Sorgner, Alina

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Covid-19 and Entrepreneurship

Alina Sorgner[1]

Abstract

This chapter presents the results of a systematic review of literature (SLR) on impacts of Covid-19 on entrepreneurship published in the first three years since the outbreak of the Covid-19 pandemic, covering the period between January 2020 and January 2023. Main developments in the literature over time, space and themes are identified. The literature body has been growing constantly over time, with most studies included in this SLR published in 2022 that remained unconsidered in previous SLRs. In terms of spatial distribution of published research, a significant number of studies focus on North American and European countries, while low-income countries and countries in Latin American, Sub-Saharan and South Asian regions are underrepresented. Six main themes (and multiple sub-themes) were identified in the literature: entrepreneurial process, resilience and opportunity, entrepreneurial finance, policy responses to the Covid-19 crisis, gender, and well-being. Research on the impact the pandemic has had on entrepreneurial process, sources of financing, resilience of start-up firms, and opportunities emerging from the crisis has been dominating the literature since the early days of the pandemic and has been growing since then. Emerging themes include policy responses to the Covid-19 crisis and their (unintended) consequences for entrepreneurship, as well as differential impact of Covid-19 on female and male entrepreneurs. Studies on well-being of entrepreneurs, including their physical and mental health, represent a relatively low share of the literature on Covid-19 and entrepreneurship. Implications of the results for entrepreneurship research and practice are discussed.

Keywords: Entrepreneurship, Covid-19, Systematic literature review

JEL classification: L26

[1] Alina Sorgner is Associate Professor of Applied Data Analytics at John Cabot University Rome, Italy, Research Fellow at Kiel Institute for the World Economy, and a Research Affiliate of IZA, Germany; email: asorgner@johncabot.edu

1. Introduction[2]

The chapter will present the results of a systematic literature review that investigated impacts of the Covid-19 pandemic on entrepreneurship. The advantage of this method is that it is comprehensive and allows to reliably identify main trends in sizeable literature on a specific topic, and it is widely used in business and entrepreneurship research (Kraus et al., 2020; Verma and Gustafsson, 2020). Systematic literature review has several advantages over traditional, non-structured and rather subjective literature review when studying the impacts of Covid-19 on entrepreneurship. First, the Covid-19 pandemic is a recent shock to the economy, and therefore, the research field is rather new. A systematic literature review can help identify the main strands in this emerging literature, connect them with the existing theories and identify new theory developments. Second, the impact of the Covid-19 crisis on entrepreneurship may be long-lasting, and some of the effects might not become evident immediately. Thus, considering literature that was published during the most acute phases of the crisis might not be sufficient to identify its impacts on entrepreneurship and small businesses, also because some of the effects may occur with a significant time lag. Third, both topics – Covid-19 crisis and entrepreneurship - are highly interdisciplinary, and applying the SLR research design may help foster researchers' awareness of insights in related fields (Kraus et al., 2020). Therefore, providing a good synthesis of the research on this topic can be very useful for entrepreneurs and policy makers.

There are several systematic literature reviews that focused on early impacts of the pandemic on business in general that highlighted entrepreneurship as one of the themes that emerge within the large business and management literature dealing with the Covid-19 crisis. For instance, the study by Verma and Gustafsson (2020) covers the publication period between January 1, 2020, and May 11, 2020, that roughly corresponds to the first wave of the pandemic. They emphasize that start-ups will need to be more flexible in adapting their business models to changing markets, while they

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see the main task of policymakers in protecting start-ups. An updated bibliometric analysis of management literature by Hashemi et al. (2022) that covered the first two years after the pandemic has revealed the importance of entrepreneurship in supply chain innovation and resilience, changing labor markets for self-employed individuals, and stressors and coping mechanisms of entrepreneurs. Moreover, Khlystova et al. (2022) study the impact of Covid-19 on creative industries and find that the crisis has been particularly severe for cultural entrepreneurs and freelancers, for instance, due to social distancing restrictions and changes in consumer behavior. All studies mentioned above highlight entrepreneurship as one of the themes that emerges in business and management literature, without specifically focusing on the impacts of the pandemic on entrepreneurship.

Table 1: Previous systematic literature reviews on Covid-19 and entrepreneurship

SLR article	**Number of publications and publication period considered in the SLR**	**Key results**
Kuckertz, A. and L. Brändle (2022): Creative reconstruction: a structured literature review of the early empirical research on the COVID-19 crisis and entrepreneurship. *Management Review Quarterly*, 72, 281-307	34 empirical articles published between January 1, 2020 and January 19, 2021	The empirical entrepreneurship research on the COVID-19 crisis is marked by three perspectives: the uncertainty perspective, the resilience perspective, and the opportunity perspective.
Sharma, G.D., S. Kraus, E. Liguori, U.K. Bamel, and R. Chopra (2022): Entrepreneurial challenges of Covid-19: Re-thinking entrepreneurship after the crisis. *Journal of Small Business Management*, DOI: 10.1080/00472778.2022.2089676	79 studies published before October 2021	Three phases of activity related to post-covid recovery are identified: business resumption (the decision to restart operations following a crisis), crisis impact analysis (understanding how the firm has changed as a result of the crisis), and future review and modification (examining how businesses need to move forward in the latter days following a crisis).

Belitski, M., C. Guenther, A.S. Kritikos, and R. Thurik (2022): Economic effects of the Covid-19 pandemic on entrepreneurship and small businesses. *Small Business Economics*, 58, 593-609.	285 papers published between December 2019 and June 2021	Four strands in the literature and relevant theories were identified that can be used to explain the economic effects of the crisis on small businesses: disaster theory, resilience theory, dynamic capabilities theory, and the role of digital capabilities and digital transformation in responding to uncertainty.

