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What Kept the Boat Afloat? Sustainability of Employment in Knowledge-Intensive Sectors Due to Government Measures during COVID-19 Pandemic

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Abstract: The COVID-19 pandemic has exposed new aspects of sustainable entrepreneurship and the resilience of SMEs in the conditions of individual countries. This empirical study contributes to entrepreneurship sustainability literature and business resilience literature by estimating the impact of various utilized internal crisis management tools and state compensation measures on retaining the pre-crisis levels of employment after two waves of the pandemic on the conditions of a V4 country. The study adopts an econometric approach towards assessing the influence of key factors of mitigating the problems caused by the pandemic, and the results suggest a crucial role of digitalization, internal policies optimizing variable costs, and utilization of direct governmental supportive measures to compensate for restrictions in force for employment retention in knowledge-intensive SMEs. According to the results, knowledge-intensive SMEs appears to have increased resilience towards economic shocks due to the capability to swiftly change the management of ventures to adapt to a crisis.

Keywords: SMEs; resilience; sustainable entrepreneurship; governmental support; COVID-19

1. Introduction

The global pandemic of COVID-19 has hit the economy relatively hard on a global scale [1], and various measures by states to reduce the spread of the virus have led to rising unemployment in several sectors of the economy [2]. The COVID-19 pandemic has changed the nature of entrepreneurship sustainability research [3]. Sustainable entrepreneurship can be defined as a business that protects nature and supports the life and development of communities in search of perceived opportunities to deliver future products and services to generate profit and uneconomic benefits for society [4]. The pandemic has led to a shift in the focus of scientific research on business sustainability to the problems of business resilience during the pandemic [3].

All global crises usually have an immediate and significant impact on global financial markets [5], such as the massive impact of COVID-19 on the stock market since its outbreak in March 2020 [6]. Economic shocks also rise in terms of financial sustainability, mainly in the case of indebted countries [7]. The economic market is severely disrupted during a crisis [8]; the pandemic has hit the supply and demand side of the market on a global scale, as various restrictions on mobility, social distance, or business constraints were introduced [9], which have led to a significant reduction in demand for products or services and the subsequent transformation of markets [10]. The decline in demand also resulted from increased unemployment and the limited purchasing power of the population [11].

From an economic point of view, a pandemic will have a long-term impact on corporate finance and innovation activities over a period of several years [12]. Entrepreneurs face fears of uncertainty [13,14], falling demand, or disruption of supplier–customer relationships [15]. On the other hand, Bacq et al. [16] pointed out that crises can be also a...
source of business opportunities that turn into crisis-based growth in certain industries. If we look at pandemics from a different perspective, we will find that they also generate an opportunity for entrepreneurial activities, possible diversification of local economies [17], and support business reorientation towards new activities [18]. In order for companies to survive in the current volatile market, they must be resilient—able to adapt to change, resist it [18,19], or become strong innovators in the market [20]. The stability of companies, and in particular small and medium-sized enterprises, is a precondition for maintaining employment and thus for the economic and social development of the regions.

Due to the huge significance of such empirical studies for policymakers, our intention is to assess the effects of the pandemic on small and medium-sized enterprises and in particular to construct an econometric model for testing hypotheses based on the real practice of state support policies towards employment retention during the crisis. We will assess whether SMEs (small and medium-sized enterprises) delivered effective internal policies to mitigate the negative consequences of the crisis and whether state support instruments helped to compensate for the effects of restrictions on movement enacted by state governments on employment.

In following section, we provide the theoretical framework for the formulation of our hypotheses. Then we provide an overview of the materials and methods in Section 3, which is divided into sections with survey and model specifications. The results of our survey and analysis are summarized in Section 4, and Section 5 represents a discussion of the results, along with current literature on the topic and a conclusion.

2. Theoretical Background

As is the case of most countries, the backbone of the Slovak economy consists of SMEs, which in 2019 accounted for up to 99.9% of the total number of enterprises in the Slovak economy [21], and a significant increase in small firms could be observed, especially in the services sector [22]. Globally, SMEs account for about 90% of all businesses and create about 50% of employment [23]. In general, small and medium-sized enterprises can be considered a driving force for economic growth [24], generating significant social effects in local economies and contributing significantly to the country’s GDP growth [25,26], and SMEs are often a source of new knowledge and innovation [27]. There is an assumption that knowledge-intensive firms could be rather little, if not at all, affected by the pandemic in some sectors, due to their increased resilience resulting from an increased share of employees with tertiary education [28]. A broad consensus exists that the destabilization of small and medium-sized enterprises in the economy will significantly disrupt the social development of the territory [29], mainly due to a negative impact on employment [30]. During the tightening of lockdown measures, especially in the period of absence of a vaccination, small and medium-sized companies faced temporary closures, ensuring mandatory testing, an introduction of sanitary measures, logistics outages, a loss of suppliers, reduced demand for their products, and many other consequences of the crisis [31], which were reflected not only in turnover, but also in employment levels [32].

Empirical studies concerning the impacts of COVID-19 found that business located in peripheral rural regions is most at risk, with economic recovery in these areas being more challenging given the pandemic’s contribution to urbanization and the outflow of human capital [33], and enterprises without the potential to move business activities to the online space have faced increased problems [34]. Several studies pointed to opportunities that emerged from the crisis, and the capability to utilize these opportunities can be a main tool for SMEs’ survival and growth. These opportunities can also be a significant source of increased dynamics of start-up emergence during, and especially after, a pandemic [18,35,36].

However, in an effort to provide a theoretical basis for the formulation of our hypotheses, we must state that the volume of available literature on the effects of economic shocks caused by pandemics on SMEs, and especially employment retention in SMEs, is still modest [37]. There are several sources of current literature available that mention the
economic impacts of previous pandemics during the 20th century—mainly the Spanish flu, Asian Flu, Ebola virus pandemic, and swine flu (see, e.g., [38–40]). Economic literature since the outbreak of the COVID-19 pandemic has focused on the evaluation of a shift in the macroeconomic performance of countries [39,41], reassessment of knowledge management during the pandemic [42], management of uncertainty from a business perspective [43], impacts of the pandemic on supply chains and logistics [44], and changes to the supply and demand side of the markets [45].

The set of business attributes leading to overcoming the negative consequences of crises is referred to as resilience, which has behavioral (personal resilience of employer and employees), managerial (managerial response to uncertainty and capitalization of opportunities), and capacity-based (entrepreneurial actions within available resources) aspects [32,46,47]. In our empirical study, we will contribute in particular to understanding the resilience of SMEs during a pandemic in a managerial context—that is, their ability to adapt quickly to change through internal policies combined with the ability to use state compensation instruments, as it appears that the crisis management of business owners has a decisive impact on firm survival during a pandemic [48]. These managerial decisions during a pandemic include personnel management, ensuring liquidity, maintaining production and production safety, adapting production to volatile market conditions, the ability to adapt to new markets, changing product and service profiles, using creative and innovative capacities to overcome the crisis, and many other aspects [49]. Existing empirical studies suggest there are more and fewer resilient groups of SMEs. It was found that family businesses were able to respond quickly to a rapid pace of changes in the business environment during a pandemic, through immediate measures towards production safety, adaptation of production to market needs, and innovation [31]. There is still the question of whether assumptions that knowledge-intensive ventures that are generally expected to have increased resilience [50] performed well during the pandemic. Therefore, we formulated the hypothesis that internal policies leading to a reduction in or optimization of variable costs (shift of activities to online space, introduction of home offices) increased the probability of employment retention in knowledge-intensive SMEs.

