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How Innovation Drives Firm Performance in the Post COVID-19 Pandemic?

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Abstract: *The purpose of this paper is to investigate the impact of product innovation, process innovation and delivery innovation on firm performance, in response to unexpected crises such as the COVID-19 pandemic. For this purpose, the author conducted a survey with 115 Albanian companies. By employing the regression analysis, the study uncovered that product innovation has a positive significant impact on firm performance in the aftermath of COVID-19. The study also uncovers a positive yet non-significant relationship between process innovation and firm performance. Contrary to expectations, the research identifies a counterintuitive outcome in the context of delivery innovation, indicating a negative and statistically significant impact on firm performance. This research contributes to our understanding of the complex interplay between innovation and firm performance, offering valuable insights for businesses navigating the challenges of the post-pandemic landscape. The findings prompt a reevaluation of strategic approaches to innovation and underscore the need for nuanced and context-specific strategies to optimize firm outcomes.*

1. INTRODUCTION

In 2020, the world has been confronted by the profound upheaval brought about by the COVID-19 crisis, leading to widespread turmoil in both personal lives and economic spheres. However, amidst this unprecedented challenge, human adaptability and perseverance have manifested through innovative solutions that have emerged as crucial tools for navigating the crisis and its associated impacts.

Ever since Schumpeter (1942) first introduced the concept that innovation plays a pivotal role in securing long-term firm success, the subject of innovation has garnered significant research interest (Damanpour, 1991; Lessig, 2002; Lerner, 2012; Fishenden & Thompson, 2013; Kline & Rosenberg, 2010; Fagerberg, 2006). A plethora of innovation typologies exist. Schumpeter (1934) suggests breaking down innovation into the following categories: new products, novel production methods, innovative sources of supply, exploration of new markets, and novel business organization methods. Zaltman et al. (1973) expand the scope by identifying twenty types of innovation within the organizational context. Hage and Meeus (2006) propose four innovation types applicable to service organizations: service innovation, process innovation, technological process innovation, and administrative process innovation. Damanpour (1996) offers an encompassing definition of innovation, encompassing new products or services, groundbreaking process technologies, innovative organizational structures or administrative systems, and novel plans or programs relevant to organizational members.

The advent of the COVID-19 crisis marked a distinct inflection point in the trajectory of innovation, magnifying its already critical role within the business landscape. The crisis not only underscored the agility and adaptability that innovation brings to the fore but also accentuated its

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pivotal function in navigating unprecedented challenges. As the global economy grappled with disruptions across sectors, the inherent capacity of innovation to engender novel solutions and transformative strategies became ever more apparent. Nonetheless, the literature presents divergent evidence regarding the dual effects – both negative and positive – that such crises can have on the innovation capacity of firms. While some studies confirm a notably positive impact on innovation capacity, others assert the presence of a negative effect stemming from such crises (Jin et al., 2022; Zhang & Zheng, 2022; Sahi et al., 2023; Lim & Morris, 2023; Zia et al., 2023; Sharma et al., 2022).

In the aftermath of the COVID-19 crisis, innovation emerged as a linchpin for organizations striving to recover and thrive in the face of heightened uncertainties. Enterprises were impelled to reassess traditional operating paradigms and swiftly devise innovative alternatives that could mitigate the far-reaching ramifications of the crisis. This entailed not only the creation of new products and services tailored to the altered consumer landscape but also the reimagining of processes, supply chains, and even business models (Seetharaman, 2020; Mancuso et al., 2023; Mattera et al., 2022). Businesses often turn to innovation as a strategy to solidify their market position, attain a competitive edge, and enhance overall business performance. The empirical landscape widely substantiates that innovation yields a positive influence on business performance prior to the emergence of the COVID-19 crisis (Gunday et al., 2011; Atalay et al., 2013; Prifti & Alimehmeti, 2017). However, the scenario becomes more nuanced when examining the impact of innovation on business performance amid and following the COVID-19 outbreak. Existing research in this context is relatively limited and portrays somewhat inconclusive findings. While some studies emphasize the potential benefits of innovation adaptation during crisis times (Christa & Kristinae, 2021; Siagian et al., 2021; Sharma et al., 2021; Zainal, 2022) others point to challenges and uncertainties in realizing such positive impacts (Sharma et al., 2021). Therefore, the interplay between innovation and business performance in the context of COVID-19 remains a complex and evolving area of investigation. This paper aims to investigate the influence of innovation, encompassing product innovation, process innovation, and distribution innovation, on firm performance within the specific context of Albania, in the aftermath of the COVID-19 pandemic.

