

## **Start-up Support Efficiency Assessment**

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### **ABSTRACT**

Globally, start-up companies receive state support, which is considered to be an investment in future economic growth and regional development. Extensive research consistently demonstrates the efficiency of state aid for newly-established firms. This study adds to the empirical evidence, highlighting the significance and effectiveness of start-up support. An analysis of 112 Latvian supported companies reveals that over half experienced notable improvements in profitability and productivity, often outperforming industry peers at an accelerated rate. The study's findings indicate the importance of the monetary grant's size: the higher it is, the better productivity and asset profitability results the company achieves after three years of receiving support. These findings emphasize the importance of tailored financial assistance, linking larger grants to enhanced performance metrics. Based on evaluation results and a thorough analysis of scientific literature, the authors present practical recommendations for optimizing the performance indicators of business incubators, providing valuable guidance for policymakers and stakeholders committed to fostering sustainable economic development.

**Keywords:** Start-up companies, State support, Support efficiency, Business incubators

### **1. INTRODUCTION**

There is a certain competition between countries in terms of creating the most favourable landscape for the startups to incubate future unicorns, therefore, increasing value added of the aggregate economy. Numerous studies [1, 2, 3, 4, 5] highlight the critical role of financial support in the early stages of startups. The most common is a direct monetary grant, which is quite often provided via a business incubator, which additionally provides certain eco-

systems, such as mentoring and access to technology and premises, to accelerate the development of the newly established entities.

Innovative businesses usually carry a substantial pile of failure risk; however, at the same time, they exhibit significant growth rates and are responsible for creating more jobs than their less innovative peers [6, 7]. Increased risk of failure and asymmetric information often result in limited access to capital, which has to be addressed through government intervention [8, 9]

Within the framework of this research paper, we are assessing the efficiency of state support for companies in the very early stage of business development that participate in regional incubators in Latvia. The goal of the support program, administered within the broader incentive “Growth and Employment” [10], was to enhance the productivity and competitiveness of enterprises by boosting the innovative potential of the supported companies. The main objective of this research is to evaluate how efficient the support for startup companies was — to determine the survival rate among the companies and to assess absolute and relative changes in profitability and labour productivity. Additionally, the authors evaluated whether there is any relationship between the amount of monetary grants and the outcomes measured by profitability and labor productivity improvement.

From 2017 to 2021, 416 Latvian companies received support through amenities, education, and monetary grants. The average value of monetary and non-monetary support was 4,536 EUR, resulting in an overall value of the support program of 1.9 million EUR. Based on the calculation of selected financial KPIs, the research results indicate the success of the companies supported within the administered program. The grant amount has an impact on the continued success of the company. The research results suggest a relationship between the size of the

monetary support, profitability, and productivity improvement.

The article is structured as follows: the introduction provides a general overview of the problem, states the research goal, outlines the study framework, and indicates the main conclusions. The second section presents empirical evidence on the efficiency of the support research and provides insights into the empirical evidence of the business incubator's success attributes. The third section introduces the research methodology and data description. The fourth section examines the change in selected financial KPIs after the company receives state support. This section also explores the relationship between the size of the monetary grant and the company's profitability and labor productivity. Finally, the article concludes with recommendations for further research.

## **2. LITERATURE REVIEW**

There are various options for the state to develop entrepreneurship and support startups at their initial stage in a particular country. However, a limited number of research studies indicate which type of support is the most efficient, partly due to the challenge of expressing different types of non-monetary benefits provided to entrepreneurs in monetary terms. The intangible support given to startups adds considerable value. As suggested by Mueller [11], a particular combination of value is observed in enhancing the company's team skills, networking, efforts put into developing a business plan, and cooperation with pilot customers. This is of great importance, as the lack of customer demand is one of the major factors causing startup failures [12].

By providing support to startup companies, governments worldwide aim to eliminate the market funding gap and address the challenge of expensive lending to companies in their early development phase, characterized by a high-risk profile [13]. The survival rate of companies after their first year of activity is only 80% [14]. OECD paper indicates that 30-40% of start-ups do not survive after two years [15]. Providing seed capital to companies helps them survive the startup phase [16]. An assessment of the Polish WASB Project, which aimed to support startup companies, indicates a positive effect - the rate of those who started their own business was 24%

higher among those who received a grant compared to those who did not.