There are three previous systematic literature reviews that deal specifically with the impacts of Covid-19 on entrepreneurship. Table 1 provides details on these studies and summarizes the key results. The study by Kuckertz and Brändle (2022) provides one of the first literature reviews on the Covid-19 pandemic and its consequences for entrepreneurial activities. It includes studies published between January 1, 2020, and January 19, 2021, which is exactly one year after the Covid-19 was first documented in the academic literature. During this period, three perspectives dominated entrepreneurship literature that can be described as the uncertainty perspective, the resilience perspective, and the opportunity perspective. Another systematic literature review by Sharma et al. (2022) that included studies published before October 2021 identified three phases of activity related to post-covid recovery, such as business resumption, crisis impact analysis on firms, and future modification of businesses in response to the crisis. Last but not least, Belitski et al. (2022) take a broader perspective on entrepreneurship by considering also studies on small businesses in their literature review that covers the publication period before June 2021. They identify four strands in the literature that deal with the economic effects of the crisis on small businesses from the perspective of the disaster theory, resilience theory, dynamic capabilities theory, and the role of digital capabilities in responding to uncertainty caused by the crisis.

The present study contributes to the existing systematic literature reviews on Covid-19 and entrepreneurship in the following ways. First, it complements them by including studies that were published during the first three years after the pandemic, thereby covering the period between January 2020 and January 2023. It is an important update because, for instance, impacts of policy measures cannot always be analyzed immediately, which is different from rather synchronously occurring changes in business revenues or changes in business failures/sales that may become evident in the short-

term. Second, this study sheds light on topics that have emerged in the literature after the first, more acute phase of the pandemic was overcome. Third, empirical studies included in the previous literature reviews were often based on data obtained during the first wave of the Covid-19 pandemic early in 2020. Inclusion of later studies in the SLR that are based on samples that were collected later will correct for this bias.

The remainder of the chapter proceeds as follows. Section 2 presents the review protocol of the systematic literature review. Section 3 analyzes the results of the systematic literature review through the lens of the TCM (Topics, Contexts, Methods) framework. Section 4 discusses implications for research and practice resulting from the systematic literature review. Finally, section 5 concludes.

2. Systematic literature review: Review protocol

The process of conducting a Systematic Literature Review (SLR) typically involves several key steps that are documented in a review protocol to ensure a transparent and high-quality process. These include identifying and evaluating relevant studies following various inclusion and exclusion criteria, extracting and structuring data from the selected studies, and reporting the review findings (Tranfield et al., 2003; Kraus et al., 2020). Figure 1 presents the search funnel for the present study. First, a list of search items for both topics, Covid-19 and entrepreneurship, was developed based on the list of keywords used in previous SLRs in order to identify relevant studies. The list of search items resembles the list of keywords used by Kuckertz and Brändle (2022) for the topic “entrepreneurship” but contains more terms for the topic “Covid-19”. The search was performed on the Web of Science database, which was queried on January 26, 2023, and it was applied to titles, abstracts, and keywords. This procedure resulted in an initial sample of 1327 articles. The first set of inclusion criteria included the database (Web of Science Core Collection, articles listed in SSCI-indexed journals), publication year (January 1, 2020 – January 26, 2023), document types (article, early access, review article, data paper), language (English), and research area (business economics, social sciences other topics, and psychology). This procedure reduced the initial sample to 286 papers.

Next, additional inclusion and exclusion criteria were applied to ensure high quality of published research. This step consisted in excluding papers published in

journals that are not listed in the 2023 Australian Business Deans Council (ABDC) Journal Quality List or the 2021 Academic Journal Guide published by the Chartered Association of Business Schools (ABS), including papers that are ranked C or higher in the 2023 ABDC list of journals and, finally, excluding papers that are ranked less than 2 in the 2021 ABS journal guide. After this step, 197 papers remained in the sample. Lastly, titles, abstracts, and full texts of papers were inspected to identify and exclude articles without a significant focus on Covid-19 pandemic and entrepreneurship. For instance, studies on the impact of Covid-19 on universities and entrepreneurship education, entrepreneurial elements in established businesses, community response by entrepreneurial citizens to the crises caused by the pandemic, and studies that used the Covid-19 period for robustness checks were dropped from the sample. This resulted in the final sample of 62 articles that were included in the analysis.