This article is organized as follows. The second section provides an overview of the literature review and the development of hypotheses. The third section elucidates the data and methods employed in the study. The fourth section presents the findings of the analysis. The conclusion and implications of the study are discussed in the final section.

2. COVID-19 AND INNOVATION

A multitude of innovation typologies have been conceptualized within the scholarly landscape. For instance, Schumpeter (1934) outlines a breakdown of innovation into several distinct categories, including the introduction of novel products, the exploration of innovative production methods, the identification of fresh sources of supply, the pursuit of untapped market domains, and the invention of novel business organizational methodologies. Expanding on this foundation, Zaltman et al. (1973) delve into the organizational realm, unveiling an extensive range of twenty distinct innovation types that manifest within this context. Turning attention to service-oriented domains, Hage and Meeus (2006) contribute to the discourse by putting forth four innovation types that specifically pertain to service organizations. These include service innovation, which involves the creation of novel and enhanced service offerings, process innovation that streamlines and optimizes operational procedures, technological process innovation that

leverages technology for operational enhancements, and administrative process innovation that focuses on the enhancement of administrative systems and structures. Furthermore, Damanpour (1996) presents a comprehensive definition of innovation, which spans a wide spectrum of dimensions. This expansive definition encompasses the introduction of new products or services that bring novel value to the market, the pioneering of groundbreaking process technologies that revolutionize operations, the creation of innovative organizational structures or administrative systems that enhance efficiency and effectiveness, and the formulation of novel plans or programs targeted at improving the experiences and outcomes of organizational members.

The global landscape has been profoundly impacted by the COVID-19 pandemic, prompting researchers to explore its effects on various aspects of business and innovation. Jin et al. (2022) investigate the repercussions of COVID-19 on firm innovation by analyzing data from Chinese publicly listed companies during the period from January 2020 to October 2020. Their findings reveal a national-level hindrance to firm innovation within China due to the pandemic. Moreover, state-owned enterprises experience a more pronounced negative impact on innovation quality compared to non-state-owned enterprises. Large corporations also appear to be more vulnerable to the adverse effects of the pandemic on innovation efforts than small and medium-sized enterprises.

Pandemics, including COVID-19, introduce multifaceted challenges to business operations. Zhang and Zheng (2022) highlight how pandemics lead to extended operational timelines, increased costs, and decreased potential cash flows, ultimately impacting the overall performance of firms. On the subject of innovation, Sahi et al. (2023) investigate the resilience displayed by women entrepreneurs in India during the pandemic. Their research underscores how women entrepreneurs navigated the crisis by introducing product innovations, not only ensuring survival but also laying the groundwork for future expansion. This endeavor, however, varied between businesses focused on consumers and those operating in the industrial sector. Lim and Morris (2023) delve into the intricate relationship between innovation and a firm's COVID-19 adaptable capacity. They identify innovation as a 'double-edged sword,' with pre-pandemic innovation potentially exacerbating post-outbreak challenges, such as reduced profits and optimism. Conversely, firm-level innovation positively influences adaptable capacity, with prior innovative firms being better positioned for rapid recovery post-outbreak. Zia et al. (2023) focus on avoiding crisis-driven business failure by harnessing digital dynamic capabilities among business-to-business distribution firms. Through interviews, their study underscores the importance of digital distribution centers as a means to avert failure during a pandemic. Their proposed strategy involves digital sensing, digital seizing, and digital transformation, all contributing to effective crisis management. In a systematic literature review, Sharma et al. (2022) shed light on the catalytic role of the COVID-19 outbreak in fostering innovative responses to the challenges it presents. This highlights the power of innovation in navigating and overcoming crises.

