

## **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 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 different forms of government technoparks, incubators and accelerators, is more often seen in countries with significant role of government in economy (e.g. Sweden, China, Israel). We specifically focus on startups from Russian market 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 and private companies in countries with limited private investments.

While previous research found positive influence of government programs in supporting SME (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 250 Russian biotechnology startups. The sample is represented by startups which are residents of Skolkovo innovation system, largest Russian innovation ecosystem. However, the type of support provided to these startups differ significantly: while some of the companies do not receive any support or supported only by private investors, other firms receive grants from Skolkovo foundation and/or become residents of technoparks. We trace the forms of support provided by the investors to startups based on the information presented on the Skolkovo platform as well as on the data about ownership structure collected from Spark Interfax Database.

As performance measures of a startup we use 3 main indicators: number of employees, number of patents owned by a startup and the presence of minimum value product (MVP) which we proxy by the presence of a revenue of the company.

We divide our sample of startups in 2018 into 4 clusters based on the presence of government and/or private support: firms which do not get any support (besides being Skolkovo participants), firms which get significant government support, firms supported only by private companies and/or funds and firms which are supported both by government and private institutions. Therefore, we select the variables upon which we base our clusters as follows: private company share (Russian and foreign), PE/VC share, government institute share, residence in Skolkovo or other technoparks, presence of external financing and Skolkovo grant received by startup.

After cluster characterization our results indicate that startups supported by government differ significantly from startups companies which receive support from private investors. In particular, companies with government support 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 support on startup performance measured by the presence of MVP, while the private external financing and presence of PE/VC in the ownership structure has a positive and

significant relationship with presence of MVP. Moreover, startups with government support have less concentrated ownership structure.

Such results indicate that although government is an important source of a support, it cannot be considered as a substitute of private institutions' investment and expertise. Moreover, our results suggest that these two types of investors can be interested in different kind of startups due to different goal-setting: while private investors are looking for investments with highest returns, government institutions can be more focused on long-term and social effects of their investments.

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 can be more effective than private investors.

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