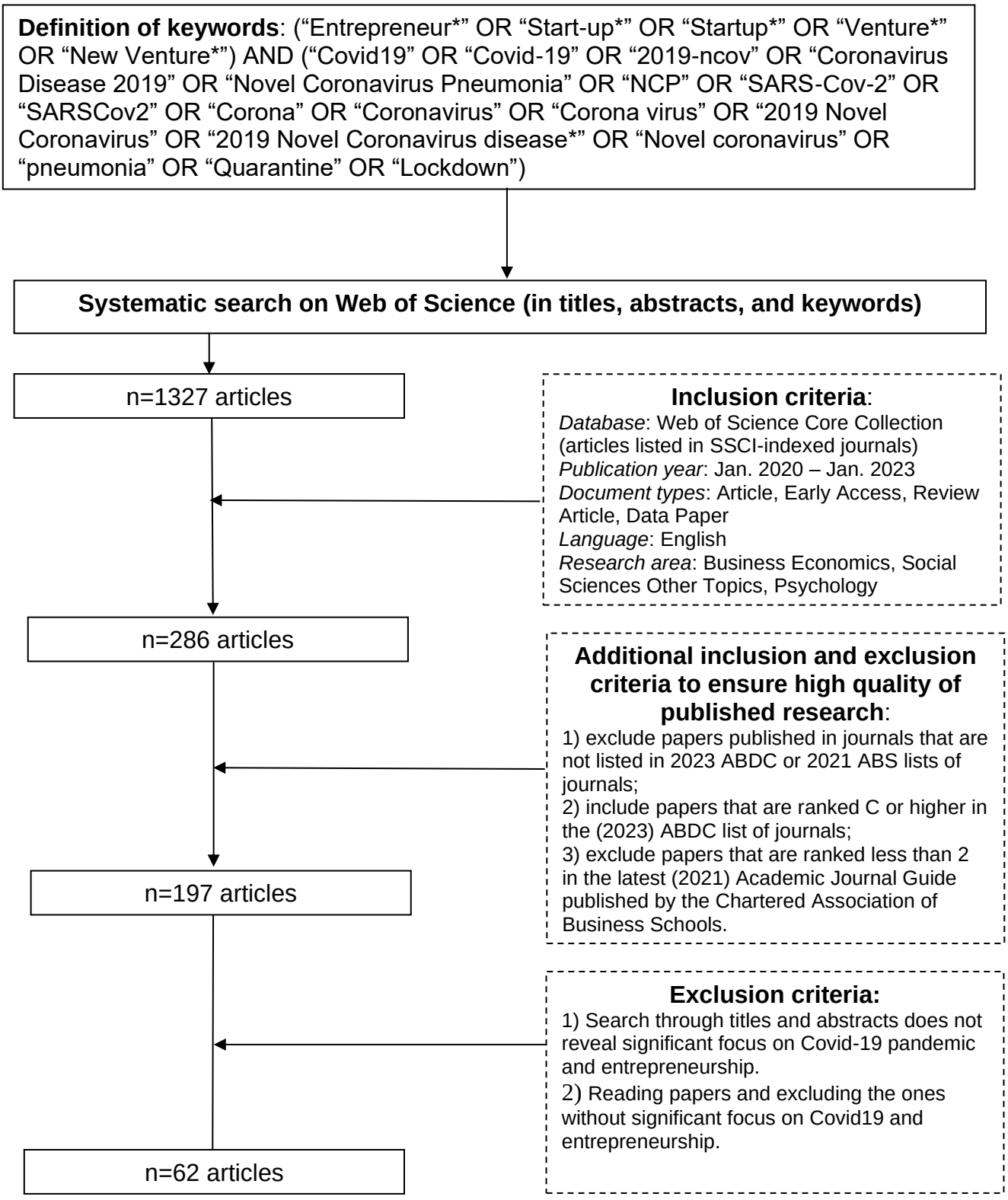

Figure 1: Search funnel of the systematic literature review

3. Results of the systematic literature review

The key findings of the systematic literature review will be presented using the TCM framework (T-Themes, C-Contexts, and M-Methodologies). This framework was adopted from previous systematic literature reviews conducted in the field of entrepreneurship (e.g., Paul et al., 2023). To track the evolution of the literature over time, a time dimension was additionally incorporated into the framework. Section 3.1 will focus on the development of literature over time in terms of the literature volume, regional contexts, and methods of analysis. Section 3.2 will analyze the main themes identified in the literature and highlight emerging topics.

3.1. Evolution of literature on Covid-19 and entrepreneurship over time

The body of literature examining the impacts of the Covid-19 pandemic on entrepreneurship has been steadily expanding, with most articles in the sample being published in 2022 (see Figure 2). These findings underscore the importance of extending the time frame under review to gain a comprehensive understanding of this rapidly evolving field.

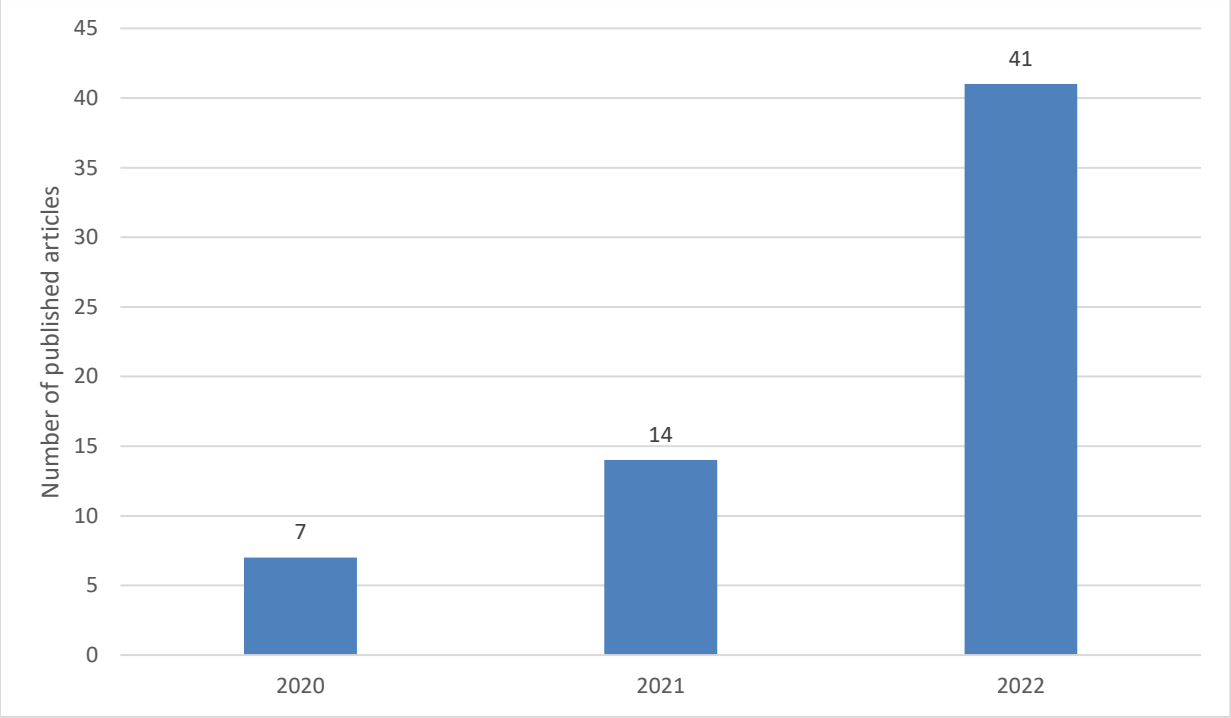

Figure 2: Number of published articles over time

In terms of the regional distribution of published articles (the context dimension in the TCM framework), Figure 3 shows that studies were more frequently performed for North American (16 studies) and European (15 studies) countries, indicating a limited geographical scope. In contrast, fewer studies were conducted for East Asia and Pacific (5 studies), South Asia (4 studies), Latin America (3 studies), Middle East (2 studies), and Sub-Saharan Africa (2 studies), highlighting the need for more high-quality research in these regions. Additionally, 11 studies in the sample were classified as having a global focus, meaning that the analysis was conducted for a sample of countries covering various regions. Moreover, most studies were conducted for high-income countries, while low-income countries are not represented in the sample (Figure 4).

