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Hard Cash in Hard Times—The Effect of Institutional Support for Businesses Shaken by COVID-19

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Abstract: This study analyzed 350 companies based in the Śląskie Province that received financial aid to avoid the negative impacts of COVID-19. This study focused on the structure of companies receiving public support due to their business being at risk of negative impacts from the COVID-19 pandemic in terms of the amount and type of support. It also classified industries by the amount of subsidy. When analyzing the available data, the Kruskal–Wallis test was applied, which is a nonparametric equivalent of the one-way analysis of variance. It was used to test whether the selected factors significantly affect the values of individual measures. Although the amounts of subsidies received vary, they have contributed to preserving at-risk jobs due to the public health crisis and maintaining the competitiveness of affected micro-, small and medium-sized enterprises (SMEs).

Keywords: COVID-19; sustainable development; subsidies; business competitiveness

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1. Introduction

On 11 March 2020, the World Health Organization announced that COVID-19 could be considered a pandemic. The emergence of the new disease has had a profound and widespread impact on the global economy, society and environment [1,2]. The ongoing COVID-19 pandemic and the resulting business closures or curtailments have taken a huge toll on national economies [3,4]. The pandemic has also negatively affected the financial performance of global companies [5,6], stock price fluctuations [3,7,8], environmental policies [9,10], social policies [11] and small businesses [12].

According to Brinks and Ibert's definition of crisis [13], who state that it "includes elements of uncertainty, urgency, and threat", the immediate collapse of demand forced entrepreneurs, owners and managers to respond quickly and flexibly to the direct threat to their business caused by the pandemic. This was carried out by cutting costs and/or finding alternative ways to generate sales (e.g., delivery services).

The business continuity challenges of SMEs have focused and continue to focus on the organization's efforts to identify and prioritize core organizational resources [14]. Business continuity refers to a newly formalized concept and is defined as the ability of an organization to continue to deliver products and services within an acceptable time frame with predetermined performance during disruptions. Business continuity management (BCM)

is a logically consistent end-to-end management process, while the business continuity management system (BCMS) is a related management system that establishes, implements, operates, monitors, reviews, maintains and improves business continuity [15–17]. BCM is viewed in the literature as part of organizational risk management. It is an area that focuses on the disruption of a business' critical functions due to sudden events [18].

Global restrictions on business and the closure of major industries such as hospitality, travel and retail have led to much higher unemployment rates around the world. The negative global economic impact in such a short period of time was unprecedented [19]. The constraints associated with COVID-19 were more severe for SMEs compared to larger, global companies [20]. This situation poses a serious threat to the economy due to the role of SMEs. Regardless of the global nature of the COVID-19 pandemic and its implications, most academic discourse and investigations have focused on the main developed and emerging economic regions, such as Africa, the United States and China [21,22]. However, the problems faced by the smaller and more vulnerable developing economies and regions are equally profound.

SMEs are major drivers of socioeconomic development in both developed and developing countries [23,24]. They play an important role in stabilizing the employment and income rates of many informal, vulnerable and disadvantaged groups [25]. During the COVID-19 pandemic, digitalization has become more critical [26]. For example, digital payments have become a priority for SMEs [27,28]. SMEs that leverage digital technologies can improve employment prospects, reduce poverty and realize sustainable development through social inclusion, which contributes to further social and environmental sustainability [29].

Governments around the world have mobilized or extended state aid to businesses to minimize the negative effects of COVID-19. Financial aid to businesses in connection with COVID-19 included loans, grants, employment subsidies, tax exemptions and deferrals, as well as the temporary lifting of bankruptcy laws [30–32]. This government support has saved many businesses and jobs in a short time, especially SMEs, which are characterized by lower cash buffers, lower levers for the adoption of digital tools and technologies, and overrepresentation in the most affected industries [33].

The impact of the SARS-CoV-2 pandemic on respective national economies and on individual economic actors is felt not only at the national level but also at the regional level. Public intervention and especially financial assistance to the SME sector has become indispensable. All measures supporting business were taken to preserve jobs and mitigate the effects of the crisis, as well as to secure products essential for society's existence.

In his research, Martin [34] emphasizes that regional structures affect the vulnerability or resilience to a crisis. In the literature on corporate resilience to crises, Baras et al. [35] noted that recent research conceptualizes organizational resilience as the ability to withstand shocks and transformations in the face of challenges. Thus, organizational resilience can be defined as "the ability of a firm to effectively assimilate, develop situation-specific responses, and ultimately engage in transformational activities, to profit from disruptive surprises that potentially threaten the survival of the company" [36]. Martin [34] states that the (competitive) "agility" of individual firms is critical because it shapes their ability to resist and recover from disruptions.

The market economy and decentralization of the public finance sector determine the responsibility of regional authorities for local socio-economic development. This includes the emergency situation caused by the SARS-CoV-2 pandemic. The socio-economic development of a region is related to the formation of optimal living conditions for the local community through the use of labor resources, the environment, cultural heritage and financial resources to ensure a certain standard of living. The most important goal is to use human and natural resources to provide jobs and earn income for the community.

Businesses operate and develop in a specific environment, which offers both stimulating and inhibiting factors. Since development barriers affect the functioning of SMEs, supporting them, especially in a crisis situation, is an essential element of regional public policy. In any regional system, there is feedback between regional development and

businesses. The SME sector is a local government entity alongside social organizations, business environment institutions and the local community. The task of local government is to create or modify the internal potential inherent to SMEs by reducing the existing development barriers and developing a support system for their activities.

The SME environment, understood as the totality of phenomena, processes and institutions impacting the process of production, sales, operation and development, has become more complex, unstable and unpredictable than ever during the pandemic. The collapse of the global economy's supply chain forced the launch of domestic production under pandemic conditions. The range of instruments used by local government for local development is relatively wide. They include direct economic and financial instruments aimed at eliciting specific responses from companies.

