Dahlstrand, 2012). In reply to this challenge, West-European countries promoted concrete solutions for encouraging innovative entrepreneurs, such as the development of over 900 business incubators within EU members (European Commission, 2012), or the modernization of the public procurement system in the leading innovation countries within EU (e.g. Germany, Italy, Netherlands, Norway, Sweden, and United Kingdom). This solution has emerged as a powerful instrument of driving R&D by providing to companies "lead markets" for new technologies (UNECE, 2012).
- Secondly, regarding knowledge capitalization, one eligibility criteria for the applicants was to hold an intellectual or industrial property right - patent, utility model, design, model, brand, topographic representations of semiconductor products, etc. (NASR, 2010). As shown in other studies (Klewitz & Hansen, 2014), patent applications are unlikely to have an impact on relative wealth in the immediate perspective. Moreover, only for the publication of the patent application, the legal term in Romania and the EU is 18 months. Given that another eligibility condition in order to be classified as innovative start-ups was to have a maximum firm age of 36 months (NASR, 2010), we may conclude that it is highly unlikely for the patent to be granted before submitting the grant application. For this reason, start-ups generally preferred to acquire the intellectual or industrial property right from a third party.
- Third, regarding the type of innovation: the conditions for participation in Operation 2.3.1 were relatively rigid, meaning that some types of innovation (generally process or service innovations, but also some product innovations) did not provide eligibility for applicants because they could not be reflected in an intellectual or industrial property right. This kind of rigidity is in contradiction to the development of start-ups at the national and regional level, where we can identify a general tendency towards an increasing share of start-ups in the service sector, and a corresponding decreasing share in manufacturing (Janssen et al. 2013). A separate chapter in this perspective is the IT sector because certain types of

software products cannot be patented under Romanian regulations. Considering that there is no unique pattern of innovation (Corrocher, Cusmano & Lenzi, 2012), we recommend for future minimis schemes to provide higher flexibility on recognising innovative ideas.

- Finally, in terms of willingness to assume risk: despite the fact that in 2007-2013 their offer of financial support for R&D was very diverse, the demand from businesses was not particularly high, because the access to financing instruments (loans, guarantees, risk capital) was limited at the time. SMEs have found it very difficult to provide a solid cash flow required for their R&D projects (MFA, 2014). Moreover, applicants were required to assume specific outcome indicators (e.g. number of customers or number of employees) at the end of the project's durability period (3 years after the project implementation) (NASR, 2010). In case of failure of these indicators, the grant may be partially or fully withdrawn. Under these conditions, potential entrepreneurs have analysed carefully whether the risks and benefits associated with an innovative start-up properly balance, being shown (Muñoz, Encinar and Otamendi 2013) that if the minimum condition to innovate is not satisfied, the entrepreneur chooses not to invest.

Therefore, the number of grant applications received and approved between 2009 and 2012 (Figure 1) reflects the development of demand for innovative entrepreneurship.

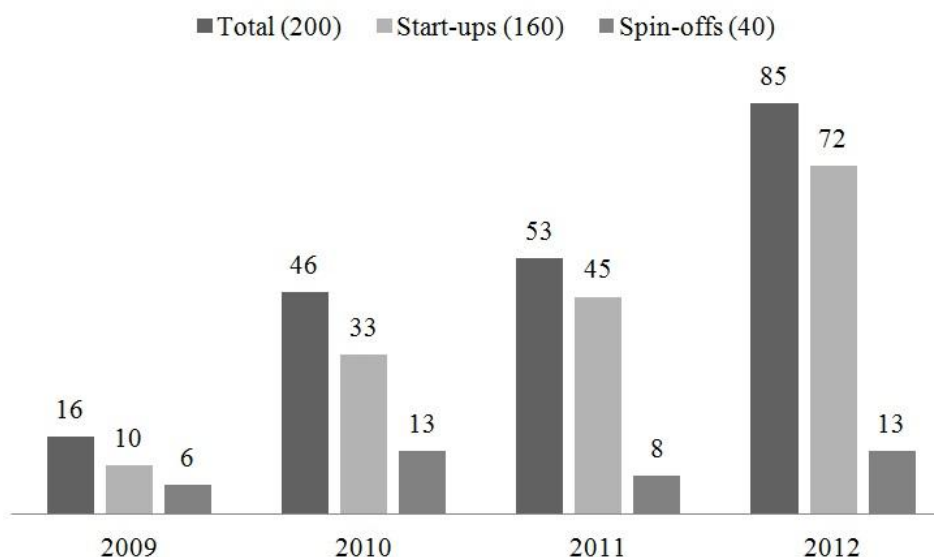


Figure 1. Number of grant applications received and approved in 2009-2012 by innovative enterprises