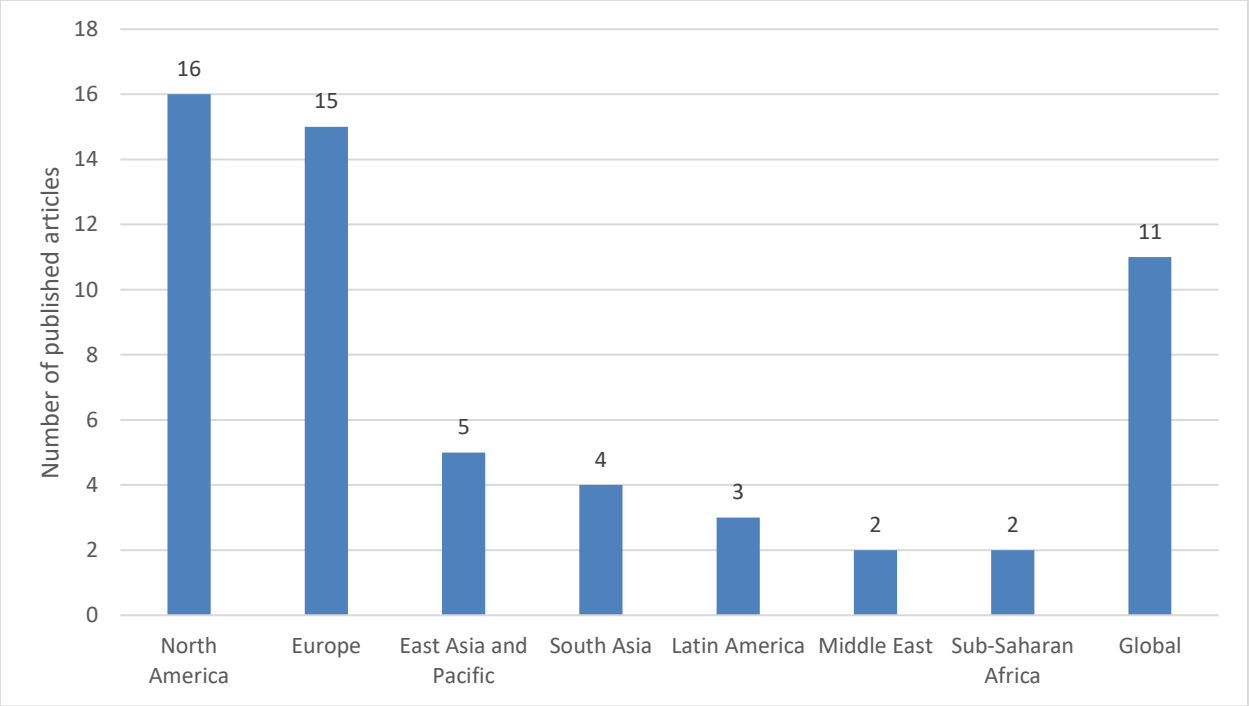

Figure 3: Number of published articles, by region
Note: The number of articles in this chart is less than the total number of articles included in the review because a few articles did not have a regional focus

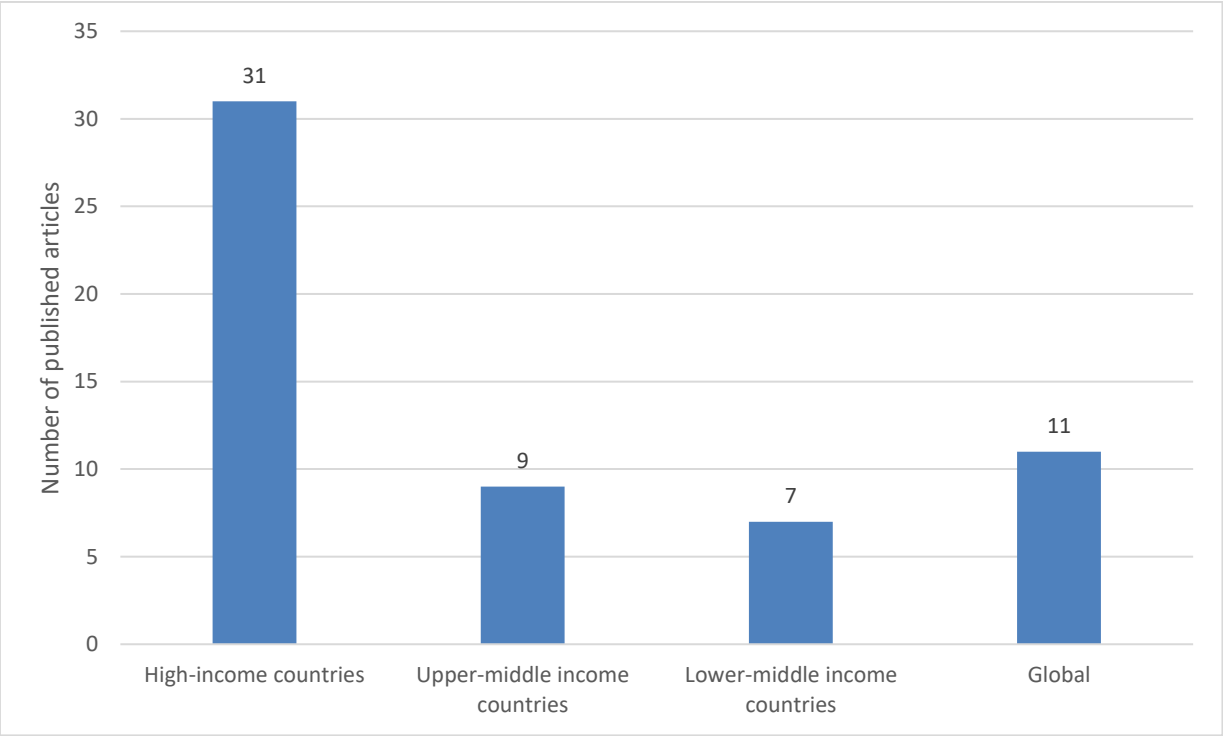

Figure 4: Number of published articles, by countries' income
Note: Countries were categorized according to the World Bank definition of income. The number of articles in this chart is less than the total number of articles included in the review because a few articles did not have a regional focus

Regarding the methodologies used in studies on Covid-19 and entrepreneurship (the methodologies dimension in the TCM framework), Figure 5 illustrates that quantitative studies constitute a large share of the literature, and their prevalence has been steadily growing over time, likely due to the increasing availability of data. By contrast, the number of conceptual articles remained consistently low over time, while there was a moderate increase in the number of studies utilizing qualitative methods.