Financial support opportunities for SMEs play the role of maintaining existing employment or sustaining necessary activities. Entrepreneurship does not exist independently; its existence depends on the external environment. The business environment can have a dual impact. On the one hand, there is the possible threat of development barriers and difficulties. On the other hand, it can create development opportunities. The environment, which fosters favorable conditions for the development of enterprises and includes a dedicated directed business support policy, allows businesses to survive, and even thrive.

The response of regional economies to the crisis, as well as adaptation and public interventionism associated with the economic resilience of regional economies, has not been well investigated in the literature. Therefore, the authors identified research questions that warrant more attention in both academic and decision-making circles. These include, for example, how have regional economies responded to COVID-19? What instruments of public intervention have impacted the geography of regional economic resilience under COVID-19?

In this context, the paper meets the following research objectives:

1. Identify the importance of institutional support in a pandemic crisis;
2. Analyze the structure of businesses at risk of negative impacts from the COVID-19 pandemic that have received public support;
3. Verify the type of investments that received the most support and the diversification in this respect;
4. Diagnose institutional support during the COVID-19 pandemic by industry to provide evidence of how the regional economy supports business development in a public health crisis.

2. New Institutional Economics in the COVID-19 Economy

The COVID-19 pandemic revealed many of the weaknesses of modern economies as well as businesses. It gave rise to a discussion of contemporary paradigms in the social and economic sciences, as well as in business theory. A review of the corpus of business theories allows us to accept the views presented therein regarding various company models. Specific business theories are based on a coherent set of claims based on accepted assumptions. The most well-known approaches are as follows [37]:

- Traditional theories (classical and neoclassical) characterizing the company in a free competition market and under monopoly;
- Managerial theories known for their different approaches to corporate goals and the separation of ownership from management;
- The behavioral approach pointing to multiple goals;
- Other theories distinguishing different aspects of the company, e.g., innovation and entrepreneurship, transaction costs, contracts, agency costs, firm life cycle and institutions.

According to Gruszecki [37], the traditional theory is not actually a theory of an operating company, but a theory of markets. The behavior of a firm is described solely by the type of market to which it responds through supply and price. In today's reality, the market environment is an essential but not sole determinant of a firm's operation and behavior. Contemporary theories often arise from critiques of the neoclassical theory

and address selected aspects of new conditions and methods of business operation. The recognition of problems ignored by neoclassical theory gave birth to new theories. Based on this critique, modern theories of the firm have emerged: behavioral, contract, agency and new institutional economics [38]. Alternatives to traditional theories of the firm have emerged from observations of economic practice (mainly public corporations). These include two groups:

- Theories that assume a single main objective other than profit maximization (managerial business theories);
- Theories that deny the existence of a single goal and assume the existence of a "bundle of goals" (behavioral business theories).

Another approach characterizes managerial theory, which assumes that managers control and ensure the interests of owners (shareholders) by subordinating the expectations of other groups to fulfilling this goal. Behavioral theory, on the other hand, considers the importance of the interests (expectations) of other groups related to the company. Behavioral theory is derived from alternative theories and is based on, e.g., the external costs of the company's operations, such as the cost of pollution, the cost of the product or market risk. In the theory of the firm based on maximizing value for owners, it is very common to forget the customers and suppliers who influence the business [39].

Dynamic changes and especially new forms of industry organization, the emergence of large corporations, the separation of management from ownership, competition (not only in terms of price), the emergence of new forms of enterprise organization, and new social relations were the foundation for the institutional theory of the firm [40]. This theory arose from a critique of the assumptions of classical economics, which mainly considers economic rationality [41]. Central to this approach is the category of transactions and transaction costs, as well as hierarchy as a founding principle of the company. The institutional approach assumes that the market always operates within the framework of specific institutions. They are created by the state, which is also guided by non-economic considerations. A particular shift in the approach to the company can be seen in the so-called new institutional economics, which points to the following features [42]:

- Business operations involve risk and uncertainty;
- Company analysis is performed through a "bundle of contacts";
- Management controls the coordination of resources through hierarchy;
- The functioning of markets relies on a structure of regulation that must be exploited;
- The use of agency theory and management methods.

New institutional economics focuses on competition theory, monopoly, regulation, corporate theory and corporate governance. Contact theory defines the company as a "bundle of relationships". It shows that teamwork requires organizing and supervisory costs for proper compensation. Attention is paid to teamwork and accountability, which allows the introduction of peer review [43].

The theory of new institutional economics, which is represented by Williamson [44], is based on the category of transactions and transaction costs, as well as on hierarchy as an organizing principle of the enterprise. The amount of transaction costs depends on the frequency of the transaction, the uncertainty associated with it, its complexity and the nature of the resources involved in it. On the other hand, in Leibenstein's theory [45], the subject of analysis is the role of employees and managers in the functioning of the company. Since most company transactions are carried out by employees and not entrepreneurs, the efficiency of the company depends on their performance and motivation.

The new institutional economics contrasts with the economics of goods and means of production, or tangible economics, to a new approach based on intangible values, or intangible economics. Hard-to-measure values include elements such as identity, information, intellectual property, skills, knowledge and reputation. The new economy creates a reality of multiple links; the disappearance of the time and space gap between market participants, blurring boundaries and spheres of influence; and the interpenetration of

diverse structures. Modern societies increasingly demand an unwritten social contract with the business world. They formulate a number of expectations, forcing companies to change their operating principles, e.g., best practices in terms of CSR [46].

The use of contracts is limited because they assume that the results achieved by the company are solely the result of the work of individuals. Due to the increasing interdependence within companies, the importance of supporting effort that is not the result of individual incentive, such as wages, is increasing. This is considered as an operational effort directly related to the process of producing goods and services. The supporting effort of some contractors depends on the actions of others, making the enterprise a network of interdependencies rather than a bundle of contracts [47,48].

The lack of a one-size-fits-all definition of a company is due to changes both within the business and in its environment. Each company transforms potentials (external and internal) into specific outputs that interact with the environment [49,50]. For a company to function, it must systematically exchange goods (tangible and intangible) with its environment. In a market economy, these exchanges between the company and the environment take the form of buy–sell transactions. A company seeks (buys) certain goods, which it transforms into goods offered for sale in the process of transformation (processing) [51]. The transformation process itself is not a differentiating category among business theories. The fundamental differences are in the purpose of the activity.