Much of the current entrepreneurship literature (see, e.g., [16–18,33,36,51]) points to the need to support entrepreneurs through various state compensation policies during a pandemic. These policies differed significantly across the globe [36,37,52], and the effectiveness of these policies needs to be estimated. Concerning the impacts of state measures to reduce the tempo of the pandemic’s progress, the effects of these measures were elaborated mainly from the perspective of international trade [44,53]. There are sources of literature that provide reviews of state measures to compensate for the effects of the crisis in the context of different countries [54,55]. According to the OECD’s contribution, the majority of countries introduced wage subsidies to maintain employment in the private sector. However, there were also other systemic or ad-hoc support models introduced by individual states [54,55], e.g., shortening working time; temporary layoffs and sick leave; deferral of taxes, social security payments, debt payments, and rent and utility payments; loan guarantees; structural support via programs for acquiring digital technologies and innovations; subsidies compensating for rent of the premises, etc. Given the diversity of lockdown compensation tools used in different national conditions, empirical studies must be based on national policies, and in an effort to learn from them, we have to take into account the specific local context of their application [37]. The study by Razumovskai et al. is the only one capable of directly pointing out the huge impact of state measures on maintaining business activity in the country, while emphasizing the importance of direct state aid instruments [37]. Therefore, we formulated two hypotheses, putting forward the assumptions that the use of direct state instruments to support the maintenance of employment (compensation for part of the employees’ salaries, kurzarbeit) increased the probability of employment retention in knowledge-intensive SMEs, and that the utilization of indirect instruments (tax-based support, extended deadlines and guarantees) increased the chances of employment retention in investigated knowledge-intensive SMEs.
3. Materials and Methods

The aim of our empirical study was to identify factors for employment retention (internal policies and the impact of government action) in knowledge-intensive SMEs over 14 months from March 2020 to May 2021, which we defined as the period of pandemic crisis caused by COVID-19 in the first two waves. The study is based on the use of primary data that were collected through an electronic questionnaire survey. Our research design consisted of the evaluation of qualitative data from the questionnaire survey which served to describe the use of various internal and external measures to mitigate the negative effects of the pandemic, and econometric analysis of the impact of these internal and external measures on the sustainability of employment during the pandemic.

3.1. Survey

We based our investigation on a questionnaire survey of knowledge-intensive SMEs in the Slovak Republic. The decision to have only the SMEs from knowledge-intensive companies respond involved several reasons. First of all, we wanted to focus on knowledge-intensive SMEs as part of more complex research. In addition, we expected that due to increased resilience, there would be an opportunity to acquire a sample with an interesting proportion of SMEs that were capable of really maintaining the levels of employment since the beginning of 2020. Finally, in the case of the Slovak Republic, it allowed for the entire population of knowledge-intensive SMEs to respond due to the relatively low frequency of these businesses.

Our population for the purpose of survey consisted of 3485 small and medium-sized enterprises from knowledge-intensive industries in the Slovak Republic in 2020. After the entire population responded, we obtained 141 questionnaires; however, up to 20 of them had to be discarded due to incomplete data, empty submissions, or duplicates on the level of same venture. The return rate thus reached 4.05%, and after deducting 20 questionnaires, the return rate was 3.47%. We considered this rather smaller sample gained to be suitable for the statistical modeling of sketched relationships, mainly due to the very suitable saturation of the sample. The questionnaire was organized into 15 questions, 10 of which could be considered semi-open, 3 open, and 2 closed questions. Open questions served to collect unique attitudes towards the impact of the pandemic on the management of SMEs. The questionnaire was distributed in electronic form, using the Google Forms service. In order to distribute the questionnaire, it was necessary to create a database of email contacts for all 3598 knowledge-intensive SMEs. This database was created manually by processing the records of SMEs in the Register of Institutional Units of the Slovak Republic (Ellis database) that annually collects information on all institutional units in the country. If neither of these sources of contact was available, we had to obtain e-mails through the employee profiles on the websites of individual departments of Slovak universities. As the specification of the survey already showed, we were not able to find contacts of only 113 knowledge-intensive SMEs with the use of websites and various business and financial databases in Slovakia. At the same time, the survey caused minimal bias in key questions, as we offered these companies an official list of implemented state support measures according to korona.gov.sk, and their answers explicitly required a binary answer (1—used the given support mechanism, 0—did not use the given support mechanism).

In order to process the information obtained via survey, we used basic methods of descriptive analysis. Open answers were processed using content analysis and open coding techniques.

3.2. Econometric Analysis

The questionnaire was designed based on the required quantification of utilizing internal and external policies to mitigate the negative consequences of the crisis. A critical issue for our econometric model was whether the venture had reduced/increased its staff during the first 14 months of the pandemic. Therefore, our dependent variable was \( emp_{ret} \), which expressed whether the number of employees in a knowledge-intensive SME had...
decreased during the given 14 months (0) or not (1). The other variables of the model are summarized together with the characteristics in Table 1.

Table 1. Overview of variables in the logit model.

| Variable Name  | Description                                                                 | Type       |
|----------------|------------------------------------------------------------------------------|------------|
| emp_ret        | Venture maintained or raised level of employees (1) or not (0)               | binary     |
| establishment  | Length of venture’s existence                                                | continuous |
| prod_serv      | Producer (1) or provider of services (0)                                     | binary     |

**Internal policies to secure sustainability of employment during the COVID-19 pandemic**

| Variable Name  | Description                                                                 | Type       |
|----------------|------------------------------------------------------------------------------|------------|
| digit_online   | Shift of activities to online space (1) or not (0)                           | binary     |
| contract       | Change in the nature of employment contracts (1) or not (0)                  | binary     |
| home-office    | Introduction of home offices (1) or not (0)                                 | binary     |
| red_wage       | Temporary reduction of wages took place (1) or not (0)                       | binary     |
| reorient       | Reorientation of new products took place (1) or not                         | binary     |
| loans          | The company took out additional loans (1) or not (0)                         | binary     |
| logistics      | The company introduced/used new logistics models (1) or not (0)             | binary     |
| premises       | Change of production/service premises (1) or not                            | binary     |
| marketing      | Increased investments in new forms of marketing (1) or not (0)              | binary     |

**Supporting programs/policies for compensation of restrictive measures during the pandemic**

| Variable Name  | Description                                                                 | Type       |
|----------------|------------------------------------------------------------------------------|------------|
| rents          | Rental subsidies utilized (1) or not (0)                                     | binary     |
| w_compens      | Use of state compensation for part of the employees’ salaries (1) or not (0) | binary     |
| in_compens     | Use of state compensation for loss of income (1) or not (0)                 | binary     |
| kurzarbeit     | Introduction of kurzarbeit (1) or not (0)                                   | binary     |
| temp_prot      | Use of temporary job protection instruments (1) nor not (0)                 | binary     |
| taxes          | Use of tax support instruments (1) or not (0)                                | binary     |
| deadlines      | Change in deadlines, postponement of levies, and reduction of administrative | binary     |
| guarantees     | Use of loan guarantee support instruments (1) or not (0)                    | binary     |
| payment        | Utilization of deferral of repayments for bank loans (1) or not (0)         | binary     |

Within the explained variables, we included the establishment variable, which expressed the length of the company’s existence, and at the same time the prod_serv variable, which distinguished between whether the company was a manufacturer or a service provider. Other exploratory variables fell under two sections—internal policies to secure sustainability of employment during the COVID-19 pandemic (9 variables, described in Table 1) and supporting programs/policies for compensation of restrictive measures during the pandemic (9 variables, described in Table 1). The majority of the variables were constructed based on direct answers to given questions via check marks on the questionnaire; however, some of them acquired a value of 1 if it was determined that the firm had used at least one of the measures among the aggregated set within the given variable. We formulated the following research hypotheses:

**Hypotheses 1 (H1).** Internal measures to mitigate the effects of the COVID-19 crisis leading to a reduction in variable costs (shift of activities to online space, introduction of home offices) increased the probability of employment retention.