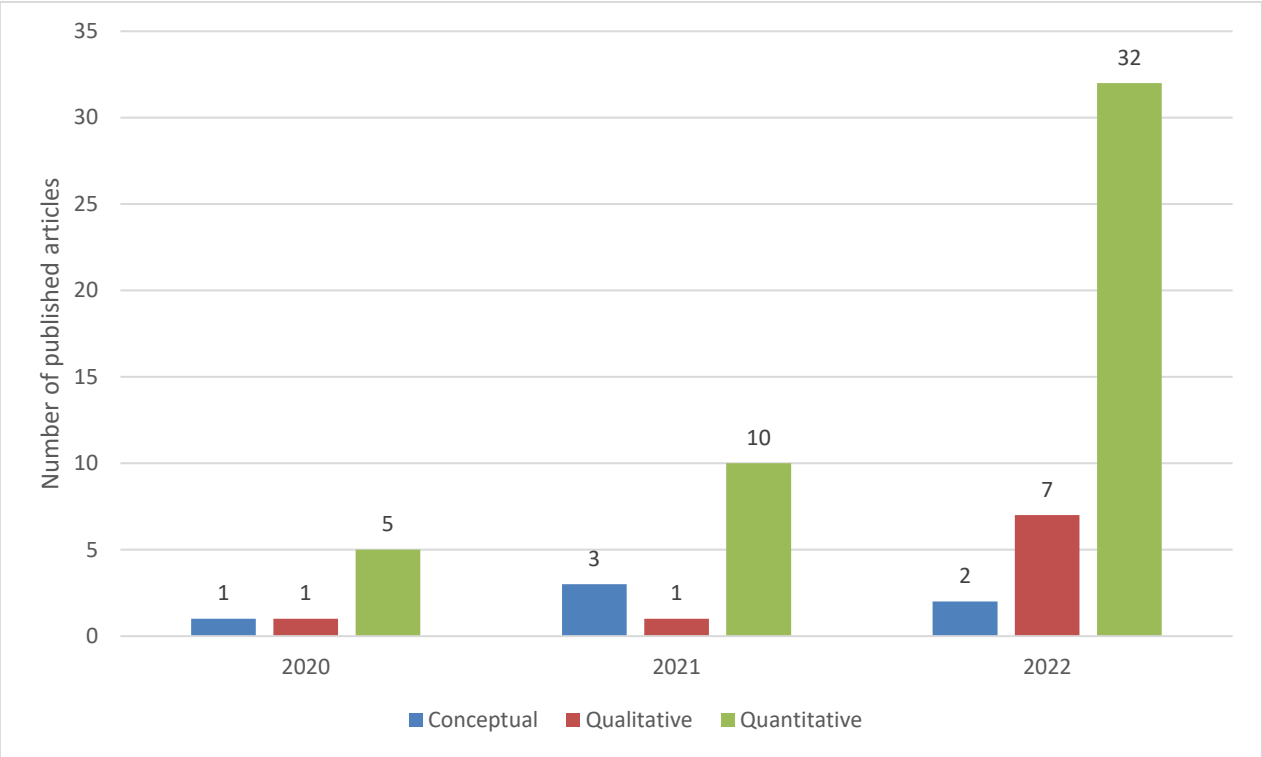

Figure 5: Number of published articles, by method of analysis

3.2. Major themes in the literature on Covid-19 and entrepreneurship

Six major themes in the literature on Covid-19 and entrepreneurship have been identified that include entrepreneurial process, resilience and opportunity, entrepreneurial finance, policy responses to Covid-19, gender, and well-being. As shown in Figure 6, research on the impact the pandemic has had on entrepreneurial process, sources of financing, resilience of start-up firms, and opportunities emerging from the crisis has been dominating the literature since the early days of the pandemic and has been growing since then. Emerging themes include policy responses to the Covid-19 crisis and their (unintended) consequences for entrepreneurship, as well as differential impact of Covid-19 on female and male entrepreneurs. Last but not least, studies on well-being of entrepreneurs, including their physical and mental health, still represent a relatively low portion of the literature on Covid-19 and entrepreneurship.

Table 2 presents the main themes and sub-themes, sample research questions, and key findings from the literature review. It also shows exemplary studies that were identified within each major theme. The following sections present the review of studies in each main theme.