During the coronavirus pandemic, the discussion of corporate goals resurfaced, particularly in terms of the one-dimensional orientation of goals. It pointed to the ethical dimensions of business and the protection of public health security. At the same time, the complexity and unpredictability of the environment has affected the instability of and threat to the operation of companies [52]. In such conditions, the approach of institutional economics, with the possibility of creating a new framework of environmental institutions, can enable the survival of companies, and in the long run, their growth [53].

Business environment institutions are understood as both certain patterns of behavior (e.g., negotiations, signing contracts and communication between parties) and specific solutions in terms of rights and obligations (e.g., the method of defining property rights in a given economic system), as well as legal regulations defining the course of action (e.g., the scope of economic freedom), and the establishment and liquidation of enterprises [54]. In general, it can be said that these institutions, together with regulations, form the framework within which business is conducted. The characteristics of business environment institutions is most often described in a dual sense, due to its type of elements [55]. On the one hand, they appear as permanent, organizational and customary determinants. On the other, they are diverse forms of macro-organizations or established structures and organizations that ensure the continuity of social and economic life.

3. Materials and Methods

In Poland, the COVID-19 pandemic began in March 2020. As a result, the government initiated preventive measures focused on reducing social mobility by restricting business activity to limit the spread of the SARS-CoV-2 virus. Lockdown policy was to restrict or prohibit business in selected industries. As a result, excluded companies were unable to offer their services or goods to consumers, which reduced their revenue. A reduction in revenue with no exemption from fixed costs could lead to a loss of liquidity and ultimately bankruptcy. The adopted policy resulted in the need to grant financial aid to sectors that were unable to function in times of pandemic. In this case, state aid at both the central and local government levels was offered to companies to compensate for restricting their ability to conduct fully active business. Welfare economics postulates [56–58] that government support for companies is justified when their economic situation would otherwise deteriorate.

Poland's most important industrial region is Śląskie Province, which is located in the south of Poland. The region neighbors the Opolskie, Łódzkie, Świętokrzyskie and Małopolskie provinces, as well as Czech and Slovak Republics. Within 600 km of the

capital of Śląskie Province, Katowice, there are six European capitals: Warsaw, Prague, Bratislava, Vienna, Budapest and Berlin. Śląskie Province is one of the most economically strong regions in Poland. This is where 13.1% of the Gross Domestic Product (GDP) is produced, which ranks the province second in the country. Restructuring processes that have been taking place for several years have caused systematic changes to the structure of the province's economy [59]. The formerly dominating share of mining and metallurgy in the total economy of the province is decreasing and electrical machinery, IT and energy industries are growing. The fastest-growing industries are the automotive industry (the region is the largest car manufacturer in the country) and the food industry. The activities support the implementation of the PLN 6 million project "Going Global—Dolnośląska Dyplomacja Gospodarcza" (Going Global—Lower Silesian Economic Diplomacy) of the Marshal's Office of the Śląskie Province, targeted at SMEs [60]. These actions are also important because the region's economy is undergoing transformation, and a clear change in the structure of its gross value added (newly created) can be observed. Market and non-market services account for almost 60% of the value, and industry for 33%, which ranks the province first in Poland [61]. The Śląskie Province accounts for 12% of all national exports. Its major export partners include Germany, the Czech Republic, Italy, the United Arab Emirates, Norway, Austria, Canada, Japan and the United States. Silesia exports high technology goods worth 11% of the province's total exports [62].

As of 31 December 2020, the national official register of national economy entities REGON in the Śląskie Province recorded 494,300 legal persons, organizational units without legal personality and natural persons conducting business activity (excluding individual farmers). This is 12,500 more (by 2.6%) than at the end of 2019 and 42,600 more (by 9.4%) than in late 2010. The number of registered companies accounted for 10.6% of the total number of companies in the country. In terms of the number of companies, Śląskie Province ranked second in the country [60].

In the Śląskie Province, the Silesian Centre for Entrepreneurship, as the Intermediate Body for the Regional Operational Programme for the Śląskie Province for 2014–2020, organized the competition no. RPSL.03.02.00-IP.01-24-026/20, under Priority Axis III: Competitiveness of SMEs, Measure 3.2 "Innovation in SMEs", Project type 2 "Investment in SMEs". It was to support micro-, small and medium-sized enterprises (SMEs) in preserving jobs threatened by the public health crisis and maintain the competitiveness of companies affected by the crisis. The competition also supported investments increasing competitiveness and the creation of permanent jobs. Applications to the competitions were admitted in four application rounds (April–June 2020). The submitted applications were verified in terms of sector affiliation, i.e., whether the company applying for financial aid conducts its main activities in sectors particularly vulnerable to the negative effects of COVID-19. These included the catering and hotel industry; the tourism and leisure industry; wholesale and retail trade; cosmetic, hairdressing and rehabilitation services; and industrial production supplying goods to the above industries. The applicant had to prove at least a 50% decrease in turnover due to COVID-19 as compared to the turnover generated in the 6 months prior.

The study analyzed 350 companies at risk of the negative impacts of COVID-19 that received financial aid.

When analyzing the available data, the Kruskal–Wallis test was applied, which is a nonparametric equivalent of the one-way analysis of variance. It was used to test whether the selected factors significantly affect the values of individual measures [63].

Analysis of variance (ANOVA) is a very popular analytical method for testing the significance of differences in mean values between several groups [64]. However, its use requires several conditions regarding the distribution of the sample. Since the data considered in this study do not meet the assumptions of normal distribution and homogeneity of variance, the Kruskal–Wallis test was used for the analysis, as it does not require the inclusion of assumptions. This test is a nonparametric technique but is as effective as parametric methods [65].