In conclusion, the evidence reveals a dual impact of COVID-19 on firms' innovation efforts, encompassing both negative and positive outcomes.

3. INNOVATION AND FIRM PERFORMANCE

A range of empirical studies offers insights into the dynamics of innovation and its impact on firm performance, especially in the context of the COVID-19 pandemic. Zainal (2022) investigated the relationship between innovation orientation and the performance of Kuwaiti family businesses during the initial months of the pandemic. Through interviews with 150 family businesses, the

study highlighted the significant correlation between innovation orientation (assessed through dimensions like creativity, risk-taking, and future orientation) and business performance. However, the study also found that openness to change and proactiveness showed no substantial relationship with business performance. Le and Ikram (2022) delved into the interplay between sustainability innovation, firm competitiveness, and firm performance within Vietnam's SME sector. Analyzing data from 435 valid responses, the study revealed a noteworthy positive association between sustainability innovation and firm competitiveness. Moreover, firm competitiveness exhibited a positive correlation with financial, environmental, and operational performance. Notably, the impact of sustainability innovation on financial performance was indirect but constructive. Li et al. (2023) examined the role of technology innovation, customer retention, and business continuity on the performance of Chinese SMEs after the COVID-19 pandemic. The study, based on survey data from 256 Chinese SMEs, found a substantial and positive link between technological innovation and firm performance in the aftermath of the pandemic. The hotelier sector also offers intriguing insights. Sharma et al. (2021) scrutinized the impact of COVID-19-related innovation on the performance of hotels. Notably, their analysis highlighted the contrasting effects of different types of innovation. While product innovation emerged as a significant contributor to firm value, organizational innovation displayed a relatively lower impact. This underscores the nuanced nature of innovation's influence on shareholders' perceptions in the hotel industry. Khalil et al. (2023) conducted a sector-specific study within the context of the COVID-19 pandemic. Focusing on star-rated hotels in Malaysia, their research showcased the constructive effects of organizational innovation on firm performance during times of crisis. The study tapped into collected survey data from these hotels, substantiating the positive influence of organizational innovation in enhancing performance even amid challenging circumstances.

Several empirical studies shed light on the relationship between product innovation and firm performance across diverse contexts, before COVID-19. Ar (2012) explored the impact of green product innovation on firm performance and competitive capability, with a focus on the moderating role of managerial environmental concern. The study investigated the positive and significant influence of green product innovation on both firm performance and competitive capability. In line with this, the investigation conducted by Zaefarian et al. (2017) investigated the impact of product innovation on firm performance. Their findings indicated that the success of product innovation has a substantial positive effect on firm performance, further underlining the significance of innovation in driving organizational success. In the realm of high-tech firms, the linkage between the introduction of a new product and the subsequent impact on firm performance becomes even more pronounced when accompanied by the implementation of marketing innovation strategies (Lee et al., 2019). However, while numerous studies have examined the relationship between product innovation and firm performance, relatively few have specifically addressed this relationship in the context of the COVID-19 pandemic. Christa and Kristinae (2021) addressed this gap by conducting quantitative research on 300 local product businesses in Central Kalimantan and Bali. Their study focused on the impact of product innovation on business performance during the pandemic. The findings unveiled a significant positive correlation between product innovation and firm performance, highlighting the pivotal role of innovation in maintaining business resilience during crisis times. Based on that, the following hypothesis is developed.

H1: Product innovation has a positive impact into business profit, during the time of crisis.

The interplay between process innovation and firm performance takes on various nuances across different contexts. Notably, in the realm of low-tech firms, the impact of process innovation on

firm performance emerges as particularly significant and direct, especially when intertwined with efforts related to organizational innovation (Lee et al., 2019).

In the specific context of Vietnam, Tuan et al. (2016) conducted a study that provided valuable insights. Their research underscored a crucial observation: process innovation possesses a direct and positive role in elevating firm performance. This finding resonated within the supporting industries of Hanoi, Vietnam, showcasing the relevance of process innovation in enhancing business outcomes. However, a limited number of studies have ventured into the specific effects of process innovation on firm performance amidst and following the COVID-19 pandemic. Amid this research gap, Rammer's investigation in 2023 shed light on the subject. His empirical study disclosed a key connection: the boost in sales resulting from improved product quality, facilitated by novel or refined process technology, directly links to the influence of process innovation on a firm's demand function (Rammer, 2023). Based on that, the following hypothesis is developed.