**Hypotheses 2 (H2).** The use of direct state instruments to support the maintenance of employment (compensation for part of the employees’ salaries, kurzarbeit) increased the probability of employment retention in knowledge-intensive SMEs.

**Hypotheses 3 (H3).** The use of indirect instruments to support the sustainability of business and to maintain employment in the private sector (tax-based support, extended deadlines, and guarantees) increased the chances of employment retention in these companies.

To justify the formulation of our hypotheses, our clearly formulated intention to examine the impact of crisis management tools on the capability to retain the level of
employment in SMEs during the pandemic led us to formulate “internal tools and policies” for mitigating the negative effects of the crisis based on practices cited in the available literature [31,32,34,51]. The hypothesizing itself was based mainly on the assumption that the management procedures that were used relatively frequently could have a positive impact on the stability of a venture. On the other hand, the formulation of hypotheses concerning the impact of the utilization of state instruments to compensate for lockdown restrictions on maintaining employment was based on the political practice in the conditions of the selected country. In the survey, we focused on examining the use of all relevant (existing) support tools as of the date of the survey, and we formulated hypotheses based on selected sources of literature [54,55] and available information on the frequency of use of these tools in the Slovak Republic.

As we worked with binary dependent variables, we decided to use a logit model, as we were interested in using log odds for our interpretation of the impact of the described measures on employment in SMEs during the pandemic. Logit is a widely used binomial regression model that uses a logistic function to model a relationship in which the dependent variable acquires only two “win/lose” values—referred to as 0 and 1 by default. In the logit model, log odds for value 1 are a linear combination of one or more independent variables with a binary or continuous character. The corresponding probability that an observed event will happen (1) may range from 0 to 1. The probability that the researcher will keep a tie with an enterprise can be written as follows:

$$ p = \frac{e^{\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k}}{1 + e^{\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k}} $$

(1)

where:

- $\beta_k$ = coefficients of independent variables
- $x_k$ = value of the kth determinant of academic engagement

In terms of the selected explanatory variables, our theoretical model looked as follows:

$$ Employment\ retention = \beta_0 + \beta_1 * establishment + \beta_2 * prod_serv + \beta_3 * digit_online + \beta_4 * contract + \beta_5 * home-office + \beta_6 * red_wage + \beta_7 * reorient + \beta_8 * loans + \beta_9 * logistics + \beta_{10} * premises + \beta_{11} * promo + \beta_{12} * rents + \beta_{13} * w_compens + \beta_{14} * kurtzarbeit + \beta_{15} * temp_prot + \beta_{16} * taxes + \beta_{17} * deadlines + \beta_{18} * guarantees + \beta_{19} * payment + ai + ei $$

Our analysis was performed in statistical software Stata. We performed the testing of the logit model assumptions and classification power that are presented in Appendices A–D. The saturation of the gained sample will be specified in the following section.

4. Results

The first restrictive measures related to the COVID-19 pandemic appeared in Slovakia in March 2020. Since this date, we observed two periods associated with restricting the movement of persons (lockdown with different levels of movement restriction), with the first period from March to May 2020 and the second from October 2020 to March 2021. At the beginning of 2021, the Statistical Office of the Slovak Republic (2021) updated the data for indicators related to business development in the Slovak Republic, which brought surprising results—the number of SMEs in Slovakia decreased by only 3.6% during 2020, and unemployment fell by only by 0.9% between December 2019 and 2020. These results, together with information from open-ended questions in the survey that we conducted, suggest that SMEs during the pandemic, given the assumption of short periods of restrictions, invested significant resources in retaining the level of employment. In this section, we describe the structure of our sample, specify the frequency of use of internal and state instruments to support the business sector during a pandemic, and using the logit model to estimate the importance of these tools for the ability of knowledge-intensive SMEs to secure employment retention.
4.1. Specification of the Sample

The survey was based on manual processing of contacts and electronic responding of knowledge-intensive SMEs in Slovakia, which were filtered from the database “Register of Institutional Units in the Slovak Republic” for 2020 (estimate of the state of SMEs as of 1 December 2020). It was not possible to use the more current list of SMEs for 2021, so we basically lacked companies that, due to employment changes during the pandemic, grew into the category of SME in the first months of 2021, which we actually do not consider a major limitation of the survey.

Our gained sample was surprisingly suitably saturated, especially in terms of the distribution of SMEs by legal form, distribution by size categories, and spatial distribution of SMEs that responded. Up to 81% of the SMEs in the sample were established as limited liability companies, and these types of enterprises accounted for 79% of the population of SMEs in Slovakia. Furthermore, in the obtained sample, we identified 13% of SMEs established as joint-stock companies, 3% of respondents declared that they were established as limited partnerships, and 3% represented natural persons that in all cases employed between 10 and 12 employees.

We also achieved excellent saturation in the case of the distribution of companies in the sample according to two basic size categories—small and medium-sized companies. We obtained a share of small businesses and medium-sized companies with identical distribution with the population of SMEs in the country. Exactly 81% of the companies in the sample fell into the size category of 10–50 employees, and 19% into the category of 51–250 employees, which exactly copied the distribution in the population.

As we can see in Figure 1, a wide range of sectors of the national economy was represented in our gained sample, and the distribution of SMEs by sector in the population was approached only by the results for the share of industrial enterprises and the share of construction companies in the gained sample. It is important to point out the presence of companies in the sample whose sector affiliation was in conflict with the classification of knowledge-intensive activities according to Eurostat, especially companies from the accommodation and catering services sector, or from the wholesale and retail sector. This discrepancy is a result of the fact that these ventures declared a different main NACE (activity classification code) for statistical purposes than they chose during the survey.

![Figure 1. Distribution of the sample according to sectoral affiliation.](image-url)

Figure 2 shows the spatial distribution of SMEs in the gained sample and blow, in the whole SME population (when divided into five equal-frequency categories). The map shows that, as in the case of the population, the gained sample fully reflects the
significant concentration of knowledge-intensive SMEs in the capital of Bratislava and other urbanized centers with more than 50,000 inhabitants, in which a gradual diversification of business activities towards knowledge-intensive activities can be observed—especially in the districts of Trnava, Nitra, Trenčín, Žilina, Martin, Banská Bystrica, Košice, and Prešov (except for Martin, these are districts in which regional centers are located).

We also obtained an interesting sample for statistical modeling in terms of yes/no distribution (0 or 1) to the question of whether the given SMEs maintained the level of employment during the pandemic. The period considered was the change in employment between March 2020 and May 2021.

4.2. Instruments of KIFs for Employment Retention during a Pandemic

Up to 61.9% of SMEs in the sample declared that from March 2020 to May 2021 they retained the same number of employees, or that the number had even increased. A more detailed distribution of the change in employment is expressed in Figure 3.
The results of the survey show that up to 38% of the surveyed ventures had the same number of employees in both periods compared, and 23.9% of respondents even recorded an increase in employment, which means that these companies were even able to expand production during the COVID-19 crisis. It should also be noted that one company in the sample was established during the pandemic, so they naturally declared a 100% increase in employment. However, we also found cases of SMEs that were forced, mainly due to restrictive measures, to reduce employment level. A total of 38.1% of companies made redundancies, but some of them replaced employees for the provision of services by natural persons (as followed from the open answers in the survey). As many as six SMEs in the sample laid off more than half of their employees and one company declared a complete cessation of production.