The analysis of 500 Malaysian startups emphasizes the significance of support for startup success [17], particularly at their initial development stage. It was found that the type of support making a difference includes technology-related, finance-related, and soft-related aspects, such as mentorship, while market-related support did not show a significant impact.

The importance of soft-related support was also highlighted in the analysis of the EXIST-business startup grant [11]. The author suggests that the efficiency of support programs is higher when attention is directed towards team skill improvement, networking, and cooperation with pilot customers. The latter is crucial as misassessment of the potential market is one of the major reasons for startup failure.

Acknowledging that the initial requirements to enter support programs can predictably enhance the outcome [18], it was determined that increasing entry requirements and reducing support improved the impact by 7-10% while reducing the cost per participant by 20%.

The vast majority of the studies indicates high utility of the state start-up support programs. However, Shane [19] believes that policy makers should stop subsidizing small businesses at their early development stage as it does not encourage economic growth.

### **Role of business incubators**

In assessing programs initiated at business incubators, we also reviewed studies specifically targeting these incubators. A study based on data from 120 business incubators in China spanning 2008-2012 revealed that provided infrastructure did not contribute significantly to the acquisition of intellectual property or venture capital. However, it facilitated SMEs' access to venture capital [20]. The study found that the age and number of tenants positively affected the incubator's performance.

Qualitative research on South African incubators indicated that the settings provided in the incubation hub for startup companies, along with soft factors such as networking and mentoring, proved beneficial for the development of small businesses [21]. Stokan et al. [22] also found a positive influence of business

incubators on job creation, with companies inhabiting business incubators receiving five times more business services compared to their non-incubated peers.

Li et al. [23], examining a sample of 567 companies, concluded that business incubators efficiently mediate networking, capital support, training, and entrepreneurship development. Findings from a meta-study on the efficiency of business incubators and accelerators, reviewing 1614 publications, indicated that the settings provided by these structures are extremely useful for facilitating tech innovations. Association with a university, specialization of the structure, and specialized staff were identified as valuable factors [24].

### **3. DATA AND METHODOLOGY**

The most common method used to determine the success of supporting initiatives, including assessing business incubators, is through expert interviews. Applying the interview method to conclude the efficiency of support helps avoid the pitfalls faced in quantitative research, such as finding perfect comparable peers for the selected supported startup samples.

However, utilizing a quantitative approach is also a plausible method for evaluating the efficiency of startup support, as it allows for a much larger analytical sample. For example, a reference managed to evaluate the success of 500 Malaysian companies that received state support [17]. This larger sample size enabled them to draw conclusions on sector bias and the type of support bias, providing a basis for generalization.

In the present research, the authors employed a quantitative comparative method, involving the comparison of the company's financial ratios at the time of receiving monetary and non-monetary state support with the financial ratios after a determined time period. The comparison was conducted in both absolute and relative terms. The former is based on the evaluation of the company's success. At the same time, the latter considers the results of companies from comparative sectors based on the NACE 2.0 classification to exclude external shocks.

The research considered the following financial ratios: gross profitability, return on long-term assets,

and labor productivity. Monitoring the improvement of these selected ratios provides insights into enhancing a company's competitiveness.

Gross profitability, also known as gross margin, indicates the markup a company can charge for its products. A higher gross profitability suggests a product with greater added value, less competition, allowing the company to set higher prices. Alternatively, the company may achieve this by introducing process innovations, enabling the production of the same product at a lower cost.

In assessing a company's competitiveness through asset profitability, it is recommended to use separate long-term assets instead of total assets in the formula. This approach provides a better representation of the company's efficiency by excluding short-term assets from the calculations, thereby accounting for the degree of capital intensity in the company.