This test tests the null hypothesis that all samples come from the same population. Its rejection points to significant differences between the groups considered. However, this test does not report which of them stand out. Therefore, additional testing is required if the null hypothesis is rejected. In the present study, one test of multiple comparisons, the Dunn test with Bonferroni adjustment [66,67], was used to examine which groups significantly varied in measured values. The null hypothesis of this test is that there are no differences between the two groups considered. In each of the tests, a significance level of $\alpha = 0.05$ was adopted. The presented methods allowed us to verify whether the level of financial aid for enterprises at risk of negative effects of COVID-19 was significantly different for different types of investments, industries and types of activity.

4. Results and Discussion

As part of the support program implemented in the Śląskie Province, actions were taken to preserve jobs at risk as a result of the public health crisis and to maintain the competitiveness of SMEs affected by the crisis. To ensure that the aid will benefit the Śląskie Province, the company must conduct its economic activity within the region (head office or branch). Hence, companies with a registered office in another province, but with a branch in the Śląskie Province, were eligible to apply for the support program.

The aid was granted to projects focusing on maintaining the competitiveness of the company and its further development, as well as preserving existing jobs. The competition was also to support investments increasing competitiveness and the creation of new, long-term jobs. The primary objective of the competition is investment in tangible and intangible assets. Running costs could only be classified as eligible costs if they were ancillary to the costs of investment in tangible and intangible assets. Projects with just running costs were not supported. Financial aid for running cost was intended only for companies affected by the spread of the SARS-CoV-2 virus and supported the preservation of jobs. As part of the evaluation of the submitted projects, the economic and financial situation of the company before and during the pandemic was evaluated. This is because supporting companies that have been heavily affected by the pandemic, yet are unprofitable, would hinder the Schumpeterian process of creative destruction and impede the efficient reallocation of resources [68]. On the other hand, supporting companies that are profitable but not heavily affected would imply an irreparable loss [69]. It should be emphasized that each project financed from European funds was also evaluated in terms of compliance with three basic policies: sustainable development, equal opportunities and information society. According to the principles of sustainable development, the use of natural resources should not only take into account present needs but also consider the condition of the environment for future generations. Pursuant to Article 8 of the General Regulation [70], projects implemented under the operational programs should promote environmental protection requirements, i.e., effective and rational resource management, adaptation to climate change and the mitigation of its effects, the preservation of biodiversity and the acceleration of restoring the natural balance in the environment wherever it has been disturbed.

4.1. Types of Business Studied According to the International Standard Industrial Classification

Activities are classified into 21 sectors that make up the International Standard Industrial Classification [71]. It is an international system, recognized by the United Nations, to classify business activity, and it is structured as follows: (1) agriculture, forestry and fishing; (2) mining and quarrying; (3) manufacturing; (4) electricity, gas, steam and air conditioning supply; (5) water supply: sewerage, waste management and remediation activities; (6) construction; (7) wholesale and retail trade: repair of motor vehicles and motorcycles; (8) transportation and storage; (9) accommodation and food service activities; (10) information and communication; (11) financial and insurance activities; (12) real estate activities; (13) professional, scientific and technical activities; (14) administrative and support service activities; (15) public administration and defense: compulsory social security; (16) education; (17) human health and social work activities; (18) arts, entertainment and

recreation; (19) other service activities; (20) activities of households as employers: undifferentiated goods- and services-producing activities of households for own use; (21) activities of extraterritorial organizations and bodies. In the case of the Śląskie Province, the largest number of investments was realized in Sector 3 (25%) and in Sectors 9 and 19 (16%), respectively. In contrast, no investments occurred in Sectors 5, 11, 14, 15, 20 or 21. For more information, refer to Figure 1. The spatial distribution and analysis of the tabular data show the city of Katowice (14) and Częstochowski district (12) as the most active areas in manufacturing, Żywiecki district (8) as the most active in accommodation and food service and Pszczyński district (7) in other service activities.

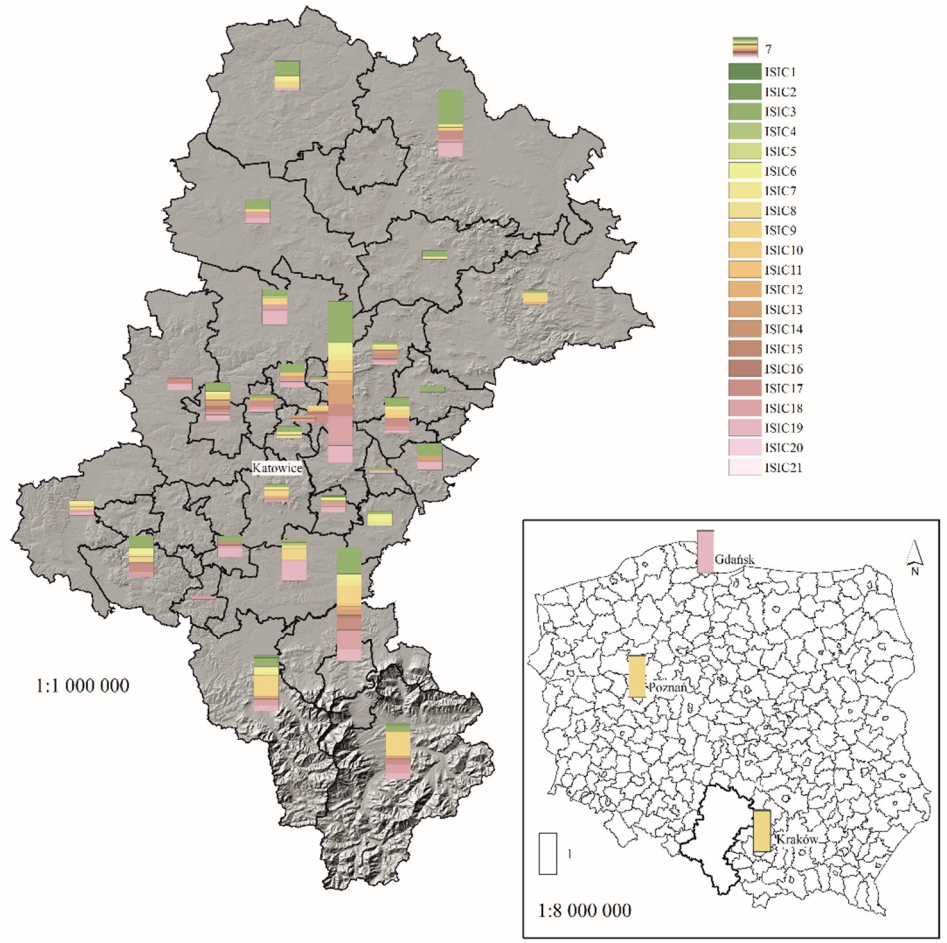

Figure 1. Types of business studied according to the International Standard Industrial Classification.