Our intention was to further identify key areas of problems that companies experienced during the COVID-19 pandemic in a transition economy such as the Slovak one. As many as 88.7% of companies declared in the survey that restrictive government measures caused serious problems that affected the production or provision of services. The shares of respondents who declared an increase in concrete problems are summarized in Figure 4.

Figure 3. Structure of ventures in sample that maintained and reduced employment.

Figure 4. Overview of perceived negative impacts of the pandemic on business in the sample.
The most frequently cited problem was the chaotic informing by the Slovak government about the prepared restrictive measures, and the provision of this information was critically important mainly until February 2021. Up to 61.4% of respondents considered information activities and dissemination of information about government regulations on free movement or restrictions for work to be insufficient. The open answers to the related question showed that many entrepreneurs learned about the measures in force from social networks rather than official sources, that the provision of information by the Ministry of Health was chaotic, and that new conditions for the free movement of persons, logistics, and work in the workplace were often published 1–2 days before entry into force. The half share of SMEs in the sample that declared a reduction in production volume or the frequency of service provision suggests that some SMEs were able to secure employment retention, or even growth, mainly due to diversification of production. The decline in production was also associated with the frequent loss of markets and customers, which was declared by up to 42.1% of respondents. The survey revealed other associated problems—especially worsened possibilities of logistics and, consequently, logistics prices (connected with restrictions on inter-regional and international traffic), frequent changes in the production regime, and an increase in the company’s indebtedness due to efforts to maintain employment—as respondents declared their permanent expectation of a rapid improvement in the pandemic situation during the first year of the pandemic. A significant problem with long-term consequences seems to be the fact that up to 27.3% of SMEs stated that internal R&D activities had decreased or even been suspended during the observed pandemic period. In the open responses, SMEs most often cited persistent problems in the area of corporate liquidity, which remained low at the end of the pandemic. This problem was declared by another 16.4% of companies in the survey.

SMEs could use a variety of direct or indirect forms of state support and private sector compensation schemes bearing the negative consequences of restrictive measures during the pandemic to stabilize employment, but the vast majority of companies also had to come up with their own business sustainability and survival tools. Figure 5 presents an overview of the frequency of the use of various internal tools to adapt to the effects of the pandemic.

The most frequent internal measures in knowledge-intensive small and medium-sized companies were measures aimed at increasing work flexibility and keeping up productivity during the pandemic. These measures were also recommended by the government at various periods of the pandemic, given the need to curb the spread of the virus. These include the introduction of home offices (55.4% of respondents) or the transfer of activities to the online space, which was often easily feasible for service providers (34.7%). In the open-ended questions, respondents stated a mostly problem-free adaptation to online means of communication, which is expected in the case of knowledge-intensive companies that employ an increased share of educated and communication technology-skilled human capital.

However, up to 21.5% of respondents declared that they experienced temporary suspension of production, mostly via forced leave; up to 20.7% of the responding SMEs experienced at least one period of the pandemic connected to sending employees home without work with compensation of part of the salary; and up to 16.5% of SMEs experienced a period during which the enterprise was forced to temporarily reduce wages. Together with a reduction in working hours (19.8%), these measures were aimed at maintaining employment, and variable costs were reduced to meet the requirements resulting from a decreased volume of contracts, worsened access to material and suppliers, and a reduced volume of customers. A small proportion of respondents sought to seek new logistics models and change suppliers, and as many as 14.9% of respondents tried to improve sales opportunities by adopting new marketing strategies. We also identified three ventures that completely reoriented towards different production; one of them stated a reorientation towards the production of medical equipment that was highly needed during the pandemic. Up to 9.9% of SMEs had to decide to change their production/service provision
premises. Just 12.4% of SMEs tried to solve the problem of increasing costs of production by introducing new technologies.

| Response                                                                 | Percentage |
|-------------------------------------------------------------------------|------------|
| increased investment in marketing and promotion                         | 14.9%      |
| provision of goods/services directly to the final cust.                 | 4.1%       |
| introduction of new logistics models                                    | 6.6%       |
| change of suppliers                                                     | 6.6%       |
| change of production premises                                           | 9.9%       |
| complete reorientation on new types of production                       | 2.5%       |
| new technologies for more efficient production                          | 12.4%      |
| the company took out additional loans                                   | 14.0%      |
| change in the method of product/provision of serv.                      | 14.9%      |
| dismissal of employees                                                  | 38.0%      |
| introduction of home offices                                            | 55.4%      |
| leaving employees at home with salary comp.                            | 20.7%      |
| temporary reduction in wages                                            | 16.5%      |
| reduction of working hours (without compensation)                       | 19.8%      |
| increased share of temporary and part-time workers                      | 9.1%       |
| increased share of workers that are natural persons                     | 5.8%       |
| transfer of activities to the online space                              | 34.7%      |
| moving the provision of services to online space                         | 25.6%      |
| temporary suspension of production                                      | 21.5%      |

Figure 5. Share of ventures adopting internal policies to secure sustainability of employment during the COVID-19 pandemic.

We can also state that, except for three cases of knowledge-intensive SMEs, all firms in the sample utilized some governmental instruments to compensate for the negative effects of movement and business restrictions, as can be seen in Table 2.

In the first year of the pandemic, the state provided entrepreneurs with tools to directly compensate part of employees’ salaries. Compensation for part of employees’ salaries was used quite frequently in the sample; up to 40.5% of entrepreneurs asked for this type of state support. This aid was provided as compensation for 80% of employees’ average earnings, up to a maximum of EUR 880, or as a flat-rate aid to cover part of employees’ salaries, and the compensation was bonded to the level of decrease in the employer’s turnover. The Government of Slovak Republic also introduced use of so-called "kurtzarbeit." Short-term working (kurtzarbeit) is a system in which employees and employers agree or are forced to accept a reduction in working hours and paid wages. The system envisages the inclusion of the state, which covers part of the wages of the employees concerned in order to save jobs in the economy. This tool was used by 13.2% of the knowledge-intensive SMEs in the sample.
Table 2. Share of ventures that utilized state supporting programs/policies for compensation of restrictive measures during the pandemic.

| Overview of State Compensation Measures for the Private Sector | Share     |
|---------------------------------------------------------------|-----------|
| State compensation for employees’ salaries or part            | 40.5%     |
| Compensation for employees’ salaries under the part-time mechanism or “kurtzarbeit” | 13.2%     |
| Temporary protection of entrepreneurs (avoidance of bankruptcy, executions, etc.) | 1.7%     |
| Postponement or non-payment of taxes from income of NP and LP  | 15.7%     |
| Accounting of the positive difference of tax from income until filing the tax declaration | 3.3%     |
| Postponement of statutory deadlines for income tax            | 23.3%     |
| Deduction of tax loss                                        | 9.9%      |
| Application of a preferential tax rate                        | 80.0%     |
| Use of state aid schemes for compensation of part of the fixed costs in specific sectors | 3.3%     |
| Exemption from customs duties, or cessation of liability for a customs offense | 0.0%     |
| Change in deadlines and reduction of administrative burden    | 2.4%      |
| Remission of levies for April 2020, postponement for March 2020 | 8.3%     |
| Use of loan guarantees and interest rate subsidies on loans by the Ministry of Finance | 5.8%     |
| Anti-COVID-19 guarantee from Slovak Investment Holding       | 1.7%      |
| Free postponement of payments on bank loans                   | 8.3%      |
| Transition to contactless payments up to EUR 50              | 7.4%      |
| Postponement of legal deadlines for local taxes              | 1.7%      |
| Establishment of a mobile collection point (MOM) in the company | 5.8%     |
| None                                                          | 6.4%      |

