European Commission

Improving access to finance for innovative firms with growth potential: evidence of impact of R&D grant schemes on firms' output

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1. Motivation / Objectives

High-growth firms are increasingly a target for government interventions (European Commission, 2016). This is especially true for Europe which lags behind the US in the number of fast growing highly innovative enterprises (so-called scale-ups). In response to this large scale-up gap, the current policy debate has focussed on new sources and forms of R&I funding to enhance EU level support for scale-ups.

Objective: This paper examines the impact of R&D grant schemes on young innovative companies with growth potential. It focuses on the **output additionality**, i.e. the effects of R&D grants for scale-ups on the output of firms.

2. Main Research Questions

Our main research questions are:

1. What are the effects of R&D grants on scale-ups' output as measured by innovation activities, employment growth and firm performance (in terms of output, sales – including sales of new products and foreign sales/exports – value added and revenues)?
2. How do these R&D grants that specifically target young innovative firms with growth potential compare in term of employment, firm economic and innovative performance, and innovative activities with generic R&D grants and R&D subsidies commonly used as external funding to support both SMEs and large enterprises?

3. Methodology

Our research approach draws on policy evaluation studies, and academic literature.

(a) **Sample papers: selection criteria**

- Direct R&D grants were selected only if the scope was to help young innovative companies grow faster (e.g. promote growth and exports, increase the commercialisation of innovation, enhance competitiveness).
- Young < = 10 years old.
- Examples of keywords used were "R&D" "grants", "SMEs", "young", "innovative firms", "high-growth firms", and "growth potential".

(b) **Selection criteria for generic R&D grants and R&D subsidies**

- Generic R&D grants were defined as R&D programmes grants targeting all companies (SMEs and larger enterprises) in all sectors.
- R&D subsidies include all R&D programmes (grants, loans and tax incentives), without distinguishing between instruments when reporting effects.

4. Results

The results on the effect of R&D grants for innovative enterprises with growth potential shows:

- Impact on employment: The average number of employees ranges from **7 to 16** per granted firms.
- Impact on both sales' growth, and share of innovative sales:
  - Strong and **positive** effect on total sales, and share of innovative sales.
  - **Time lag**. Effects on sales' growth take from **two** to **four** years to appear.
  - **Growth boosting effects**. Firms continue to grow for several years following the receipt of the subsidy (Autio and Ranniko, 2016; Soderblom et al., 2015).
    ➔ **Quality signal**
- Impact on innovation: Strong and **positive** effect on patent.

Table 1. Output Additionality

Effects on:	R&D **grants** for **scale-ups**	**Generic** R&D **grants**	R&D **subsidies**
Employment	●●●	●●❍	●❍❍
Firm innovative and economic performance	●●●	●●❍	●●❍
Innovation	●●●	●❍❍	●❍❍

●●● = major relevance, ●●❍ = moderate relevance, ●❍❍ = minor relevance

The results of the comparative analysis show:

- **The effects for R&D grants for young innovative firms** are **larger** than the effects of **generic R&D grants** and **R&D subsidies**.
- For generic R&D grants, the effects are higher when the grants induce changes in **firm behaviour** (collaboration and enhance firm human capital endowment) and when they target particular **technologies or sectors** (high-tech companies).
- The **combination of R&D grants and tax incentives** is more effective in increasing firm innovation than using only one instrument.

Table 2. Evidence sources

	All sources	Academic articles	Evaluation reports
R&D grants for scale-ups	20	13	7
Employment	**11**	**5**	**6**
Economic and Innovation performance	**14**	**8**	**6**
Innovation	**7**	**3**	**4**

5. Relevance for Policy

- **R&D grants** stimulate and prepare the companies **for the growth phase.**
- **Targeted funding** (technology focus) **delivers better results** for **disruptive innovations**, whereas generic grants for SMEs are better suited for knowledge diffusion as they mostly deliver new to the firm rather than new to the market results.
- **Selection mechanisms** built on milestones or subsequent phases of funding are **still rarely used** although their effects are very positive. This calls for a **greater use of this type of mechanisms**.
- The competitive and attractive R&D grants help companies to **attract follow up funding** (signalling effect especially for equity).
- Financial measures coupled with **complementary services** (e.g. networking, advice) **have a longer lasting effect**.
- **Tax incentives and grants** are **complementary** as regards to their impact on firm's growth and innovation activities given the evidence of higher impact of combined application (tax incentives and grants).

Table 3. Summary of R&D grants' design

Description	Advantages	Challenges
R&D grants for scale-ups		
• Phased approach, often linked to performance. • Mostly delivered with additional services (training, mentoring, advice). • Small cohorts of firms. • Eligibility criteria more detailed and focused cf. generic grants (e.g. specific sectors, project managers' experience, company age).	• Phased approach allows distribution of funding based on results - not project proposals alone. • Added-value services help entrepreneurs to deliver project to market.	• Phased approach requires clear milestones to enable monitoring of the process . • Problems with picking winners if eligibility criteria very stringent.
Generic R&D grants		
• Single grant. • Financial support rarely linked with additional services. • Larger cohorts of firms. • Eligibility criteria more generic: R&D intensity, company's size, no age limits.	• Simple administrative rules • Risk more equally distributed due to larger cohorts	• Risk of funding mostly new-to-the-firm innovation and/or issues with commercialisation given the lack of support during project development

7. Sources/References

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