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R&D expenditures by sectors of performance and analysis of performance indicators in the Baltic States

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Abstract

The purpose of this paper is to analyze whether changes in expenditure levels in any research and development (R&D) sector of performance has significant influence on R&D performance indicators.
This research helps to: (i) determine whether increase of expenses in particular R&D sector (by sector of performance) helps to improve R&D performance indicators and; (ii) to determine expense in which R&D sector (by sector of performance mostly) affects improvement of R&D performance indicators.

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Keywords: R&D expenditures by sectors of performance; Baltic states.

1. Introduction

Support to R&D is one of the most important factors for advancement of a country's long-term economic development. R&D performance is much analyzed in context of private sector and companies, by interpreting it as investments in creation of new products, improvement of existing products and innovation (Hogeforster, 2012) (Peleckis, Tvaronavičius & Tvaronavičiene, 2009). Some authors hold an opinion that business enterprise sector investments in R&D improve value of a company (Berzkalne & Zelgalve, 2012), however there is a different view suggesting that there is no strong link between investments in R&D and increased sales (Chan, Lakonishok & Sougiannis, 2001). Nevertheless, support to R&D has a crucial role not only for companies but also for a country's

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economic growth and sustainable development by increasing competitiveness and social wellbeing. Therefore, it is important to analyze R&D in complex in context of both government and higher education sectors.

The European Commission's strategy Europe 2020 states that development of a knowledge and innovation-based economy is one of European Union's (EU) priorities. Furthermore it states that by 2020 3% from the EU`s gross domestic product (GDP) should be invested in R&D (Communication from the Commission, 2013). Gradual and targeted scaling up of innovation and science is also one of the priorities of Latvia as provided in policy documents and Scientific Activity Law. These documents establish that an annual increase of R&D financing in amount of 0.15% of the GDP must be maintained (Law, 2005). However, according to the National Development Plan 2014 to 2020, Latvia has committed to increase funding for R&D up to 1.5% of the GDP by 2020. Such plan already provides that by 2020 aims of the Europe 2020 strategy shall not be achieved, since this plan establishes increase of funding only to 1.5% of the GDP (Cross Sectoral Coordination, 2012). Latvian R&D funding constitutes 0.66% of the GDP (in 2011), which is far away from the goal set out in the national policy documents and Europe 2020 strategy. Lithuanian R&D funding constitutes 0.9% of the GDP (provisional statistics for 2012), while the best performance in the Baltic states is achieved in Estonia – 2.18 % of the GDP (provisional statistics for 2012) (Eurostat, 2013). In this context the Estonian indicators are a successful example for other Baltic states. In innovation field Estonia is defined as an "innovation follower", while Latvia is defined as a "modest innovator" and Lithuania as a "moderate innovator" (European Union, 2013).

With reference to EUROSTAT methodology, schematic of R&D funding has been made (SIA Konsorts, 2013). Therefore, in this paper R&D funding sources are distinguished from R&D sectors by performance. Financing sources are divided as private sector resources, government resources and foreign resources. Furthermore, R&D sectors by performance consist from business enterprise sector, government sector and higher education sector.

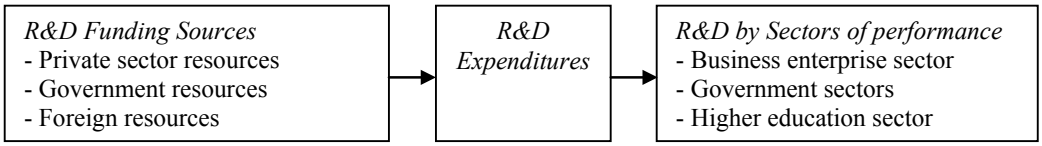

Fig. 1. Schematics of R&D funding by sectors of performance.

Comparing R&D sectors by performance in the Baltic states (Table 1), we find that the total amount of expenditures in the business enterprise sector in Latvia is one of the smallest not only among the Baltic states, but also comparing to the European level. Business enterprise sector has a weak link with science. Moreover, smaller economies of the Baltic states are mostly dependent on large enterprises that also have the biggest influence (Paas & Poltimäe, 2010;Ali-Yrkko, 2004). Estonia has the most significant amount of expenditures, moreover, the increase is observed directly in the business enterprise sector, which in 2012 accounted to 1.25% of the GDP.

Given the relatively low R&D expenditure amount in Latvian business enterprise sector and the sector-related indicators, the Latvian government's priority is to offer different form of cooperation among different sectors. The National Development Plan 2014 to 2020 has set forth a target – by 2020 48% of the total amount of all investments in R&D (total amount of investments in R&D 1.5% of the GDP till 2020) should come from business enterprise sector. This target is set due to the desire to commercialize knowledge, thus promoting innovative, internationally competitive products with high added value (Cross Sectoral Coordination, 2012).

Government sector spending is small and has a relatively similar spending growth in the Baltic states. The amount of expenditures in the Government sector is the lowest among all sectors (except for private non-profit sector). In the context of government sector it is significant not only to improve growth of support for this sector, but also to increase efficiency and quality (Estonian Ministry of Education, 2011; Hicks, 2012). Effective measurement is also an important element in managing R&D procedures (Bremser & Barsky, 2004).

In the higher education sector Latvian and Lithuanian increase in R&D expenditures have been the highest compared to other sectors. This sector also recorded the most significant increase in Estonian expenditure. If we compare data, we can conclude that in all three Baltic states spending in the higher education sector has increased.