4.2. Industry Analysis and Type of Investments Realized

The type of investments realized were classified into three groups: diversification of business activity, implementation of innovations and increase in competitiveness. The latter type of investment is the most common; increased competitiveness was the most common reason for starting a new activity (51%), mostly in the capital of the province, Katowice (28), but also in the Bielsko district (22). Single cases were noted in Jastrzębie-Zdrój, Mysłowice, Dąbrowa Górnicza and Piekary Śląskie. The other types of investments were also prominently represented in the capital. The detailed distribution of investment types is shown in Figure 1. In addition, it reflects investments classified by industry type. They are divided according to commercial, manufacturing or service activities. The analysis of the data showed that 67% of the investments were realized in services, 27% in manufacturing and the remaining 7% in wholesale and retail trade. Again, the most prominently represented activities were noted in the city of Katowice (39) and the

Bielski district (24), while the least numerous activities (single cases) were observed in the Mysłowice, Dąbrowa Górnicza, Jastrzębie-Zdrój, Piekary Śląskie and Myszkowski districts.

4.3. Analysis of Project Values, Eligible Costs and Amounts of Support Requested

Project values, eligible costs and amounts of requested aid necessary to execute the changes were also analyzed. A simple index was used for this purpose: the relationship between the value of the total project and the value of eligible costs. The results are visualized as chorograms in Figure 2. In addition, this figure shows the district average amount of funding requested. Please note that the largest amount of funding (over PLN 700,000) was applied for in the cities of Poznan, Myslowice, Swietochlowice and Gdansk, as well as Raciborski, Myszkowski and Zawierciański districts. The lowest total amount (Figure 3.) of funding was applied for in the city of Jastrzębie-Zdrój (less than PLN 300,000).

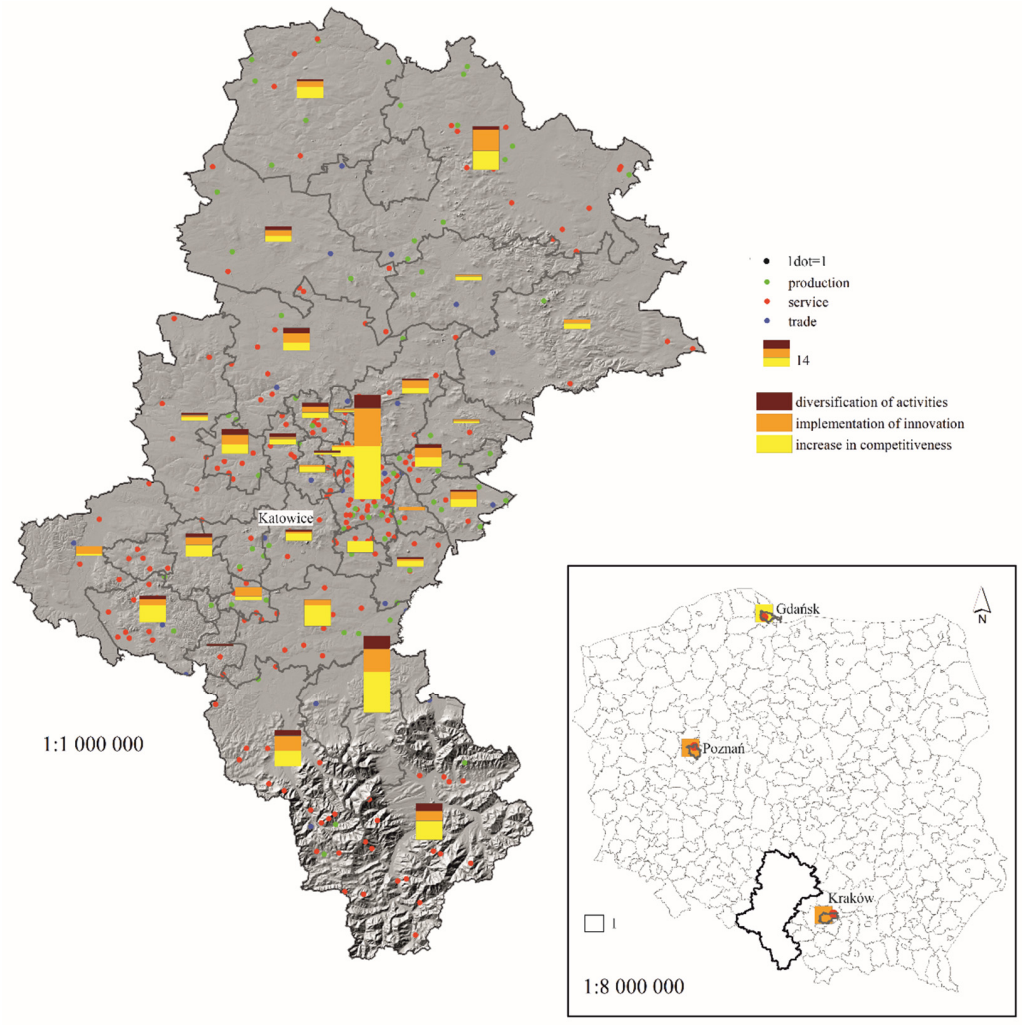

Figure 2. Type of activity and type of investment realized.