The improvement in a company's competitiveness, and consequently its operational success, can be described by examining changes in labor productivity. Growth in labor force productivity can result from a high degree of automation or from selling goods/services with the highest added value. While an indicator that considers turnover against the number of employees is widely used, a more comprehensive view of productivity in a company is provided by using gross profit, which essentially represents the company's net worth, against the number of employees.

Selected quantitative indicators for the target companies were assessed before receiving grants and after a two-year investment period. Scientific studies suggest that a lag of two years is generally accepted until the investment generates additional revenue and profit [25, 26]. It's essential to consider how long research and development work is carried out and the time it takes to commercialize the idea. This depends on factors such as the company's management team and their experience, market conditions, and the industry in which the company operates. The average time lag is around 1.2 years in electronics, 1.7 years in chemical production, and 2.4 years in the engineering and machinery industry [27].

Additionally, we have run a regression detecting the existence of any relationship between the improvement in financial ratios and the size of the

monetary support, controlling for the company’s size, proxied by the turnover.

Financial data for the years 2017-2019 (incubation period) and 2020-2021 (post-incubation, assessment period) was provided by the Latvian data company Firms.lv. The overall evaluation was conducted for 416 companies in either the pre-incubation or incubation stage. A more thorough assessment, including ratio assessment and multifactor regression analysis, was performed for 112 companies that received financial grants during the incubation period.

#### 4. RESEARCH RESULTS AND DISCUSSION

First, we evaluated the continuity and improvement in the profitability of 416 Latvian companies that underwent pre-incubation and incubation phases. These companies received both monetary and non-monetary support (such as education, mentoring, and premises), or a combination of the two. The average amount of support provided was 4,457 EUR. The statistics on the survival of start-ups are quite convincing: only 63 companies were liquidated, and ten companies suspended their business activities. Thus, 82% of the supported companies continued their activities after three years, which is considered a very good result, surpassing global average figures. The total turnover of supported companies in 2021 was 28 million EUR. For a third of the companies, the 2021 turnover exceeded 100 thousand EUR. Additionally, the turnover of 5 companies exceeded 1 million EUR.

Looking at the sample companies, which received monetary support in a more detailed way as described in the methodology, we concluded that the majority of companies were able to improve both competitiveness, as indicated by an improvement in profitability and productivity (Fig. 1).

More than half of the sample companies enhanced profitability on both analyzed dimensions. Labour productivity increased for 62% of companies, indicating a boost in efficiency.

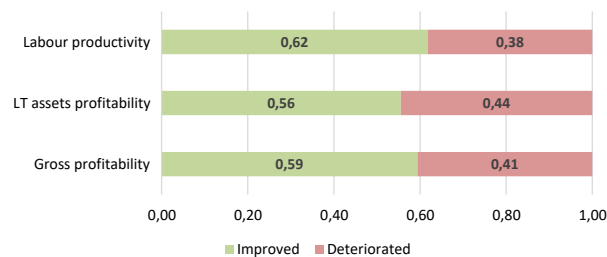


Figure 1. Share of companies whose performance indicators improved or worsened

Examining the levels of the analyzed indicators, it can be concluded that there has been a significant improvement (refer to Table 1). The median gross margin grew by over ten percentage points, indicating almost a twofold increase. Similar trends are observed in long-term asset return, which reached 83% post-support period. Labor productivity increased by almost a third, comparing the median growth with the median post-support productivity ratio. These results underscore the outstanding performance of sample companies that received state support during incubation.

Table 1

The median and average changes in the company's performance indicators and median ratio during the post-support period.

Ratio	Median	Average	Median post-support
<b>Gross profitability</b>	12%	10%	27%
<b>Return on long-term assets</b>	35%	41%	83%
<b>Labour productivity</b>	1341,3	1117,2	3820,6
		2035,29	

*Note: Smaller font indicates standard error*

However, the situation appears less favorable when comparing the results of the sample companies to their industry peers (Fig.2). More than half of the incubated firms receiving support demonstrated a higher improvement in gross margin and return on long-term assets than their peers. Weak relative performance has been observed regarding labor force productivity – in more than half of the cases, industry peers managed to enhance labor productivity faster than the analyzed companies.

