

# A Firm-Level Analyses of the Link Between Innovation Investments and Performance

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**Abstract** Our study focuses on the analyses of investments in innovation of enterprises and their performance impact in Albania. We use data from 2019 Enterprise Surveys (ES) to answer the research question and focus on digitalization patterns that characterize Albanian enterprises. The survey was a shared project of the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the World Bank Group (WBG); the data are collected in Albania between January and May 2019. The objective of the ES is to contribute to understanding what firms experience in the private sector. Collected data are based on firms' experiences and enterprises' perceptions of the environment in which they operate.

The dependent variable is the performance of the firms measured in terms of sales growth and labor productivity. In contrast, the vector of independent variables is composed of enterprise characteristics such as firm size, ownership structure, legal status, R&D expenses, access to formal banking services, and gender ownership. Moreover, to capture the innovation investment, we will use the following ES questions: (1) During the last three years, has this establishment introduced new or improved products or services? (2) Did this establishment spend on research and development activities?

**Keywords:** Firm Performance, Entrepreneurship, Innovation, Organization of Production.

**JEL Classification:** L25, L26, J23, L21.

## 1. Introduction

Innovation plays a crucial role in the development process (Schumpeter, 1942). Innovation contributes to increased employment; it is a determinant of enterprises'

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productivity forcing inefficient firms to exit the market. Additionally, innovation can promote poverty reduction and higher shared prosperity.

Measuring innovation is not straightforward because it requires the transformation of knowledge capital or innovation inputs, both physical and intangible such as training, equipment, R&D, or intellectual property (Cirera & Cusolito, 2019). To increase their capabilities and produce innovative outcomes, enterprises invest in “knowledge capital inputs.” On the other hand, innovation needs intangible assets such as technology, equipment, and physical capital.

Innovation in the private sector in Albania is quite a new phenomenon. According to Feimi et al. (2016), the innovation practices in Albania’s services sector are not affected by government-supported policies, financial resources, and academia-industry collaborations. Moreover, obstacles to innovation practice are related to difficulties in accessing financial resources such as grants, loans, and capital from government agencies and financial institutions.

This paper is structured as follows: Section 2 describes the literature review. Section 3 gives an overview of Albanian enterprises’ state of the art of innovation. Section 4 explains the data and methodology used to answer the research question. Section 5 analyses the empirical results. The final section shows the main conclusions and discussions.

## 2. Literature review

As we know, one of the most crucial Sustainable Development Goals in the UN’s 2030 Agenda is the 9th goal: “Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.” (UN, 2018)

We have different definitions for innovation, but the first comes from German economist and political scientist Schumpeter (Rosenberg, 2000). He defined innovation as “the driving force for development.” He gave five magnitudes of innovation, including:

- Creation of new products or qualitative improvements in existing products.
- Use of a new industrial process.
- New market openings.
- Development of new raw-material sources or other new inputs.
- New forms of industrial organizations. (Vyas & Watts, 2009)

Following these innovation pillars, we analyse the relationship between innovation and firm performance in this study. There is a large amount of empirical evidence related to this argument.

Gunday et al. (2011) investigated 184 manufacturing companies in Turkey to explore the effects of innovation on different aspects of firms’ performance. They analyzed the direct and interactive effects of organizational support and human capital on the innovative performance of companies. Their findings show that organizational support, management support for idea development, and tolerance for risk-taking

positively affect innovative performance. Moreover, they found that human capital's role is an essential driver of innovative performance.

A survey with top managers of 113 companies operating in automotive supplier industry was conducted by Atalay et al., (2013), during the months March-December 2011, in Konya. They noticed that technological innovation (product and process innovation) has significant and positive impact on firm performance, but no evidence was found for a significant and positive impact relationship of non-technological innovation (organizational and marketing innovation) and firm performance. They explained these results based on the characteristics of the industry.

Shouyu (2017) reviewed literature that treated the relationship between innovation and firm performance from three aspects: the direct impact of innovation on enterprise performance, the moderating effect of innovation on firm performance, and the mediating effect between innovation and firm performance. According to the study, first innovation can directly affect the firm performance showing positive, no effect and negative effect. Second, some moderating variables affect the relationship between innovation and business performance, and the main moderating variable is the industrial environment or market environment. Third, the so called "mediating effect" between innovation and enterprise performance, the main mediating variables include the change of industry, innovation output, IT investment, product matching and process matching, innovation, market position.

Bach et al. (2019) conducted a systematic literature review on the relationship between innovation and performance in private companies. The theoretical contribution of this article was identifying the research corpus on the relationship between innovation and performance in private companies, and the practical contribution of this study was offering evidence produced by studies that could help decision-making regarding the creation of strategies and policies focused on competitiveness. After the analysis, they realized that the relationship between innovation and performance of private companies was beneficial for their development.