H2: Process innovation has a positive impact into business profit, during the time of crisis.

The COVID-19 pandemic has presented an unprecedented set of challenges to businesses across various industries. With widespread lockdowns, travel restrictions, and social distancing measures in place, firms found themselves in uncharted territory, facing disruptions in their traditional operations and customer interactions. As a result, many businesses were compelled to reevaluate and adapt their delivery processes to the new and rapidly changing circumstances. The necessity for innovation in delivery processes became particularly evident during periods of total closure when physical stores, offices, and traditional avenues of customer engagement were inaccessible. Firms had to quickly pivot their strategies to ensure their products and services could still reach customers, despite the limitations imposed by the pandemic. One of the primary approaches to address this challenge was the rapid adoption and expansion of digital and contactless delivery methods. Businesses that traditionally relied on in-person interactions had to transition to online platforms, enabling customers to place orders and receive products or services without the need for physical presence. This shift required firms to invest in technology, logistics, and operational processes that could accommodate this new mode of delivery. Empirical studies confirm that developing service delivery with technology is positively associated with firm performance (Chen et al., 2009; Ryu & Lee, 2016). A few studies have been developed in the aftermath of the COVID-19 pandemic to evaluate how innovation in the delivery process impacts firm performance. The study conducted by Abushaikha et al. (2018) delved into the realm of improving distribution and business performance through lean warehousing. Their investigation revealed a positive relationship between the reduction of warehouse waste and the enhancement of operational efficiency within the warehouse, as well as the efficacy of distribution activities. Despite this positive correlation, the study unveiled an intriguing observation: while an immediate and direct association between the extent of warehouse waste reduction and overall business performance wasn't apparent, the scenario is far from straightforward. The connection between warehouse waste reduction and business performance is, indeed, influenced by the intermediary factors of warehouse operational performance and distribution performance. This complex interplay underscores the intricate nature of the relationship between waste reduction, operational efficiency, distribution effectiveness, and overall business performance. Based on that, the following hypothesis is developed.

H3: New or significantly improved delivery processes for products/services, positively affect business profit, during the time of crisis.

4. RESEARCH DESIGN

4.1. Sample

The sampling design was formulated based on the dataset sourced from the National Business Center in Albania. To construct the sample, the researcher scrutinized the National Business Center's database for the year 2017. Given the nature of this study and the historical challenges of obtaining substantial response rates, the research aimed to secure a sample size of no less than 100 firms. For research topics of moderate complexity, Anderson and Gerbing (1988), as well as Schumacker and Lomax (1996), recommend a sample size ranging from 100 to 200 units. To ensure a representative sample, the research adopted a simple random selection method as the sampling procedure. The questionnaire was completed by 147 businesses. After logical checks to identify logical errors and missing data, the final refined database comprised 115 questionnaires. In the final sample, 87.8% of the firms are micro, small, and medium-sized, while 12.2% are large firms. Over 40% of the selected companies are under ten years old, 28% are between eleven and twenty years old, and the remaining 28% are more than twenty years old. 65% of businesses are limited liability companies, followed by 23% of physical persons and 10% of joint stock corporations.

4.2. Variables Measurement

In this research, the dependent variable is firm performance, while the three independent variables are product innovation, process innovation, and delivery innovation, respectively.

Business performance, serving as the dependent variable, is an ordinal variable measured by the following question: "Considering the last two years (2020, 2021), how would you rate your business's profit in comparison to your direct competitor?" being measured with a seven Likert scale (1 = much worse, 4 = the same, 7 = much better).

Product innovation is a binary variable. It takes value 1 if the firm responded yes to the following question “Two years from the outbreak of COVID-19, my firm has introduced new or significantly improved products and/or services” and zero otherwise.

Process innovation is a binary variable. It takes value 1 if the firm responded yes to the following question “Two years from the outbreak of COVID-19, my firm has introduced new or significantly improved production processes” and zero otherwise.