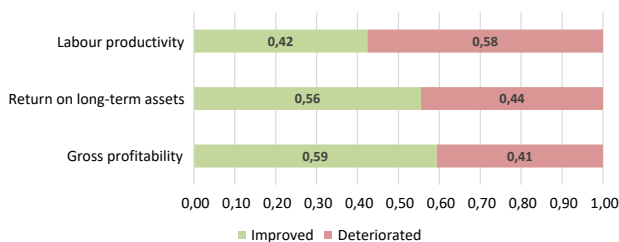


Figure 2. The share of companies whose performance indicators improved or worsened (compared to industry averages)

Table 2  
Median and average level of changes in the resulting indicators of companies

Ratio	Median	Average
<b>Gross profitability</b>	11,064%	17,069%
<b>Return on long-term assets</b>	11,102%	-13,040%
<b>Labour productivity</b>	-1715,70	-987,80

Note: Smaller font indicates standard error

Relative changes in profitability were significantly positive, judging by the levels of median and average changes (Table 2). Correlating with the above-mentioned results, median labor productivity decreased substantially as compared to the industry peers. The regression results indicate that the grant amount is statistically significantly related to changes in labor force productivity and the profitability of long-term assets. However, the latter has the lower coefficient significance (Table 3). Therefore, a larger granted support is associated with a faster increase in the profitability of the company's assets and the labor force's productivity. The grant amount does not exhibit a significant relationship with the gross margin.

Table 3

	Regression results		
	Gross profitability	Return on long-term assets	Labour productivity
Correlation coefficient (R)	0,120	0,546	0,455
Determination coefficient (R2)	0,014	0,298	0,207
F test p-value	0,817	0,203	0,039
Grant	0,00 <small>0,642</small>	0.000** <small>0,085</small>	0.130* <small>0,041</small>
Sales	0,02 <small>0,853</small>	-0,138 <small>0,675</small>	633,33 <small>0,566</small>

Notes: p-values are indicated next to each coefficient in the smaller font; \*significant with a maximum probability of 95%, \*\*significant with a maximum probability of 90%; KFP regression was not calculated due to insufficient data.

Similar conclusions can be drawn by comparing the company's results with the industry average. Both long-term asset return and labor force productivity grow faster for companies that receive larger grants.

## 5. CONCLUSIONS

Business incubators and state support can serve as catalysts for fostering economic development in a particular country. Mentoring and educational support for founding and managing teams are especially crucial in the development of a startup company. Knowledge and relevant experience are also pivotal in attracting investor capital, which is typically a prerequisite for the successful operations of a company [28].

We have evaluated the efficiency of state support, both in the way of monetary and non-monetary grants, for Latvian companies. The survival rate of the companies that received both or either of these support types was much higher two years after the provision of the grant, 82% vs. 60% globally.

Specifically, we have focused on the companies that received financial aid by researching their financial development. Studying the change in profitability and labor productivity of 112 companies, we found that, in absolute terms, in the majority of cases, the companies improved on both dimensions. The average values for the sample more than doubled. Comparing the financial improvements to industry peers, it was found that, on average, sample companies did better in terms of profitability. However, in terms of labor productivity, less than half could beat the industry, which might be acceptable given the start-up phases of the business, when efficiency is just building up.

Additionally, we determined that there is a positive relationship between the size of the monetary support and the improvement in long-term asset profitability of the company as well as labor productivity. It might be assumed that larger grants help the companies to develop and offer higher-value-added products and services to the market.

The next step researching state support efficacy would be to delve into the characteristics of the available business incubators and compare the results between them to find out which factors pave the way for higher efficiency. For example, the important

prerequisite for the successful implementation of support programs is the particular selection and evaluation of the candidates. A study of Latvian incubators by Arbidane and Tarasova [29] indicated that the best results were obtained in the case of businesses evaluated for export opportunities and turnover expansion capacity. Other studies point to the close connection to the university, which can facilitate the monetization of scientific inventions. The findings of the research might be considered by the responsible institutions by improving the policy of directing support and, therefore, enhancing efficiency.

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