Nielsen (2019) conceptualized the process leading from innovation performance to business performance to facilitate the identification of performance measurement. He studied two case studies of business development projects involving intervention- and non-intervention-based data collection methods. He concluded that both innovation and business performance identified knowledge, learning, and intellectual capital as the basis for all value-creation activities in organizations.

A survey with top-level managers of 550 hotel firms operating in the hospitality industry was realized by Hu et al. (2020) in Ghana. After using the regression method, they estimated that process, product, marketing, and organizational innovation have a positive and statistically significant relationship with the performance of hotel firms in Ghana. They also evaluated that innovation is the main strategic factor for hotels in Ghana to drive long-term growth and profitability and affect their existence in the future.

Christa & Kristinae (2021) conducted a study on 300 local firms in Central Kalimantan and Bali. They gave evidence that in these two countries, the pandemic affected local businesses' incomes from natural ingredients, traditional medicines, bags, shoes, clothes, and others made from natural materials. They created a conceptual model based on Knowledge Based View (KBV) to increase local product business in two provinces affected by Covid-19. The implication of this research was to encourage business actors to synergize with market orientation into relevant information to identify changes and needs, as well as to encourage knowledge sharing and innovation in improving the business performance of local products that are following consumer needs.

### 3. Overview of enterprises innovation in Albania

Innovation is defined as the implementation of a new or significantly improved product or process, a new marketing method, or a new organizational method in business practices and workplace organization or external relations (Eurostat, 2005). According to this definition, innovation involves the inclusion of product, process, marketing, and organization.

Few studies investigate the role of innovation in Albanian enterprises and its contribution to their economic performance. Research is mainly concentrated in tourism (Curraj, 2017; Ferro, 2011; Gërguri et al., 2017) and the financial service sector (Balla, 2020; Kalaj & Merko, 2020) and analyzes the level of innovation rather than its contribution in firms' performance.

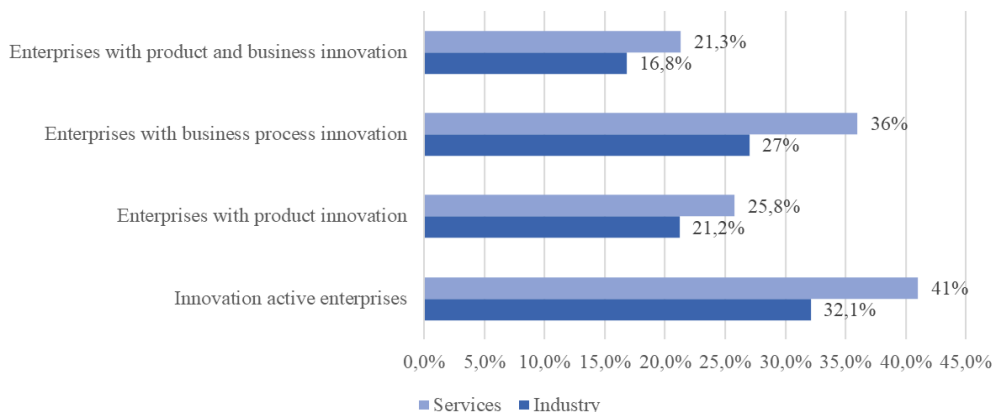
According to INSTAT (2020) from 2018 to 2020, 36.6 percent of enterprises developed an innovation activity. Innovation activity of the enterprises providing services 41.0 percent compared to enterprises operating in the industrial sector. Innovation activity tends to be more present in the group of large enterprises, with over 250 employees with 68.2 percent (see Table 1).

**Table 1.** Share of innovative and non-innovative enterprises by economic sectors and size class

	<b>Innovation-active enterprises (%)</b>	<b>Non-innovative enterprises (%)</b>
<b>TOTAL</b>	<b>36.6</b>	<b>63.4</b>
<b>Economic Activity</b>		
Industry	32.1	67.9
Services	41.0	59.0
<b>Size class of enterprises</b>		
10 - 49 persons employed	32.1	67.9
50 - 249 persons employed	49.0	51.0
250 and more persons employed	68.2	31.8