4.4. Detailed Analysis of the Amount of Financial Aid Requested

Amounts of support requested to execute necessary changes in businesses analyzed in detail. For this purpose, grant values and their shares of total project values, as well as eligible cost values, were used. These measures were analyzed in terms of investment realized, the industry in which the company operates and the type of business conducted according to the International Standard Industrial Classification.

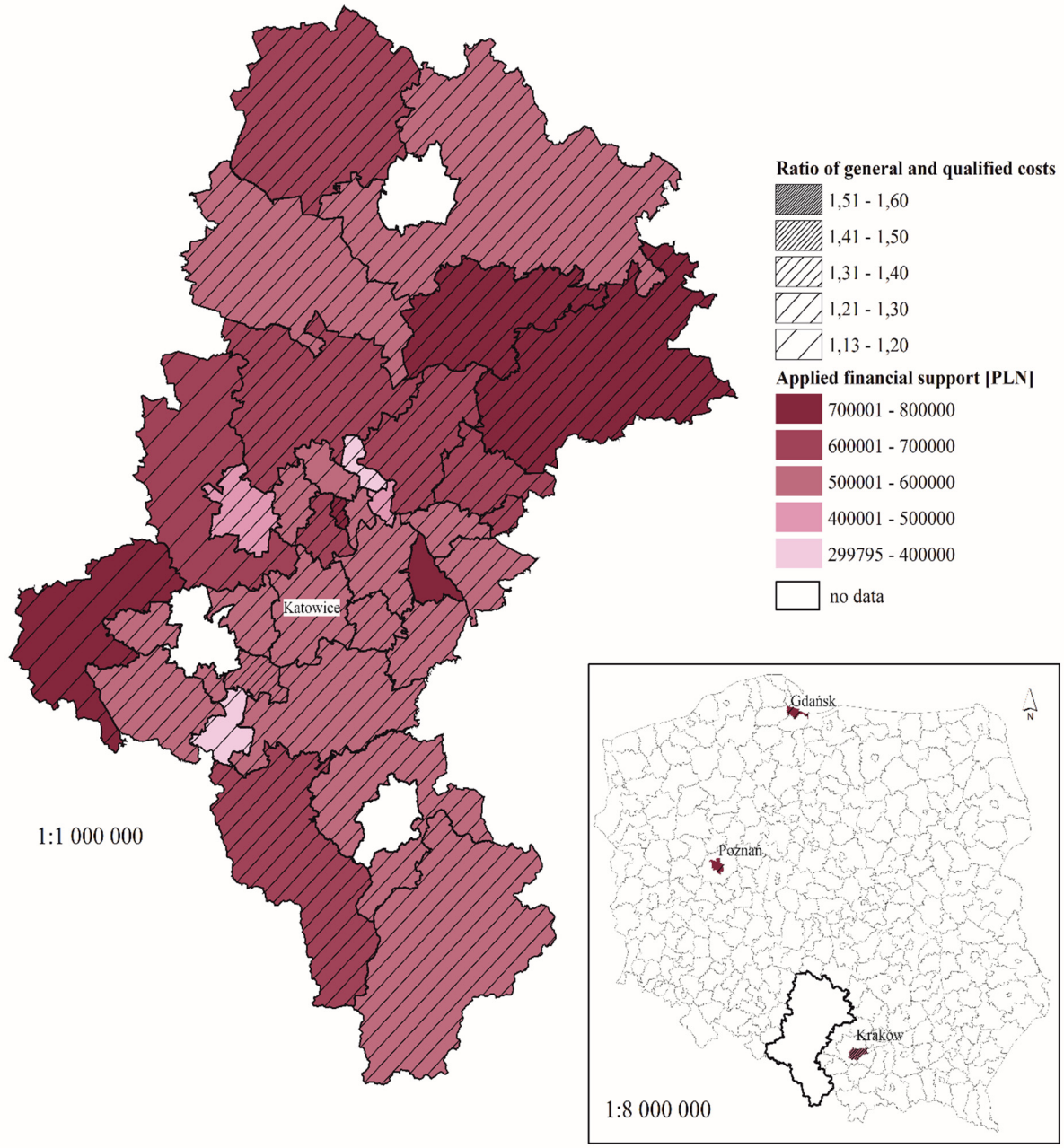

Figure 3. Costs incurred on making changes to company operations.

4.4.1. Type of Investment Realized

The types of company investments realized were classified into three groups: diversification of business activity, implementation of innovations and increase in competitiveness. The average amounts of financing applied for and their average shares in project values and eligible costs by investment type are presented in Table 1. It can be observed that the average amount of requested funding was the lowest for investments related to increasing competitiveness and the highest for investments related to innovation implementation. The amounts of funding requested covered an average of 67% of the value of the entire project, regardless of the type of investment. On the other hand, the average shares of the requested support in the eligible costs ranged from 82.1% for investments in innovation implementation to 83.1% for investments in business diversification.

Table 1. Average grant amounts and average shares by investment type.

Type of Investment	Amount of Funding Requested	Percentage of the Project Value Covered by the Subsidy	Percentage of the Value of Eligible Costs Covered by the Subsidy
Diversification of business activities	PLN 581,208.4	67.3%	83.1%
Implementation of innovations	PLN 603,101.8	67.6%	82.1%
Increase in competitiveness	PLN 556,170.4	67.4%	82.5%

Kruskal–Wallis tests were conducted to verify whether the type of investment affects the value of requested funding, its share in the value of the project and its share in the value of eligible costs. The null hypothesis was not rejected in any of the tests. This means, therefore, that the type of investment has no significant impact on the considered values of the measures, i.e., the amount of subsidy, its share in the value of the project and its share in the value of eligible costs.

4.4.2. Analysis of Funding Value per Industry

Additionally, the values of subsidy amounts and their shares by type of industry were analyzed in three groups: wholesale and retail trade, manufacturing and services. The average amounts of support requested and average shares by industry type are presented in Table 2. It can be observed that the average amount of subsidy requested for wholesale and retail traders was almost PLN 100,000 higher than the average amount of support for enterprises in the service industry. Some differences can also be seen in the other indexes. In the service industry, the amounts of funding requested covered the most project values, as their average share was the highest of all industries considered. A similar situation occurred in the case of average shares of subsidies in the values of qualified costs. The average values of these indexes, on the other hand, were the lowest for the manufacturing industry.