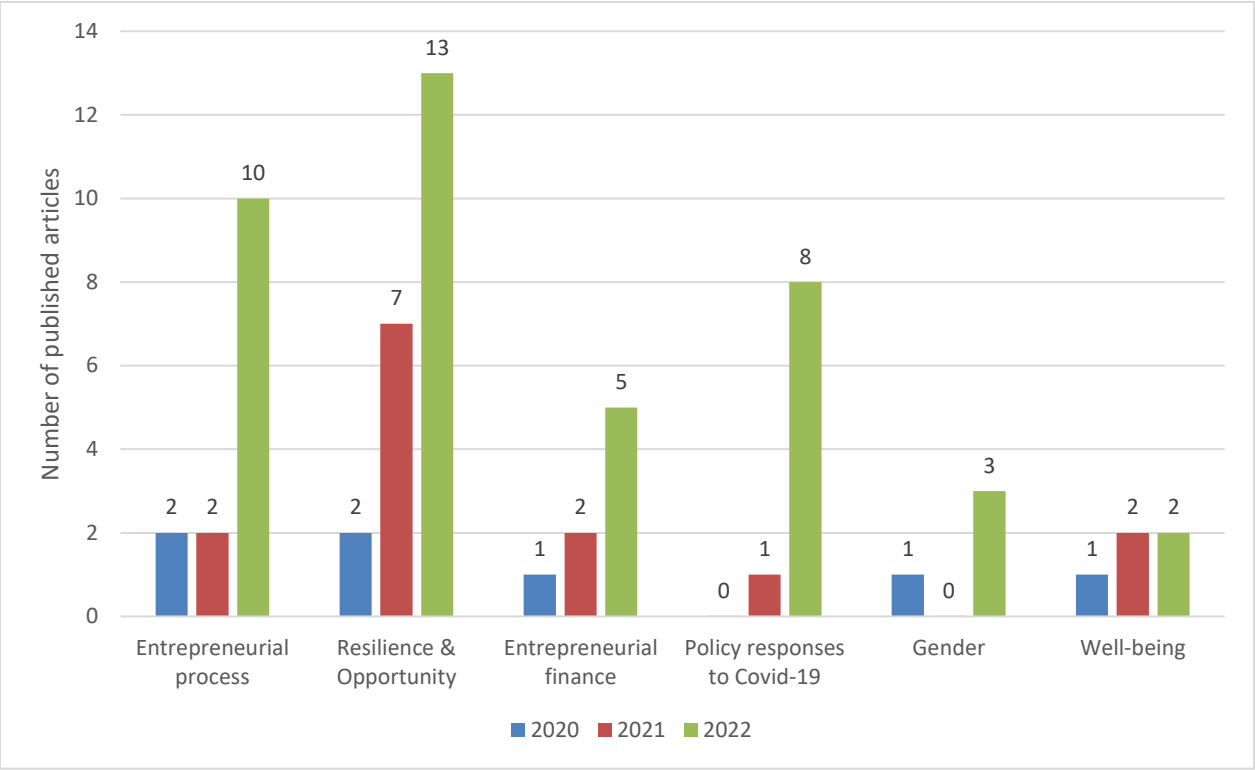

Figure 6: Number of published articles over time, by main theme

Table 2: Major themes, research questions, and key findings

Themes	Sub-themes	Sample research questions	Key findings	Identified studies
Entrepreneurial process	Entrepreneurial entry and exit intentions; business formation; performance	• How did the Covid-19 crisis impact entrepreneurial entry and exit decisions? • What are the effects on entrepreneurial performance?	A significant share of prospective entrepreneurs decided to postpone or cancel their project. Several factors moderated the adverse effect including age, optimism about the future, new skills acquired during the early pandemic wave, growth mindset, and risk tolerance. The crisis has revealed the fragility of small firms and the consequences for competitiveness of markets, since the disproportionate closure of small firms led to a sharp concentration of market share among larger businesses. Entrepreneurs, particularly unincorporated, female and those belonging to ethnic minorities, fared worse in terms of overall employment and work hours than paid-employed individuals.	Arve et al. (2022); Beland et al. (2020); Bergenholtz et al. (2021); Emami et al. (2022); Fairlie and Fossen (2022a); Fairlie (2020); Fairlie et al. (2022); Kalenkoski and Pabilonia (2022); Li et al. (2022); Mota et al. (2022); Otrachshenko et al. (2022); Pereira and Patel (2022); Popescu (2021); Welsh et al. (2022)
Resilience and Opportunity	Crisis management responses; determinants of resilience; opportunity; entrepreneurial ecosystems	• How did entrepreneurs create resilience during a crisis? • What firms adapt better to the Covid-19 disruption? • What is the effect of Covid-19 on entrepreneurial ecosystems? • What are the enabling effects of Covid-19 for new business ventures?	Start-ups responded to the crisis through business model changes (innovation and adaptation), by means of embracing digital technologies, accessing financial funds, adapting product distribution and customer service systems, introducing a flexible work schedule of employees, and stimulating employee innovation. Start-ups investing in internal knowledge capabilities were more likely to adapt to Covid-19. The Covid-19 crisis acts also as an external enabler of entrepreneurial opportunities, for instance, for digital entrepreneurship in technology, healthcare, entertainment, and e-commerce. Entrepreneurs' identity motives, and crisis-induced threats to those motives, are related to digital technology adoption decisions. The role of entrepreneurial ecosystems for entrepreneurial resilience is highlighted.	Anwar et al. (2021); de Brito et al. (2022); Cowling et al. (2020); Dai et al. (2021); Davidsson et al. (2021); Ebersberger and Kuckertz (2021); Guckenbiehl and de Zubielqui (2022); Hoang et al. (2022); Huggins and Thompson (2022); Iancu et al. (2022); Khurana et al. (2022a); Khurana et al. (2022b); Krammer (2022); Korsgaard et al. (2020); McGee and Terry (2022); Meurer et al. (2022); Meyer et al. (2021); Modgil et al. (2022); Rakshit et al. (2021); Ramli et al. (2022); Smith et al. (2022); Zahra (2021)

Entrepreneurial finance	Venture capital; business angels; equity financing; crowdfunding; bootstrap financing	• How did the Covid-19 crisis affect key sources of entrepreneurial finance? • Who was more likely to receive public support during the crisis?	Decline in VC investments was more pronounced for investments characterized by higher uncertainty (seed-stage), industries affected more heavily by Covid-19 and not suitable for remote work, international investments, and non-syndicated investments. The severity of the crisis for the venture, the level of private consumption, and self-employment experience were associated with an increased use of bootstrap financing measures.	Allison et al. (2022); Bellavitis et al., 2022); Block et al. (2022a); Brown et al. (2020); Gompers et al. (2021); Mason and Botelho (2021); Srivastava and Gopalakrishnan (2022); Yang and Koh (2022)
Policy responses to Covid-19	Unintended consequences; stabilization policies; minorities and gender	• What is the immediate effect of public policy responses to Covid-19 on (different types of) entrepreneurship? • Will Covid-19 policies have long-run negative unintended consequences on entrepreneurship?	Public policies including stay-at-home orders and economic stimulus programs altered the incentives and constraints of entrepreneurs. Some existing entrepreneurial opportunities were stifled by these policies, and other superfluous opportunities were created. More aggressive public policy responses to Covid-19 pandemic had a negative effect on the survival of ethnic minority businesses. Economic support policies had a limited effect on women-led businesses. Policy response to Covid-19 has triggered a backlog of insolvencies, particularly among financially weak and small firms (in Germany).	Birhanu et al. (2022); Dörr et al. (2022); Block et al. (2022b); Borgholthaus et al. (2022); Braunerhjelm (2022); Fairlie and Fossen (2022b); Galindo-Martin et al. (2021); Haeffele et al. (2022); Kabir and Abubakar (2022)
Gender	Performance; entrepreneurial finance; crisis management responses	• What is the difference in impact the pandemic has had between male- and female-led businesses? • Did female entrepreneurs face barriers in accessing financing? • How did female entrepreneurs respond to the Covid-19 crisis?	The COVID-19 pandemic had a disproportionate impact on women-led businesses, particularly micro-businesses, those in the hospitality industry, and those in heavily affected countries. Women-led businesses resumed operations at a slower rate following the lockdown, had a larger decrease in revenue, were less likely to adopt digital solutions, received less public support, and exited to non-employment more frequently compared to businesses led by men. Nevertheless, female entrepreneurs were more likely to access debt (but not equity-based) financing than male entrepreneurs.	Hardy et al. (2022); Hewa-Wellalage et al. (2022); Manolova et al. (2020); Torres et al. (2022a)