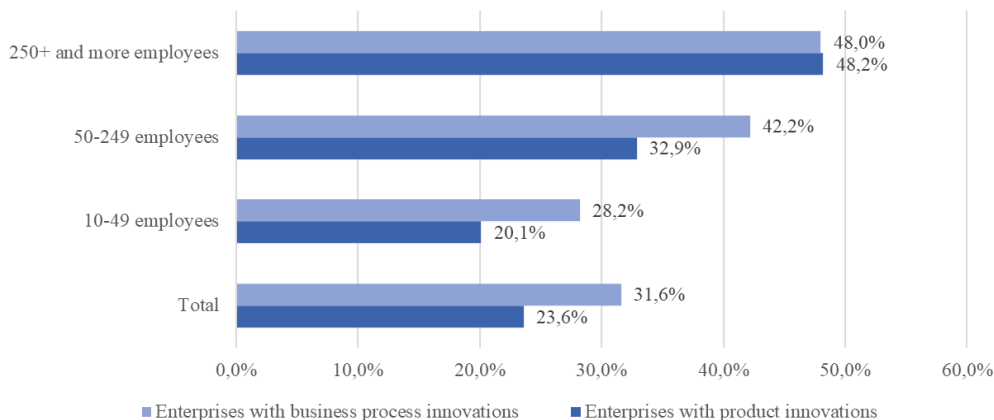
Source: INSTAT, 2020

The highest percentage of enterprises that develop product innovations, process innovations, and product and process innovations together result in being in the services sector (see Figure 1). Moreover, the type of innovation done by Albanian enterprises appears to be business process innovation.



**Figure 1.** Percentage of enterprises active in innovation by economic sectors and type of innovation

Source: INSTAT, 2020



**Figure 2.** Share of enterprises with product and business process innovations by enterprise size class

Source: INSTAT, 2020

Enterprises implement their innovation activities by cooperating with other enterprises, scientific organizations, and other partners. Around 13.1 percent of enterprises purchased machinery, equipment, or software based on new technology that was not used in these enterprises before. Only 3.6 percent of innovation-active enterprises

received financial support from public authorities, while 1.6 percent of enterprises that did not develop any innovation received public financial support (INSTAT, 2020).

#### 4. Data and methodology

This paper uses data from 2019 Enterprise Surveys (ES) and focuses on digitalization patterns that characterize Albanian enterprises. The survey was a shared project of the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the World Bank Group (WBG); the data were collected in Albania between January and May 2019. The objective of the ES is to contribute to understanding what firms experience in the private sector. Collected data are based on firms' experiences and enterprises' perceptions of the environment in which they operate.

The data are stratified into three levels for Albania: industry, establishment size, and region. Industry stratification was completed as follows: Manufacturing, Retail, and Other Services. Moreover, the 2019 Albanian ES was based on the following size stratification: small (5 to 19 employees), medium (20 to 99 employees), and large (100 or more employees). Regional stratification was done across three regions: Northern, Central, and Southern Albania (WB, 2019). The distribution of obtained interviews is represented in Table 2.

**Table 2.** Distribution of achieved interviews

		<b>Manufacturing</b>	<b>Retail</b>	<b>Services</b>	<b>TOTAL</b>
<b>Northern Albania</b>	Small (5-19)	6	10	21	120
	Medium (20-99)	9	23	7	
	Large (100+)	25	3	16	
<b>Central Albania</b>	Small (5-19)	15	25	30	133
	Medium (20-99)	18	11	12	
	Large (100+)	7	9	6	
<b>Southern Albania</b>	Small (5-19)	13	13	23	124
	Medium (20-99)	12	22	3	
	Large (100+)	22	3	13	
		<b>127</b>	<b>119</b>	<b>131</b>	<b>377</b>

Source: European Bank for Reconstruction and Development, 2019

The dependent variable is the performance of the firms measured in terms of sales growth and labor productivity (Kalaj & Merko, 2021). In contrast, the vector of independent variables is composed of enterprise characteristics such as firm size, ownership structure, legal status, region, access to formal banking services, and gender ownership. Moreover, to capture the innovation investment, we will use the following ES questions: (1) During the last three years, has this establishment introduced new or improved products or services? (2) Did this establishment spend on research and development activities?

To compute sales growth and sales revenue we use ES data from 2019 and 2017, the latter is the base year of comparison. Sales revenues are divided by the number of full-time permanent workers to obtain the variable for labor productivity following (Arvin & Pradhan, 2014; Gosavi, 2017).

To investigate the impact of digitalization and answer the research questions, we use the following model:

$$Y_i = \beta_0 + \beta_1 Innovation_i + \gamma X_i + \mu_i \quad (1)$$

where:

$Y_i$  is one of the components of performance of the firms measured in terms of sales growth and labor productivity.

$Innovation$  are dummy variables to indicate the adoption of innovation investments by firms,

$X_i$  is vector of variables including: size, age, status, foreign ownership, R&D expenses, exporter, and female-ownership et cetera.