Table 2. Average subsidy amounts and average shares by investment type.

Industry	Amount of Funding Requested	Percentage of the Project Value Covered by the Subsidy	Percentage of the Value of Eligible Costs Covered by the Subsidy
Wholesale and retail trade	PLN 650,842.2	66.7%	81.6%
Production	PLN 616,473.0	65.2%	80.0%
Services	PLN 552,907.7	68.4%	83.5%

Kruskal–Wallis tests were conducted to verify whether the type of investment affects the value of requested funding, its share in the value of the project and its share in the value of eligible costs. This time, all three tests showed that industry type affects the measures considered. This is because the *p*-values obtained in the tests turned out to be lower than the accepted level of significance of 0.05. An additional post hoc analysis was conducted to test between which groups the measures differed significantly. The results of Dunn's test are shown in Table 3. It can be observed that significant differences in the values of all considered measures occurred between manufacturing and service (adjusted p-values were then lower than the adopted level of significance). For the remaining pairs, regardless of the measure considered, there were no significant differences. This means that the amounts of subsidies requested and their shares in project values and eligible cost values did not differ significantly between companies in wholesale and retail and manufacturing, as well as between trade and services.

Table 3. Results of Dunn's test (Z-statistics and *p*-value values).

	Comparison	Z	*p* Unadjusted	*p* Adjusted
Amount of funding requested	Wholesale and retail trade—manufacturing	0.547	0.585	1.000
	Wholesale and retail trade—services	1.987	0.047	0.141
	Production—services	2.558	0.011	0.032
Share of subsidy in the project value	Wholesale and retail trade—manufacturing	0.528	0.597	1.000
	Wholesale and retail trade—services	−1.213	0.225	0.675
	Production—services	−3.229	0.001	0.004
Share of subsidy in the value of eligible costs	Wholesale and retail trade—manufacturing	1.496	0.135	0.404
	Wholesale and retail trade—services	−0.385	0.700	1.000
	Production—services	−3.594	0.000	0.001

4.4.3. Type of Business Activity

The companies considered in this study can be divided by the type of business activity according to the International Standard Industrial Classification. There are 21 sectors in this classification; however, only 15 sectors were represented in this study. The highest average amount of requested subsidy, PLN 794 374,9, was obtained in Sector 12 (real estate activities). The lowest amount was PLN 417,350.0 and was related to Sector 1 (agriculture, forestry and fishing). The average shares of requested support amounts in project values and in eligible cost values are shown in Figure 4. It can be seen that these shares were quite similar across sectors. Funding amounts in each sector represented over 55% of the total project value and over 75% of the eligible costs. The lowest average support share in project values was recorded in Sector 4 (electricity, gas, steam and air conditioning supply) and the highest in Sector 17 (human health and social work activities). They were 58.3% and 74.8%, respectively. The average value spread of subsidy shares in the values of eligible costs was much lower. In this case, the highest average share was 85% (in agriculture, forestry and fishing and in education), and the lowest 77.5% (in real estate activities).

Kruskal–Wallis tests were conducted to verify whether the type of business activity affects the value of requested funding, its share in the value of the project and its share in the value of eligible costs. However, sectors that were underrepresented, i.e., with up to 3 companies, were eliminated from this part of the study: 1 (agriculture, forestry and fishing), 2 (mining and quarrying), 4 (electricity, gas, steam and air conditioning supply) and 16 (education). Other sectors were included in the subsequent analysis. Kruskal–Wallis tests showed that the type of activity did not affect the amounts of subsidy requested or the shares of subsidies in the values of eligible costs. Significant differences, however, occurred in the shares of requested support in total project values.

An additional post hoc analysis was conducted to test between which groups the shares differed significantly. The results indicated significant differences in the values of shares of grants in total project values between Sector 17 (human health and social work activities), for which the average shares were the highest, and Sectors 9 (accommodation and food service activities), 18 (arts, entertainment and recreation), 6 (construction), 3 (manufacturing), 13 (professional, scientific and technical activities), 19 (other service activities) and 7 (wholesale and retail trade; repair of motor vehicles and motorcycles). For the other pairs of sectors, there were no significant differences in the shares of funding in total project values.