Well-being	Life satisfaction; stress; coping strategies	• What is the impact of Covid-19 on entrepreneurs' well-being? • What types of entrepreneurs were particularly affected? • What are the coping mechanisms?	Entrepreneurs experienced stress and anxiety after the outbreak of Covid-19. Younger entrepreneurs, females, singles, and those with lower income experienced higher levels of stress. Entrepreneurs' agility, flexibility, tolerance to uncertainty, and the use of digital technologies mediates the adverse effect of the pandemic on well-being.	Backman et al. (2021); Stephan et al. (2022); Nummela et al. (2020); Torres et al. (2022b); Xu et al. (2021)

3.2.1. Entrepreneurial process

The Covid-19 pandemic has had adverse impacts on different stages of an entrepreneurial process including the individual decision to set up a business, to continue an entrepreneurial venture and to exit the market. During the first months of the crisis, a significant share of prospective entrepreneurs decided to postpone or even cancel their projects (Arve et al., 2022), while a pronounced decrease in the number of active business owners was recorded (Fairlie, 2020; Beland et al., 2020). Several factors helped mitigate the negative effect of the crisis on *entrepreneurial intentions*. Individuals who decided to continue their entrepreneurial projects were found to have a lower opportunity cost (e.g., they were on average younger and more often unemployed), to be less pessimistic about the future economic environment and to have a high degree of self-interest than those who decided to cancel their projects (Arve et al., 2022). Entrepreneurial entry intention was also higher among those who acquired new skills during the early waves of the pandemic (Otrachshenko et al., 2022) and had a strong desirability for self-employment, high risk tolerance, high self-efficacy (Welsh et al., 2022) and opportunity confidence (Emami et al., 2022). Interestingly, entrepreneurial self-efficacy was found to be a weaker predictor of entrepreneurial intentions during the Covid-19 crisis, compared to more stable times, particularly among those who perceived the disruption pessimistically (Bergenholtz et al., 2021). Moreover, a growth mindset seems an important factor that helps foster engagement in entrepreneurial behavior in particularly challenging times, such as the Covid-19 crisis (Li et al., 2022).

Regarding *entrepreneurial performance*, the literature consistently reports large decreases in business ownership rates in the first months of the pandemic, while there is evidence of a relatively fast, already by mid-2020, recovery of closure rates (Fairlie et al., 2022; Kalenkoski and Pabilonia, 2022) and aggregate entrepreneurship rates, albeit with strong differences across regions (Popescu, 2021). Small firms and unincorporated entrepreneurs seem to have experienced the largest revenue losses due to reduction in overall employment and working hours (Kalenkoski and Pabilonia, 2022; Fairlie et al., 2022; Mota et al., 2022). The disproportionate closing of small businesses led to a sharp concentration of market share among larger businesses, thus, implying important consequences for the competitiveness of markets (Fairlie et al., 2022). Among the most

vulnerable groups of entrepreneurs there were immigrants, ethnic minorities, women, and less-educated individuals, which might be highly problematic due to the risk of increasing social and income inequality (Beland et al., 2020; Fairlie, 2020; Pereira and Patel, 2022). Moreover, sales losses were largest in businesses affected by mandatory lockdowns such as accommodations or culture, while online sales grew significantly (Fairlie and Fossen, 2022a).

3.2.2. Resilience and opportunity

The Covid-19 pandemic has led to significant changes in the external business environment. Entrepreneurs responded to these crisis-induced changes in multiple ways depending on their personal resilience capabilities (micro-level), resilience capabilities of their firms (meso-level) and entrepreneurial ecosystems (macro-level) (Khurana et al., 2022a). At the individual level, resilience capability emerges within the entrepreneur's mind and involves cognitive elements, such as learning and applying new strategies (de Brito et al., 2022), emotional elements, such as managing one's own and employees' emotional well-being, cultivating feelings of comradery and passion for the firm (Ramli et al., 2022), and other personal resources, such as human, social, and financial capital (de Brito et al., 2022). Resilient entrepreneurs are better prepared to deal with stressful and uncertain situations. Individual resilience was found to positively affect organizational resilience and, as a result, firm performance during the crisis (Anwar et al., 2021).

At the firm level, organizational resilience refers to resource endowments that facilitate a firm's ability to survive a crisis and grow. For instance, precautionary savings appear critical for SMEs to be resilient during the Covid-19 crisis (Cowling et al., 2020). *Crisis management responses* at the firm level included business model changes, for instance, through business model innovation and business model adaptation. Business model adaptations refer to the process by which management aligns the firm's existing business model to a changing environment, while business model innovations demand planned changes in finding new ways of generating revenue. Firm size is an important characteristic that impacts the type of business model change and the firm's level of resilience. Larger start-ups are more likely to engage in business model innovation than

smaller start-ups, but only if crisis-induced opportunities outweigh crisis-induced adversity (Guckenbiehl and de Zubielqui, 2022). Listed startups that are greater in size, have low debt, large board size and CEO duality experienced less severe losses in stock returns (Hoang et al., 2022). In addition, start-ups were found to introduce crisis-induced innovations significantly faster than established firms and research organizations, such as universities (Ebersberger and Kuckertz, 2021). Innovative start-ups (with higher internal R&D investments) were also more likely to adapt to Covid-19 (by partially or fully adjusting their production or services) than non-innovators and older companies (Krammer, 2022).