To compute the dependent variable sales growth, we follow Clarke et al. (2015) and Gosavi (2017) and use ES data from 2017.

## 5. Empirical results

The estimation of coefficients for model (1) is represented in Table 3. As a premise, we must focus on the value of  $r$  squared, which is almost low when running the regression on sales growth. These results have informative importance since not all the listed independent variables are those explaining the variations in sales growth. On the other side, estimations of labor productivity can be considered more statistically reliable.

As we can notice, coefficients of innovation measured with the response “establishment introduced new or improved product or service” is positive but not statistically significant. The positive effect is evident either for sales growth and labor productivity, still, we cannot define the causal relationship between innovation and enterprise performance in the Albanian context. This result may be due to the limited efficiency of transforming resources into competitive products or services.

**Table 3.** Regression results on enterprise performance

<b>Dependent variable: Performance measurement</b>	<b>Sales growth (1)</b>	<b>Labor productivity (2)</b>
Introduced new or improved product/ service	0.174 (0.39)	0.302 (0.59)
Expenses on R&D	0.615* (1.81)	0.341 (0.81)
Medium aged (5-10 years)	0.412 (1.16)	0.798* (1.75)
Old aged (10+ years)	0.017** (3.34)	0.016** (2.69)
Medium sized	0.560** (2.56)	1.249** (34.56)
Large sized	0.523* (1.94)	3.831** (11.92)
Manufacturing	0.206 (0.74)	0.043** (2.61)
Retail	0.104 (0.33)	0.091 (0.23)
Female ownership	0.101 (0.05)	0.132 (0.92)
Foreign owned	0.040* (3.65)	2.038** (5.14)
Export	0.422 (1.56)	0.189** (12.60)
R <sup>2</sup>	0.28	0.76
Observations	377	377

*t* statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

An interesting and statistically significant result is the one obtained for enterprises' expenses in research and development (R&D). This coefficient of 0.615 means a vital role in increasing sales growth. The coefficient is still positive for labor productivity but not significant.

From the regression estimation on both sales growth and labor productivity, we can notice that size and age of firms is important and tend to affect performance positively. Consequently, innovation can be more difficult for young and small enterprises since they have limited assets and generally a smaller portfolio of products and services.



This last conclusion is in line with other studies abroad.

Additionally, relying on the coefficients, it seems like there is no significant gender difference when using the female ownership of enterprises. Manufacturing and exporter enterprises affect increased labor productivity but do not have significant effects when it comes to sales growth. According to enterprise theory, exporters have a higher propensity to be innovative if compared to domestic enterprises.

Foreign ownership means higher labor productivity and a predisposition to sales growth. Both coefficients are positive and statistically significant, respectively 0.040 for sales and 2.038 for labor productivity. Foreign-owned enterprises are generally more innovative than domestic enterprises. Reasons may be found in the fact that they have more financial and human resources and often sell their products/services in various markets.

## 6. Conclusions and discussions

Using cross-sectional data from Albania, we analyze innovation's potential effect on enterprises' performance in our study. Enterprise performance is measured using two different proxies: sales growth and labor productivity. Empirical results show positive but not statistically significant outcomes when we use the independent variable used for innovation. This may be related to the lack of capacity to exert a higher competitive position in markets when introducing new or improved products or services.

On the other side, spending on R&D means higher sales compared to other enterprises. The results are not statistically significant when it comes to labor productivity. Firms' size matters when it comes to the adoption of Innovation—the larger the firm, the more likely it is to have a propensity towards the adoption of innovation. Enterprises involved in export activities are more likely to have increased labor productivity.

Manufacturing-sector enterprises are more likely to implement or invest in innovation than retail-sector firms. Furthermore, younger and small enterprises are less inclined to adopt innovation in their business activities. However, further investigation is needed to evaluate if a time lag may exist in the adoption of innovation and its impact on firms' productivity. Additional research will use follow-up data during the pandemic to investigate in what direction and how much lockdown periods affected the way enterprises behave in terms of innovation. Our study gives an additional informative frame on the innovation process in Albania. Even though new and improved products do not affect enterprise performance, there is a positive relationship between R&D expenses and labor productivity, and sales growth.

Our paper's findings bring significant policy implications since the empirical results suggest that different approaches to innovation policy are needed for enterprises in Albania. A greater focus needs to be oriented toward corresponding factors such as skills and finance. Public policies should be oriented to help enterprises to increase

their technology assets, and facilitate access to finance for innovation and R&D. Given the results, public policy instruments can be designed to alleviate obstacles encountered by younger and smaller enterprises. Since foreign-owned enterprises are more disposed towards innovation, public policies should attract this category through improved foreign direct investment.

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