In the Slovak Republic, indirect tools for the support of the business environment were also frequently used—especially through the tax system, levies, postponement of deadlines, and guarantees. Tax instruments to support business sustainability were used frequently. Among the entrepreneurs in the sample, 23.3% used postponement of statutory deadlines for income tax, 80% applied preferential tax rate, 9.9% utilized deduction of tax loss, 15.7% used postponement or non-payment of taxes from income of NP and LP, and 3.3% utilized accounting of the positive difference of tax from income until filing the tax declaration. Similarly, indirect support was set up in the levy system, where delays and deadlines were mainly helpful. As many as 8.3% of respondents used the remission of levies for April 2020, or postponement for March 2020. The government also allowed local governments to postpone deadlines for local taxes. Up to 1.7% of respondents postponed payments of local taxes, mainly tax from income, which in the Slovak Republic is collected by local self-government. Another deferral tool was introduced by the banking sector, which enabled the deferral of repayments on debt and mortgage products. A total of 8.3% of respondents used this support. SMEs could also utilize support during the pandemic through guarantees to loans provided by private banks provided by the Ministry of Finance via export–import bank (Eximbank), or by Slovak investment holding. Support in the form of guarantees provided by the Ministry of Finance was requested by 5.8% of respondents, whereas 1.7% of respondents utilized this kind of support from the program for Slovak investment holding.

The state also offered businesses the opportunity to earn additional income through the establishment of mobile antigen testing points in the premises of the venture, and 5.8% of respondents used this opportunity.

4.3. Impact of Internal Measures and State Measures on Sustainability of Employment in Knowledge-Intensive SMEs in Sample

In Tables 3 and 4, we see the coefficients, odds ratios, standard errors, z-statistics, and related p-values. We amplified the coefficients and directly interpreted them as odds ratios for better interpretability. The majority of our independent variables were of the nature of the utilization of various policies and programs that were expected to help private-sector actors to mitigate the negative consequences of anti-pandemic measures. We believe that it was not necessary to monitor a significant volume of other control variables, based on the fact that almost all companies experienced a significant problem due to temporary
restrictions and the general decline in sales markets, as confirmed by qualitative research related to our questionnaire. However, in order not to limit ourselves to the use of various forms of state support, we also looked at internal tools for employment retention, which can also be perceived as tools to overcome the pandemic period. Therefore, we believe that our model does not omit significant variables.

The main focus of the study was placed on investigating the impacts of the COVID-19 crisis on employment in small and medium-sized knowledge-intensive companies, and the question of what tools the ventures used to retain their level of employment. Our model shows that younger companies were able to deal with the problems associated with the COVID-19 crisis slightly better. With an additional year of the enterprise’s existence, the chances of employment retention decreased by approximately 7%. Based on the results, it cannot be said that it is possible to find a statistically significant impact of the nature of the company’s production (manufacturing/provision of services) on employment during the pandemic.

Table 3. Results of the logit model for internal policies for employment maintenance.

| Variable  | Coef.  | Odds Ratio | Z    |
|-----------|--------|------------|------|
| estab     | −0.0693 * | 0.9313 *   | −2.25|
|           | (0.0309)  | (0.0288)   |      |
| prod_serv | −0.1669  | 0.8463     | −0.29|
|           | (0.5816)  | (0.4922)   |      |
| digit_online | 1.1822 * | 3.2614 *   | 1.98 |
|           | (0.5974)  | (1.9485)   |      |
| contract  | 1.8927   | 6.6375     | 2    |
|           | (0.9456)  | (6.2764)   |      |
| homeoffice | 1.4726 ** | 4.3604 **  | 2.57 |
|           | (0.5721)  | (2.4945)   |      |
| red_wage  | 1.4771   | 4.3801     | 1.72 |
|           | (0.8579)  | (3.7575)   |      |
| reorient  | −0.3616  | 0.6966     | −0.33|
|           | (1.0819)  | (0.7536)   |      |
| loans     | 1.2211   | 3.391      | 1.24 |
|           | (0.9837)  | (3.3357)   |      |
| logistics | 0.6199   | 1.8588     | 0.61 |
|           | (1.0188)  | (1.8937)   |      |
| premises  | 0.9497   | 2.585      | 0.75 |
|           | (1.2731)  | (3.291)    |      |
| marketing | 1.1526   | 3.1663     | 1.3  |
|           | (0.8886)  | (2.8136)   |      |

Number of obs 121  
LR chi2(20) 58.33 ***  
Prob > chi2 0.0000  
Pseudo R2 0.3629

* statistical significance on levels: $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; standard errors in brackets.
Concerning the interpretation of the results of internal factors of employment retention, these may point to the fact that many companies “survived,” or did not have to reduce the levels of employees, because of their own internal decisions rather than the use of state compensation. We managed to find several statistically significant internal determinants of increasing the chances of employment retention. According to our model, the decision of companies to transform permanent employment into seasonal had the most positive effect on maintaining employment, which may appear to be a little counterintuitive. However, there can be a problem with understanding the term “employee” or “employment” in the Slovak Republic, as employers tend to consider even natural persons working for an employer as an “employees”—which is demonstrated by the high share of seasonal, temporary workers and natural persons in firms. This internal policy paradoxically increases the chances of employment retention by up to 6.64 times. An important measure was also the introduction of home offices, which quite logically helped with the minimization of variable costs and increased work flexibility—the measure increased the ratio of the chances of employment retention by 4.36 times. We also found that the impact of moving business activities to the online space increased the chances of job retention by 3.26 times. Companies also introduced various other measures—temporarily reduced wages, trying to adapt their production to changing market conditions, taking out additional loans, looking for new logistics models, or implementing innovative marketing strategies. However, in the case of these internal policies, we were unable to reveal a statistically significant impact on non-redundancies.

The intention of the Government of the Slovak Republic during the pandemic was to try to stabilize existing companies through direct and indirect support instruments. Compensation of employees’ wages and compensation for loss of income due to the pandemic can be included among the most direct measures. Despite considerable criticism of the criteria for aid and informing market actors about the possibilities of utilization of these aids in the questionnaire survey, these measures proved to be highly effective for employment retention in knowledge-intensive small and medium-sized enterprises due to available educated human capital, and were able to facilitate participation in state support programs. Compensation for loss of income during the pandemic was provided to self-

### Table 4. Results of the logit model for the utilization of state supportive measures (2/2).

| Variable   | Coef.     | Odds Ratio | Z    |
|------------|-----------|------------|------|
| rents      | 0.1319    | 0.8764     | -0.11|
| w_compens  | 2.1033 ***| 8.1929 *** | 3.35 |
| kurzarbeit | 2.8466    | 17.2299    | 1.88 |
| temp_prot  | -3.7999   | 0.0224     | -0.88|
| taxes      | 1.2014 *  | 3.3249 *   | 1.93 |
| deadlines  | 1.6803    | 5.3672     | 1.32 |
| guarantees | 0.6395    | 1.8956     | 0.48 |
| payment    | -0.3503   | 0.7044     | -0.3 |
| _cons      | -1.4894   | 0.2255     | -1.9 |

* statistical significance on levels: *p < 0.05, ***p < 0.001; standard errors in brackets.
employed natural persons, and three natural persons in the sample used this aid. Direct support in the form of compensation for part of employees’ wages was very effective—utilization of this aid increased the chances of employment retention by up to 8.19 times. Among the indirect measures, we found a certain statistically significant relationship between the aggregate variable “tax”, which expressed the use of various forms of tax supportive measures during the pandemic. The use of tax aids increased the chance of maintaining employment in a company by 3.32 times.