Source: authors

The analysis shows a clear trend of growing interest mainly for innovative start-ups, while maintaining a relatively moderate interest for innovative spin-offs. Growth can be explained, in general, through the experience gained by Romanian companies in accessing European funds and, in particular, through the network effect considering that start-up rates are highly determined by the start-up rates of the previous years (Fritsch & Muller, 2005). The share of innovative spin-offs in total grant applications is relatively low (20%) due to various factors: relative newness of the concept of innovative spin-off in Romania, the bureaucracy of academic institutions, and subsequently, the lack of entrepreneurial culture. Moreover, the 'Romanian partnership agreement for the 2014-2020 programming period' (MFA 2014) refers to the necessity to promote a culture of entrepreneurship and innovation in the entire educational system and also in companies, based on an approach connected with all the resources (financial, managerial, technical, creative) needed to harness the latent potential that exists in the population and businesses in Romania.

The success rate of grant applications (Figure 2) is also increasing in 2010-2012 when compared with 2009, which indicates a growing professionalism in developing business plans and writing funding applications.

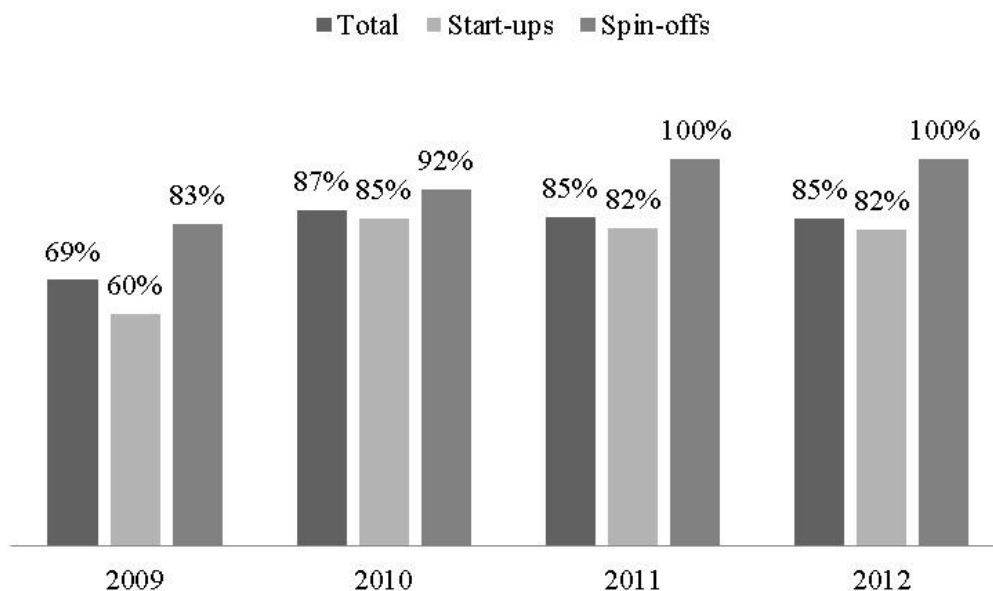


Figure 2. Share of successful grant applications of all by innovative enterprises, 2009-2013

Source: authors

Overall, the success rate of applications (84%), calculated as the average of the values in Figure 2, is high, but is based on the diminished interest for innovative entrepreneurship. Practically, all applications were selected that met the minimum score for funding (15 points out of 30). The criteria for assessing the applications remained generally the same, and the scoring system was unitary (average scores awarded in the 11 rounds of evaluation were within normal limits, ranging in the interval [17.62, 23.00], no specific trend resulting in the analysed period). Average success rate throughout the O.2.3.1 competition was higher for innovative spin-offs (94%) when compared with the start-ups (81%). The explanation is that in general, innovative spin-offs are founded by researchers from academic or research organizations with more extensive experience on writing project proposals for R&D. This specific knowhow is emphasised by previous studies: some researchers (De Clerck & Arenius, 2006) consider that the likelihood to engage in business start-up activity is influenced by the level of individuals' existing knowledge base, while others (Honjo, Kato & Okamuro, 2011) appreciate that entrepreneurs with higher educational background, prior innovation output, and academic affiliation tend to raise more funds for R&D.