Delivery innovation is a binary variable. It takes value 1 if the firm responded yes to the following question “Two years from the outbreak of COVID-19, my firm has introduced new or significantly improved product/service delivery processes” and zero otherwise.

Size is a categorical variable categorized into four groups. It obtains a value of one if the company comprises 1-4 employees (Micro), a value of two for companies with 5-9 employees (Small), a value of three for those with 10-250 employees (Medium), and a value of four for companies with over 250 employees (Large).

Export orientation is captured through a binary variable. It assumes a value of 1 if the company engaged in exports during the past year; otherwise, it takes a value of zero.

Age is a categorical variable defined by three categories. It takes a value of one if the company is less than 10 years old, a value of two if it falls within the range of 11 to 20 years, and a value of three if it surpasses 20 years of age.

5. ANALYSIS AND FINDINGS

Before going further into understanding this relationship, it's important to make sure that the assumptions for using the linear regression model are met. First, the normality test was developed to see if the data about annual profit and the innovation types (product, process, and delivery) are distributed normally. It turns out they are. Heteroscedasticity was checked as well. These differences were randomly scattered around zero. So, it can be said there's no strange pattern in how they're spread out. Additionally, it was examined how the independent variables (the innovation types) are related to each other. The results showed that all the numbers (Variable Inflated Factors or VIFs) were below three. The results of the analysis are displayed in Table 1. In Model 1, the primary outcomes are presented, focusing exclusively on the control variables. The bigger the firm the larger is their profit. Moving on to Model 2, the analysis shifts towards exploring the influence of product innovation, process innovation, and delivery innovation on firm performance. The results in this context exhibit noteworthy patterns. Specifically, the impact of product innovation emerges as particularly influential, positively and significantly affecting firm performance in the aftermath of the COVID-19 pandemic. This finding lends support to Hypothesis 1, affirming its validity. The study's findings also unveil a positive relationship between process innovation and firm performance. However, it's important to note that this relationship does not attain the level of statistical significance. Intriguingly, the study reveals an unexpected outcome in the case of delivery innovation. Contrary to expectations, there exists a negative and statistically significant impact of delivery innovation on firm performance.

Table 1. Linear regression analysis

	Model 1: Basic model		**Model 2: Annual profit as a dependent variable**	
	Beta	Std. Error	Beta	Std. Error
Constant	2,508	,476	3,126	,593
Size	**,163****	,077	**,203***	,093
Age	-,047	,124	-,070	,158
Export orientation	,137	,205	-,029	,280
Product innovation			**,242****	,260
Process innovation			,178	,352
Delivery innovation			**-,503*****	,353
N	116		116	
R2 (%)	,41		,183	
R2 (%) adjusted	,015		,115	

Note(s): *p < 0.1, **p < 0.05, ***p < 0.01

Source: Own research

6. CONCLUSION

This study delved into the relationship between innovation and firm performance within the specific context of Albania, following the upheaval caused by the COVID-19 pandemic. The analysis explored the impact of different innovation types – product innovation, process innovation, and delivery innovation – on firm performance. The role of product innovation emerged as a standout contributor, with a substantial positive effect on firm performance in the aftermath

of the COVID-19 pandemic. This supports Hypothesis 1 and underscores the strategic importance of introducing novel or improved products and services in navigating the uncertain business landscape post-pandemic. Furthermore, the examination of process innovation revealed a positive connection with firm performance, although the statistical significance of this relationship was not fully realized. One of the most intriguing findings was related to delivery innovation, which defied expectations by demonstrating a negative and statistically significant impact on firm performance. This counterintuitive outcome prompts further investigation into the underlying mechanisms and factors that may contribute to this unexpected result.

This study contributes to our understanding of the intricate dynamics between innovation and firm performance in the specific context of Albania following the COVID-19 pandemic. The identification of positive and negative effects among different dimensions of innovation underscores the need for tailored strategies that consider the multifaceted nature of innovation's influence on firm outcomes. These findings hold practical implications for firms aiming to adapt and thrive in the face of disruptions, encouraging a strategic approach to innovation that accounts for its varying impacts on performance.

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