We were not able to find a statistically significant impact of the “kurzarbeit” as a government instrument adopted at the outset of the pandemic, nor the impact of compensation for the rent of premises (which may be more sporadic among SMEs), temporary protection against foreclosures, extension of legal deadlines, or the provision of loan guarantees. At the same time, we cannot say that there would be a significant impact of the policy of deferral of payments and reduced interests on loans provided by private banks (support from the side of the banking sector) on employment retention in small and medium-sized companies from knowledge-intensive sectors.

5. Discussion
In this study, we sought an answer to the question of “What kept the boat afloat?,” focusing on examining the resilience of SMEs in knowledge-intensive industries, with an emphasis on their crisis management practices during the pandemic, which we understood as a mix of utilization of state tools for the compensation of lockdown measures and internal management of pandemic consequences via internal policies and decisions towards adaptation to the crisis.

Our results contribute both to the literature on the resilience of SMEs [3,18,32,36,46], as well as to the literature on knowledge-intensive entrepreneurship [50], crisis management, and the effectiveness of state interventions during economic shocks [37,54,55].

First of all, we can support the assumptions [50,58] that knowledge-intensive ventures, thanks to increased capacities for innovation, represent the segment of SMEs with increased resilience to economic shocks, similarly to family SMEs [31]. However, our survey results on the case of the post-socialist economy in transition do not suggest that innovation capacity was the main driver of adaptation of knowledge-intensive SMEs to lockdown issues during the pandemic. Swift adaptation measures on the side of business owners and top management, and thus managerial resilience [32,46,47], appears to be a more significant driver of venture stabilization in terms of employment retention. It is true of almost all companies in our sample that they either suspended innovation processes, postponed the acquisition of planned technologies, or limited internal scientific research activities due to fears of uncertainty [13,14]. In the case of the chosen transitional economy, we observed that most effective internal policies towards adaptation to the pandemic-caused crisis were those related to maintaining productivity, reducing variable costs, and maintaining liquidity in the surveyed knowledge-intensive SMEs. These internal policies include, in particular, in line with our H1 hypothesis, digitization processes, the transfer of activities to the online space, and the use of home offices. Technologies and educated human capital available in knowledge-intensive companies may contribute not only to adaptation to volatile market conditions due to their importance to the innovation capacity of the venture [31,42,51], but also to the ability to quickly adapt to the requirements of drastic development of process digitization in the company.

During the pandemic, SMEs were faced with the decision of whether to use conditional state aid during the pandemic or to deal with the effects of the crisis without compensation [17,33]. Our results also suggest that government measures to compensate for the negative effects of restrictions on movement and business during the COVID-19 crisis contributed to the stabilization of SMEs, as other studies have suggested [37,54]. In line with hypothesis H2, we found that the reimbursement of part of employees’ salaries during the time of forced lockdown significantly helped to maintain employment levels in SMEs. However, we found no statistically significant impact of short-term working
in form of kurtzarbeit on employment retention; thus, we can confirm the validity of the hypothesis only partially. Many small and medium-sized enterprises did not participate in this aid scheme, which was a consequence of its initial setup. The support was intended to reimburse part of the salary of an employee whose job the venture retained, depending on the extent of the decrease in turnover. However, many SMEs were not, due to nature of their production/services provision, forced to reduce or close operation, and at the same time, even those SMEs with an initial low level of decrease in turnover could quickly experience significant difficulties due to the domino effect of the interruption of supply and demand networks and the destabilization of markets. From these perspectives, direct aid schemes with less rigid participation rules need to be delivered [37], the latter of which happened in the case of the Slovak Republic. Concerning the indirect supportive tools to support the health of the private sector, we again could only partially prove hypothesis H3. During the first 14 months, pandas came up with proposals to support private sector actors in various ministries of the Slovak government, in particular measures in the area of taxes, levies, guarantees, postponement of deadlines, and preferential interest rates. Only in the case of measures within the tax system did we demonstrate a statistically significant positive impact on maintaining jobs in knowledge-intensive SMEs.

However, behind these quantitative results is further knowledge regarding the effectiveness of state support policies during economic shocks. Our results highly emphasize the importance of fast, accessible, and correct information for all affected actors about the restrictive measures in force, as well as support instruments, their comprehensibility, and the form of the grant application, which should not be complicated [59]. The use of external business support instruments during the pandemic in the country under review suffered from negative attitudes towards government policy as a whole [60], the inability to maintain frequently changing rules, and the setting of criteria for the beneficiary, which may not be met by a real vulnerable enterprise.

6. Conclusions

From the implications of the theory, we found that knowledge-intensive small and medium-sized enterprises appear to be increasingly resistant to economic crises. Their specifics, laying down in the tendency to produce and absorb new knowledge, to employ more educated human capital, to look for innovative opportunities, and to focus on new and technologically led activities, are manifested as an advantage in the period of the COVID-19 crisis. Although the selected V4 did not appear to be “innovators in crisis,” a significant part was able to maintain employment thanks to rapid adaptation to changing restrictive and market conditions. The researched knowledge-intensive companies generally used a diverse mix of internal adaptation tools, and the vast majority of them were able to use the initial state support schemes to compensate for the negative effects of the lockdown due to available intellectual capital. Thus, it can be assumed that knowledge-intensive companies have increased manager resilience.

The processes of digital transformation of activities, transfer of activities to the online space, and reorganization of work processes enabling home offices proved to be the main tools for maintaining employment in terms of the internal policies of the surveyed companies. Businesses that could not move their activities to the online space had significantly more difficult conditions for adapting to the crisis. Direct state instruments of business support compensating part of employees’ wages really supported the maintenance of employment and the stability of knowledge-intensive small and medium-sized enterprises in the observed country. We also found a positive impact of indirect instruments in the form of tax breaks and deferrals.

However, there is much more to say based on the open answers of the SMEs in the survey. Concerning implications for policymakers, the main role of public bodies towards the stability of entrepreneurship in the country appears to be a contribution to lowering the uncertainty—the provision of prompt and clear information about planned changes in restrictions or ways of participating in support programs. Compensation of
private ventures for restrictions on movement on the basis of a significant decrease in turnover and indirect support instruments, which can be used only by selected legal forms of companies or companies with a certain sectoral affiliation, can lead to further market destabilization. Governments should also avoid a high degree of bureaucratic burden associated with participating in support schemes, overly complicated forms, and high sanctions for non-compliance with aid rules, which in the case under review provoked opposition to participation. Support should be prompt, not associated with long waits for allocations.

The study has several limitations. The main limitation is based on the use of primary data from a questionnaire survey, as these data can be inaccurate for the reason commonly cited and thus influenced by specific attitudes of managers, or suffer from purposeful answers, misinterpretations by respondents, or beautification of reality [61]. The important tools identified by the study to support the maintenance of employment in SMEs during the COVID-19 crisis cannot be considered equally applicable in the specific conditions of other national economies, although the selection to elaborate the knowledge-intensive SMEs definitely helped to “filter out” some specific problems of SMEs in Slovakia. The analysis also does not distinguish between different levels of lockdown or different levels of liquidity, or technological sophistication of knowledge-intensive companies. Concerning implications for further research, we recommend, in particular, to examine the recovery of SMEs from economic shock on the basis of resilience or public policies, as well as to elaborate the role of innovation capacities of SMEs in overcoming the crisis and focus on the utilization of opportunities that the COVID-19 crisis raised.