87.5% of the 168 applications selected for funding have resulted in contracts. The willingness to assume the risk is acceptable, considering that the conclusion of contracts was made only after the formal assumption of some indicators of high risk (e.g. number of customers, sales value, number of jobs created and maintained, etc.). The remaining 12,5% of the applications selected for funding which have not resulted in contracts, are mostly cases in which the beneficiary discarded the contracting process, from various reasons, such as the lack of financial resources for ensuring the co-financing, high risk disinclination, or the lack of specialized consulting services.

In terms of value, the general trend was one of increasing grants awarded for the development of innovative start-ups and spin-offs (Figure 3).

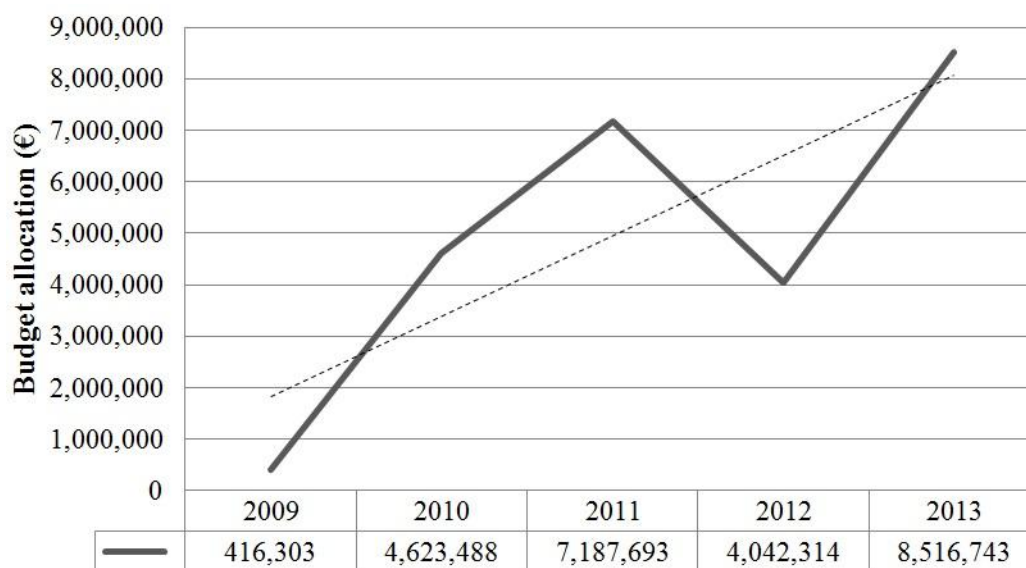


Figure 3. Evolution of grants awarded for the development of innovative start-ups and spin-offs, 2009-2013

Source: authors

The exception is 2012, when the programme SOP IEC was pre-suspended in Romania, which led to a delay in the contracting process and in the reimbursement of expenses.

Over 50% of the allocated funds were directed to innovative start-ups in three key sectors: health and medicine (22%), IT (17%), and energy and recycling (12%). All three belong to the service sector, a situation perfectly justified in a country where the share of the services sector in GDP is 69.5%. Targeting non-reimbursable financial resources on priority sectors had, as will be shown later in this research, a macroeconomic impact (through the development of innovative start-up sector at regional level) and also microeconomic consequences (by influencing the profitability indicators of innovative start-ups).

4. CONCLUSIONS

Research findings reveal a number of characteristics of innovative entrepreneurship with non-reimbursable financial assistance. These findings provide a solid knowledge base both at macro- (for focusing public policies) and micro-level (for enhancing business plans). The empirical study encourages future research on the perspectives of funding innovative start-ups in Romania and other EU Member States in the new programming period 2014-2020.

One of the main conclusions is that innovative entrepreneurship in Romania shows little interest, even with government support tools. Entrepreneurial culture, difficulties in capitalising knowledge, and the limited access to financing instruments (loans, guarantees, and risk capital) were the main influence factors of innovative start-up initiatives between 2007 and 2013. However, the general trend reflects a proliferation of innovative entrepreneurship doubled by an improvement in the success rate of grant applications. Also, given the fact that this rate is still insufficient to ensure a sustainable development within each region, we recommend the development of a national public guarantee fund for loans taken by start-ups and innovative spin-offs, as well as the stimulation of risk capital funds development, through *business angels* involvement, like CEEA (Central Europe Angel Advisors) from Czech Republic, Baltic Innovation Fund in Lithuania, and Arengufond in Estonia.