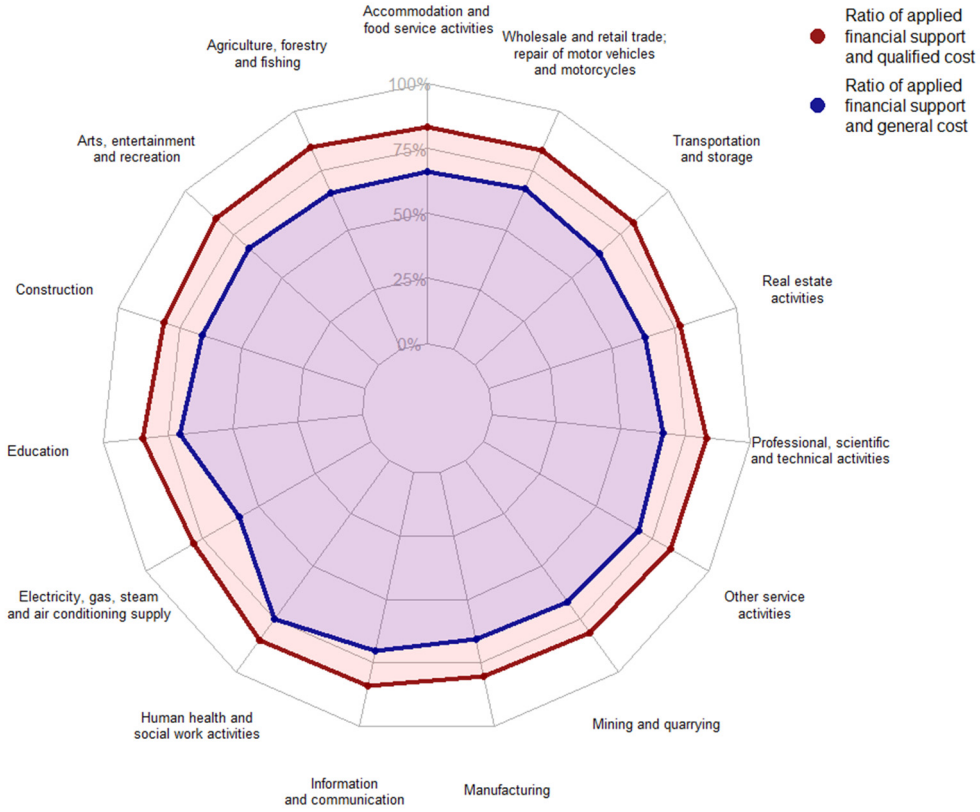

Figure 4. Average subsidy shares by type of activity.

The COVID-19 pandemic proved to be a shock of unprecedented proportions not only to healthcare, but also to the economy. An important economic policy was to provide various instruments of business support. In many countries, companies received national or regional subsidies so that they could survive the COVID-19 shock without drastically reducing their workforce. These actions were mainly aimed at preventing the bankruptcy of profitable firms and the loss of productive labor relations [71–73]. COVID-19 has adversely affected almost all industries worldwide [74–76]. Compared to agriculture, manufacturing and other industries, the service sector was more negatively affected by the pandemic (e.g., tourism, catering and hospitality).

An empirical analysis of public aid with regard to COVID-19 showed that this type of support is granted mainly to companies that need it in the short term due to poor turnover prospects. Therefore, it can generally prove profitable in the long term, as measured by the quality of their management practices [77]. Subsidies improve overall operational efficiency by easing financial constraints and attracting more firms to operate regionally [78].

However, as studies indicate, low bankruptcy rates in many economies also raise the concern of the potential misallocation of resources [79] and the rise of so-called "zombie firms" [80,81], i.e., companies that would have gone bankrupt without the COVID-19 crisis but survived due to financial aid for companies hit by COVID-19. Claessens and Ueda [82], on the other hand, showed in a theoretical model that preventing firm closures and layoffs is socially desirable only if such policies are not overly generous and are the only way to preserve the relationship capital and firm-specific skills.

5. Conclusions

The general context of the study is the global spread of the SARS-CoV-2 virus. The pandemic has severely affected not only public health, education and transportation, food service and tourism, but also manufacturing, energy production and the environment, mainly due to global logistical delays [83]. The pandemic is considered a risk event that has affected all aspects of life and led to the critical disruption of the grid. Government

subsidy models have and will continue to play an important role in the recovery from the crisis in all aspects of the economy.

The impact of the pandemic was unevenly felt both in sectors critical to global sustainability and security, which are fundamental in times of financial turmoil. In fact, the COVID-19 outbreak led to sharp price declines in major commodity markets (energy, agriculture, metals, etc.), which did not see a recovery until Q3 2020. At the onset of the pandemic, high prices due to production shortages prompted investors to seek safe assets in the agricultural commodities market, particularly soybean futures [84].

This study focused on examining the structure of companies receiving public support targeted to companies at risk of negative impacts from the COVID-19 pandemic. It also points to verifying the types of investments in terms of the amount and type of support received and identifying possible industry differentiation in terms of the amount of subsidy.

The research was carried out on a group of 350 companies based in the Śląskie Province, which received nonrefundable financial aid. This region stood out from other provinces in Poland that offered preferential refundable support instruments. The sample of such a strong business province as Śląskie does not constitute a selection bias or systematic measurement error in relation to other regions. The instrument analyzed to support the SME sector in the Śląskie Province was nonrefundable subsidies. The analysis of the results allows for the following conclusions:

1. Regional public support for industries particularly vulnerable to the health crisis, e.g., the catering and hotel industry; the tourism and leisure industry; wholesale and retail trade; and cosmetic, hairdressing and rehabilitation services, has proven relevant.
2. SMEs that were in demand and applied for nonrefundable public support have proven to be particularly sensitive to the economic crisis triggered by COVID-19. This confirms that these businesses require public intervention to survive on the market.
3. What motivated the owners to apply for the aid was not only covering liabilities, but also diversifying the business according to market needs.

In subsequent research carried out within the research laboratory, the authors will examine the impact of refundable business support instruments during COVID-19 and extend their sample to other provinces of Poland and other regions of different countries to verify the results obtained in the pilot study.

This paper contributes to the international literature on COVID-19 by addressing the topic of regional economic resilience, including public interventionism towards nonrefundable support for companies at risk due to the COVID-19 crisis. Furthermore, it adds new insights to international research on the regional impact of the COVID-19 pandemic. Thus, the authors conclude that the public health crisis creates a space for regional actors, e.g., public institutions, to explore new opportunities in stimulating entrepreneurial development.

Please note that although the amounts of subsidies vary, they have contributed to preserving jobs at risk due to the public health crisis and maintaining the competitiveness of affected micro-, small and medium-sized enterprises (SMEs).

The conducted research verifies the role of institutional support for regional (Silesian) enterprises during a pandemic. This support was granted mainly to companies that needed it in the short term due to poor turnover prospects and which, on average, could be profitable.

In the future, the authors will undertake a comparative analysis of institutional support in other regions of Poland. This, however, will be possible after the end of the pandemic.

The following are additional research questions that require further investigation:

1. Has public support during the pandemic (both regional and national) led to the improved financial health and sustainability of SMEs and contributed to their supply chain sustainability?
2. Can regulatory policies to support businesses during a pandemic, both SMEs and large companies, more effectively include activities, especially informal ones, through the development of interorganizational networks?

3. Has there been any networking among stakeholder groups during the COVID-19 crisis, will it be sustained and what lessons can be drawn from this?
4. What types of activity proved most effective in generating revenue, and what strategies kept businesses operating during the COVID-19 pandemic?

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