**Author Contributions:** Conceptualization, M.H.; methodology, M.H. and P.M.; software, P.M.; validation, M.H. and M.C.; formal analysis, M.H.; investigation, M.H. and M.C.; resources, M.C.; data curation, M.H. and P.M.; writing—original draft preparation, M.H., P.M., and M.C.; writing—review and editing, M.H. and P.M.; visualization, P.M.; supervision, M.C. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data are publicly available at https://uloz.to/file/hjYjXECj6WoW/data-covid19msp-xls#!ZGD1LmR2AQuzMQqyMGqzAzHIZwp3AyqilM5palkAwEoozH0Aj== (accessed on 27 July 2021).

**Conflicts of Interest:** The authors declare no conflict of interest.

### Appendix A. Results of Linktest for Logit Model

| Number of obs | 121 |
| LR chi2 (2)   | 62.92 |
| Prob > chi2   | 0.000 |
| Pseudo R2     | 0.3915 |

| emp_ret     | Coef.  | Std. Err. | Z     | p > |z| | [95% Conf. Interval] |
|-------------|--------|-----------|-------|-----|---|---------------------|
| _hat        | 1.06417| 0.216159  | 4.92  | 0   | 0.640505 | 1.487834            |
| _hatsq      | -0.05508| 0.062699  | -0.88 | 0.38| -0.17797 | 0.067808            |
| _cons       | 0.079847| 0.265766  | 0.3   | 0.764| -0.44104 | 0.600738            |
### Appendix B. Diagnostics of Multicolinearity

| Variable     | VIF | SQRT VIF | Tolerance | R-Squared |
|--------------|-----|----------|-----------|-----------|
| emp_ret      | 1.13| 1.06     | 0.8842    | 0.1158    |
| establishment| 1.25| 1.12     | 0.7989    | 0.2011    |
| prod_serv    | 1.38| 1.18     | 0.7237    | 0.2763    |
| digit_online | 1.2 | 1.10     | 0.8317    | 0.1683    |
| contract     | 1.3 | 1.14     | 0.7705    | 0.2295    |
| home-office  | 1.23| 1.11     | 0.8113    | 0.1887    |
| red_wage     | 1.3 | 1.14     | 0.7687    | 0.2313    |
| reorient     | 1.62| 1.27     | 0.6156    | 0.3844    |
| loans        | 1.29| 1.13     | 0.7772    | 0.2228    |
| logistics    | 1.18| 1.8      | 0.8497    | 0.1503    |
| premises     | 1.33| 1.15     | 0.7533    | 0.2467    |
| marketing    | 1.22| 1.10     | 0.8210    | 0.1790    |
| rents        | 1.23| 1.11     | 0.8128    | 0.1872    |
| w_compens    | 1.55| 1.24     | 0.6465    | 0.3535    |
| in_compens   | 1.57| 1.25     | 0.6358    | 0.3642    |
| kurzarbeit   | 1.4 | 1.18     | 0.7142    | 0.2858    |
| temp_prot    | 1.56| 1.25     | 0.6410    | 0.3590    |
| taxes        | 1.55| 1.25     | 0.6440    | 0.3560    |
| deadlines    | 1.54| 1.24     | 0.6488    | 0.3512    |
| **Mean VIF** |     |          |           | **1.35**  |

### Appendix C. Classification Table for Logit Model

| Classified | D     | ~D    | Total |
|------------|-------|-------|-------|
| +          | 66    | 14    | 80    |
| −          | 9     | 32    | 41    |
| **Total**  | 75    | 46    | 121   |

Classified + if predicted $\Pr(D) \geq 0.5$

True D defined as $\text{udr_zam} \neq 0$

- **Sensitivity**: $\Pr(+ | D)$
- **Specificity**: $\Pr(- | \sim D)$
- **Positive predictive value**: $\Pr(D | +)$
- **Negative predictive value**: $\Pr(- D | -)$
- **False + rate for true ~D**: $\Pr(+ | \sim D)$
- **False – rate for true D**: $\Pr(- | D)$
- **False + rate for classified +**: $\Pr(- D | +)$
- **False – rate for classified –**: $\Pr(D | -)$

- **Correctly classified**: 80.99%
Appendix D. Area under ROC Curve
18. Morgan, T.; Anokhin, S.; Ofstein, L.; Friske, W. SME response to major exogenous shocks: The bright and dark sides of business model pivoting. *Int. Small Bus. J.* 2020, 38, 369–379. [CrossRef]

19. Thukral, E. COVID-19: Small and medium enterprises challenges and responses with creativity, innovation, and entrepreneurship. *Strateg. Chang.* 2021, 30, 153–158. [CrossRef]

20. Ratten, V. Coronavirus (Covid-19) and entrepreneurship: Cultural, lifestyle and societal changes. *J. Entrep. Emerg. Econ.* 2020, ahead-of-print. [CrossRef]

21. Správa o Stave Malého a Stredného Podnikania na Slovensku. Available online: http://www.sbagency.sk/sites/default/files/sprava_o_stave_mspvzr_2019.pdf (accessed on 24 June 2021).

22. Mura, L.; Hajduová, Z. Measuring efficiency by using selected determinants in regional SMEs. *Entrep. Sustain. Issues* 2021, 8, 487–503. [CrossRef]

23. Small and Medium Enterprises (SMES) Finance. Available online: https://www.worldbank.org/en/topic/smefinance (accessed on 23 June 2021).

24. Audretsch, D.B.; Keilbach, M.C.; Lehmann, E.E. *Entrepreneurship and Economic Growth*, 1st ed.; Oxford University Press: Oxford, UK, 2006; p. 227.

25. Dar, M.S.; Ahmed, S.; Raziq, A. Small and Medium-Size Enterprises in Pakistan: Definition and Critical Issues. *Pak. Bus. Rev.* 2017, 19, 46–70.

26. Mura, L.; Hajduová, Z. Small and medium enterprises in regions-empirical and quantitative approach. *Insights Reg. Dev.* 2021, 3, 252–266. [CrossRef]

27. Stanković, M.; Mrdak, G.; Stojanović, S. The Importance of Small and Medium Enterprises in Modern Economy. *Knowl. Int. J.* 2018, 28, 1619–1624. [CrossRef]

28. Pinto, H.; Pereira, T.S.; Uyarra, E. Innovation in firms, resilience and the economic downturn: Insights from CIS data in Portugal. *Reg. Sci. Policy Pract.* 2019, 11, 951–967. [CrossRef]

29. Ndiaye, N.; Razak, L.A.; Nagayev, R.; Ng, A. Demystifying small and medium enterprises’ (SMEs) performance in emerging and developing economies. *Borsa Istamb. Rev.* 2018, 18, 269–281. [CrossRef]

30. Anderton, R.; Botelho, V.; Consolo, A.; Da Silva, A.D.; Foroni, C.; Mohr, M.; Vivian, L. The impact of the COVID-19 pandemic on the euro area labour market. *ECB Econ. Bull.* 2021, 8. Available online: https://www.ecb.europa.eu/pub/economic-bulletin/articles/2021/html/ecb.ebart202008_02~bc749d90e7_en.html (accessed on 22 July 2021).

