

## **Can government substitute lack of private institutions' support? Evidence from Russian startups.**

In both developed and developing countries governments recognize the need of support of small and medium enterprises (SME), as entrepreneurship and entrepreneurial ecosystem were found to be a driver for national economic growth and job creation (Thurik & Wennekers (2004), Van Stel, Carree & Thurik (2005), Acs, Estrin, Mickiewicz & Szerb (2018)). Moreover, special attention is usually paid to new technology-based firms, of which products and innovations can create enormous economic value and which can have impact on everyone's life. (Portincaso, de la Tour & Soussan (2019)).

The most typical forms of government support for SME usually include custom and tax exemptions and loans on preferential terms. These measures are presented by governments both in emerged markets (e.g. Start Up Loans programme in the UK, Small Business Innovation Research (SBIR) Program in the USA) as well as in emerging countries (e.g. Small Business Innovation Research Initiative in India, SME Bank's programs in Malaysia).

However, in this research we rather focus on the influence of government development institutes on new technological ventures, which is less wide-spread form of government support for young companies. This type of support, which includes establishing and funding of different forms of government technoparks, incubators and accelerators are more often seen in countries with significant role of government in economy (e.g. Sweden, China, Israel). We specifically focus on Russian startups as Russian venture market is characterized by presence of significant government financing as well as limited access to private capital financing. Indeed, the total volume of venture capital investments in Russian market represents less than 0,1% of volume of global venture capital investments in 2018.

The main research question of the paper is whether government support provided by development institutes can be a substitute for support provided by professional market participants such as private equity and venture funds, business angels in countries with limited private investments.

While previous research found positive influence of government programs of supporting SME on such companies' performance (Doh & Kim (2014), Keller & Block (2012)), the influence of government institutes such as government venture funds on firm performance was found to be ambiguous. For example, Luukkonen, Deschryvere & Bertoni (2013) found no difference in contribution to the portfolio firms between

government venture capital (GVC) funds and independent venture capital (IVC) funds, while Grilli & Murtinu (2014) showed that IVC funds positively impacts sales growth of high-tech firms, while GVC does not affect neither sales nor employees growth.

However, in difference to previous academic research in this paper we consider not only traditional forms of support typical for private investors such as financing and recruitment of employees opportunities, but also assistance in infrastructure support, access to networking opportunities and protection of startups' intellectual property.

For this research we use the sample of more than 500 Russian biotechnology startups which were founded after 2010. Half of the sample is represented by startups which are residents of Skolkovo innovation system, largest Russian innovation ecosystem, while the rest of the sample consists of startups supported only by private investors or startups not supported by external financing. Additionally, we trace the forms of support provided by the investors to a specific startup based on the information presented in the news, Skolkovo website as well as on the data about ownership structure collected from Spark Interfax Database.

Taking into account potential endogeneity of government support we use propensity score matching technique in order to compare startups which are residents of Skolkovo and startups supported by private investors. Additionally, we use difference-in-difference technique in order to find the effect of support provided by government institutes on the subsequent performance of the startup.

Our results indicate that government support can be an effective substitute of private institutions support but only for infrastructure support. Additionally, Skolkovo startups were found to be more successful in obtaining patents for their products compared to startups without government support. However, we found no significant effect of Skolkovo grants or other government institutes equity financing on subsequent startup performance, while the financing of business angel or private venture capital proxied by their presence in the ownership structure was found to have a positive impact on startup performance in terms of revenue growth.

The findings of this paper can provide strategic insights for startup teams in order to determine the type of investor for obtaining specific type of support. Additionally, the results can help government entities to define future innovation policy in order to focus on measures in which government support can be more effective than private investors'.

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