Future research will focus more on the micro-level, to investigate entrepreneurial best practices in some successful innovative start-ups financed with EU funds. On the other hand, the research can

be harnessed in the design of new public policies for the 2014-2020 programming period, in an inclusive approach aimed at accelerating the development of the innovative start-up sector.

REFERENCES

- AIPPSME (Agency for Implementation of Projects and Programs for SMEs). (2014). Program for the development of entrepreneurial skills among young people and facilitating access to finance – START. AIPPSME. Accessed September 9. <http://www.aippimm.ro/categorie/programe/programul-pentru-dezvoltarea-abilitatilor-antreprenoriale-in-randul-tinerilor-si-facilitarea-accesului-la-finantare---start--/>.
- Corrocher, N., Cusmano, L. & Lenzi, C. (2012). Growth in Knowledge-Intensive Business Services: Evidence from Lombardy. *Industry and Innovation* 20 (6): 563–584. doi: 10.1080/13662716.2013.833376.
- De Clerck, D. & Pia, A. (2006). The Role of Knowledge in Business Start-up Activity. *International Small Business Journal* 24 (4): 339–358. doi: 10.1177/0266242606065507.
- European Commission. (2009). A More Research-Intensive and Integrated European Research Area. Science, Technology and Competitiveness Key Figures Report, 2008-2009. European Commission. Retrieved September 9, 2015 from: http://ec.europa.eu/research/era/pdf/keyfigures-report2008-2009_en.pdf.
- Fritsch, M. (2013). New Business Formation and Regional Development: A Survey and Assessment of the Evidence. *Foundations and Trends in Entrepreneurship* 9(3): 249–364. doi: 10.1561/03000000043.
- Honjo, Y., Kato, M. & Okamuro, H. (2011). R&D financing of start-up firms: How much does founders' human capital matter? Paper presented at the VICO Final Conference, Politecnico di Milano, Milan, June 29-July 1.
- Klewitz, J. & Hansen, E. (2014). Sustainability-oriented innovation of SMEs: a systematic review. *Journal of Cleaner Production* 65: 57-75. doi: 10.1016/j.jclepro.2013.07.017.
- MFA (Ministry of Foreign Affairs). (2014). Romanian partnership agreement for the 2014-2020 programming period. MFA. Accessed April 14. <http://www.fonduri-ue.ro/document-consultativ/a-doua-versiune-ap-2014-2020>.
- Muñoz, F., Encinar, M. & Otamendi, F. (2013). The allocation of entrepreneurial effort and its implications on economic growth. *Universidad Autónoma de Madrid (Spain), Department of Economic Analysis in its series Working Papers in Economic Theory* 6: 1-21.
- NASR (National Authority for Scientific Research). 2014. National Strategy for Research, Development and Innovation 2014-2020. NASR. Retrieved April 14, 2015 from: <http://www.research.ro/ro/articol/3343/strategia-nationala-de-cercetare-si-inovare-2014-2020>.
- NASR (National Authority for Scientific Research). (2014). O.2.3.1 Applicant Guide - Annex 2 to Decision No. 9983/2010 of the President of NASR. NASR. Retrieved April 14, 2015 from: <http://www.poscce.research.ro/ro/node/node/nid/1703>.
- NASR (National Authority for Scientific Research). (2014). O.2.3.1 contract list, update 10.12.2013. NASR. Retrieved April 14, 2015 from: <http://www.poscce.research.ro/ro/node/node/nid/1703>.
- Parhankangas, A. & Lindholm-Dahlstrand, A. (2012). Spin-offs to stock markets as a complementary form of entrepreneurship: Contrasting US, UK and Japanese experiences. *Entrepreneurship & Regional Development* 24(5-6): 307-335. doi: 10.1080/08985626.2011.577819.
- UNECE (United Nations Economic Commission for Europe). (2012). *Fostering Innovative Entrepreneurship. Challenges and Policy Options*. UNECE. Retrieved September 19, 2015 from: <http://www.unece.org/fileadmin/DAM/ceci/publications/fie.pdf>.