31. Kraus, S.; Claus, T.; Breier, M.; Gart, J.; Zardini, A.; Tiberius, V. The economics of COVID-19: Initial empirical evidence on how family firms in five European countries cope with the corona crisis. *Int. J. Entrep. Behav. Res.* 2020, 26, 1067–1092. [CrossRef]

32. Rodrigues, M.; Franco, M.; Sousa, N.; Silva, R. COVID 19 and the Business Management Crisis: An Empirical Study in SMEs. *Sustainability* 2021, 13, 5912. [CrossRef]

33. Brown, R.; Cowling, M. The geographical impact of the Covid-19 crisis on precautionary savings, firm survival and jobs: Evidence from the United Kingdom’s 100 largest towns and cities. *Int. Small Bus. J.* 2021, 39, 319–329. [CrossRef]

34. Korsgaard, S.; Hunt, R.A.; Townsend, D.M.; Ingstrup, M.B. COVID-19 and the importance of space in entrepreneurship research and policy. *Int. Small Bus. J.* 2020, 38, 697–710. [CrossRef]

35. Lim, D.S.; Morse, E.A.; Yu, N. The impact of the global crisis on the growth of SMEs: A resource system perspective. *Int. Small Bus. J.* 2020, 38, 492–503. [CrossRef]

36. Bartik, A.W.; Bertrand, M.; Cullen, Z.; Glaeser, E.L.; Luca, M.; Stanton, C. The impact of COVID-19 on small business outcomes and expectations. *Proc. Natl. Acad. Sci. USA* 2020, 117, 17656–17666. [CrossRef]

37. Razumovskaia, E.; Yuzvovich, L.; Kniazeva, E.; Klimenko, M.; Shelyakin, V. The Effectiveness of Russian Government Policy to Support SMEs in the COVID-19 Pandemic. *J. Open Innov. Technol. Mark. Complex.* 2020, 6, 160. [CrossRef]

38. Amankwah-Amoah, J.; Khan, Z.; Wood, G. COVID-19 and business failures: The paradoxes of experience, scale, and scope for theory and practice. *Eur. Manag. J.* 2021, 39, 179–184. [CrossRef]

39. Jensen, H.B. How did “flatten the curve” become “flatten the economy?” A perspective from the United States of America. *Asian J. Psychiatry* 2020, 51, 102165. [CrossRef]

40. Shang, Y.; Li, H.; Zhang, R. Effects of Pandemic Outbreak on Economies: Evidence from Business History Context. *Front. Public Health* 2021, 9, 146. [CrossRef]

41. McKibbin, W.; Fernando, R. The Global Macroeconomic Impacts of COVID-19: Seven Scenarios. *Asian Econ. Pap.* 2020, 20, 1–30. [CrossRef]

42. Deliu, D. The Intertwining between Corporate Governance and Knowledge Management in the Time of Covid-19—A Framework. *J. Emerg. Trends Mark. Manag.* 2020, 1, 93–110.

43. Sharma, P.; Leung, T.Y.; Kingshott, R.P.J.; Davcik, N.S.; Cardinali, S. Managing uncertainty during a global pandemic: An international business perspective. *J. Bus. Res.* 2020, 116, 188–192. [CrossRef]

44. Guan, D.; Wang, D.; Hallegatte, S.; Davis, S.J.; Huo, J.; Li, S.; Bai, Y.; Lei, T.; Xue, Q.; Coffman, D.; et al. Global supply-chain effects of COVID-19 control measures. *Nat. Hum. Behav.* 2020, 4, 577–587. [CrossRef]

45. Vasiljeva, M.; Neskorodieva, I.; Ponkratov, V.; Kuznetsov, N.; Ivlev, V.; Ivleva, M.; Maramygin, M.; Zekiy, A. A Predictive Model for Assessing the Impact of the COVID-19 Pandemic on the Economies of Some Eastern European Countries. *J. Open Innov. Technol. Mark. Complex.* 2020, 6, 92. [CrossRef]
46. Santoro, G.; Messeni-Petruzzelli, A.; Del Giudice, M. Searching for resilience: The impact of employee-level and entrepreneur-level resilience on firm performance in small family firms. Small Bus. Econ. 2021, 57, 455–471. [CrossRef]

47. Tsilika, T.; Kakouris, A.; Apostolopoulos, N.; Dermatis, Z. Entrepreneurial bricolage in the aftermath of a shock. Insights from Greek SMEs. J. Small Bus. Entrep. 2020, 32, 635–652. [CrossRef]

48. Kuckertz, A.; Brändle, L.; Gaudig, A.; Hinderer, S.; Morales Reyes, C.A.; Prochotta, A.; Steinbrink, K.M.; Berger, E.S.C. Startups in times of crisis—A rapid response to the COVID-19 pandemic. J. Bus. Ventur. Insights 2020, 13, e00169. [CrossRef]

49. Runyan, R.C. Small Business in the Face of Crisis: Identifying Barriers to Recovery from a Natural Disaster1. J. Contingencies Crisis Manag. 2006, 14, 12–26. [CrossRef]

50. Malerba, F.; Mckelvey, M. Knowledge-intensive innovative entrepreneurship integrating Schumpeter, evolutionary economics, and innovation systems. Small Bus. Econ. 2018, 54, 503–522. [CrossRef]

51. Ratten, V. COVID-19 and entrepreneurship: Future research directions. Strateg. Chang. 2021, 30, 91–98. [CrossRef]

52. Le, H.B.H.; Nguyen, T.L.; Ngo, C.T.; Pham, T.B.T.; Le, T.B. Policy related factors affecting the survival and development of SMEs in the context of Covid 19 pandemic. Manag. Sci. Lett. 2020, 10, 3683–3692. [CrossRef]

53. Caracciolo, G.; Cingano, F.; Ercolani, V.; Ferrero, G.; Hassan, F.; Papetti, A.; Tommasino, P. Covid-19 and Economic Analysis: A Review of the Debate. Banca D’italia 2020, 2, 1–13. Available online: https://www.bancaditalia.it/pubblicazioni/note-covid-19/2020/Covid-literature-newsletter-n2.pdf?language_id=1 (accessed on 22 July 2021).

54. Dhewanto, W.; Nazmuzzaman, E.; Fauzan, T.R. Cross-countries’ policies comparison of supporting small and medium-sized enterprises during covid-19 pandemic. In Proceedings of the 15th European Conference on Innovation and Entrepreneurship, ECIE 2020, Rome, Italy, 16–18 September 2020; De Nisco, A., Ed.; Academic Conferences International Limited: Reading, UK, 2020; pp. 218–225. [CrossRef]

55. OECD. Coronavirus (COVID-19): SME Policy Responses. OECD Policy Responses to Coronavirus (COVID-19). 2020. Available online: https://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/ (accessed on 22 July 2021).

56. Erlingsson, C.; Brysiewicz, P. A hands-on guide to doing content analysis. Afr. J. Emerg. Med. 2017, 7, 93–99. [CrossRef] [PubMed]

57. Linneberg, M.S.; Korsgaard, S. Coding qualitative data: A synthesis guiding the novice. Qual. Res. J. 2019, 19, 259–270. [CrossRef]

58. Fischer, B.B.; Queiroz, S.; Vonortas, S.N. On the location of knowledge-intensive entrepreneurship in developing countries: Lessons from São Paulo, Brazil. Entrep. Reg. Dev. 2018, 30, 612–638. [CrossRef]

59. Fairlie, R. The impact of COVID-19 on small business owners: Evidence from the first three months after widespread social-distancing restrictions. J. Econ. Manag. Strategy 2020, 29, 727–740. [CrossRef] [PubMed]

60. Mura, L. Marketing Management of Family Businesses: Results of Empirical Study. Int. J. Entrep. Knowl. 2020, 8, 56–66. [CrossRef]

61. Lambert, D.L. 2. The Limitations of Questionnaires. In Aslib Proceedings; MCB UP Ltd.: Bingley, UK, 1950; Volume 2, pp. 131–137.