Technological changes induced by the Covid-19 crisis offered many *opportunities for entrepreneurship*, for instance in technology (EdTech, FinTech, cybersecurity), healthcare (diagnostics, virtual care, fitness), entertainment (over the top, gaming, social media), and e-commerce (contactless delivery, payment methods, AR) (Modgil et al., 2022). In developing countries, the use of mobile apps increased tremendously during the pandemic, providing opportunities for mobile-app-based businesses (Rakshit et al., 2021). In this sense, the Covid-19 crisis is considered as an *external enabler of entrepreneurship*, for instance, through demand creation and expansion, resource preservation, expansion of time resource, product line extension, market-shaping role (Davidsson et al., 2021; Iancu et al., 2022; Khurana et al., 2022b; Zahra, 2021). However, not all entrepreneurial firms were equally able to exploit crisis-induced opportunities. Small businesses with an entrepreneurial orientation seem to have an advantage in this respect (McGee and Terry, 2022). Moreover, there are various barriers faced by firms in adopting (digital) technologies including path dependencies, lack of experience with (digital) technologies, and the cost of implementing a new technology. In addition, individual identity motives, particularly externally focused, such as meaning and belonging, appear to influence entrepreneurs' perceptions of technology affordances, potentially affecting (digital) technology adoption decisions (Smith et al., 2022).

At the macro level, *resilience of entrepreneurial ecosystems* is considered as a critical factor in dealing with the economic impact of the Covid-19 crisis. Entrepreneurial ecosystems are defined as a set of elements, including formal institutions, culture,

networks, physical infrastructure, finance, knowledge, talent, demand, and productive entrepreneurship, that are mutually interdependent and co-evolve in a territory (Stam and Van de Ven, 2019). During the Covid-19 crisis, the importance of space in the global economy has become obvious, as locally based SMEs turned out to be particularly fragile, thereby highlighting the need for creating more resilient local economies that are less reliant on global supply chains (Korsgaard et al., 2020). Urban entrepreneurial ecosystems appeared to have a high degree of adaptability and resilience during the Covid-19 pandemic, showing the growth of entrepreneurial innovation even in smaller cities (Huggins and Thompson, 2022). In China, the impact of Covid-19 on Chinese firms was significantly lower in regions and industries experiencing a higher degree of clustering. Rural regions with greater presence of clustering were less affected by the crisis shock in terms of both entrepreneurial entry and performance of incumbent firms. Closer proximity to suppliers and customers played a crucial role in stabilizing supply chains and market demand fluctuations (Dai et al., 2021). Digital online communities are an important element of entrepreneurial ecosystems that can provide support during difficult times by offering solutions to resolve problems or opportunities to reflect on situations and refocus regarding future actions (Meurer et al., 2022). In addition, the concept of entrepreneurial ecosystems highlights the role of entrepreneurs in building resilient economies and societies. Entrepreneurs can become a driving force in structural transformation of economies, for instance, through their innovative behavior (Meyer et al., 2021).

3.2.3. Entrepreneurial finance

The Covid-19 crisis has severely affected opportunities for acquisition of entrepreneurial finance. Studies report a strong decline in *equity investments* shortly after the outbreak of the pandemic (Brown et al., 2020). There was a significant shift in the profile of firms that obtained venture capital financing during the crisis indicating a less risk-averse behavior of investors. The decline was more pronounced for investments characterized by high uncertainty, such as investments in seed-stage ventures, industries affected more heavily by the crisis, international investments, and non-syndicated investments (Bellavitis et al., 2022). Business angels focused on supporting their existing portfolios and businesses that have already raised at least one round of finance, indicating lack of

financial opportunities for early-stage entrepreneurs (Mason and Botelho, 2021). At the same time, firms in industries that are more suitable for remote work and growth stage firms operating in domestic markets obtained higher financing (Srivastava and Gopalakrishnan, 2022). Remarkably, a relatively fast recovery was recorded in deal volume, terms, and returns (Gompers et al., 2021; Mason and Botelho, 2021), which might be related to the ability of entrepreneurs to leverage their digital capabilities.

Moreover, an increased use of bootstrap financing measures was observed for business ventures that were more severely affected by the crisis, although this option was likely to be used by more experienced entrepreneurs (Block et al., 2022a). Alternative sources of finance, such as *crowdfunding*, were used by enterprises in need. Interestingly, businesses that were strongly impacted by the pandemic had a higher likelihood of successful funding compared to those that were less affected. This finding could be attributed to changes in entrepreneurs' communication behaviors during the pandemic, such as increased engagement with backers. This heightened communication might have contributed to a project's popularity and increased the chances of funding success (Yang and Koh, 2022). Entrepreneurs who utilized charitable appeals that explicitly referenced the crisis were more likely to obtain public support on crowdfunding platforms (Allison et al., 2022).

3.2.4. Policy responses to the Covid-19 crisis

Most countries have implemented a variety of policy measures to address the impact of the Covid-19 crisis on both the supply and the demand sides of the economy. Regarding the supply side, numerous companies faced a decline in labor supply and disruptions in supply chains. On the demand side, abrupt changes in consumer behavior caused by income losses and the general uncertainty surrounding the risk of contagion negatively affected companies' revenue and jeopardize their survival. Entrepreneurs and small businesses owners were disproportionately affected by these developments due to their vulnerability resulting from the liabilities of newness and smallness, which refer to the higher failure rates of young and small ventures. Therefore, a variety of policy measures were specifically designed to help entrepreneurs and SMEs mitigate the economic impact of the crisis. These policy measures included labor market policies (e.g.,

providing wage and income support for employees and businesses to safeguard employment); fiscal and monetary measures aimed at overcoming liquidity constraints (e.g., tax reliefs by lowering rates or waiving payments, deferral of value added tax (VAT) for the most affected sectors, extension of loan repayments, public procurement measures, deferral of social security and pension contributions, loan guarantees, grants and subsidies); structural policy measures (e.g., support teleworking and digitalization, temporary changes in bankruptcy and insolvency regimes) (see OECD 2020, for an overview of policy measures in different countries). A diverse range of policies, which have been introduced rather spontaneously in various countries at varying degrees of intensity, highlights a lack of consistent strategy. This can lead to unintended consequences, for instance, when these policies counteract rather than complement each other (Braunerhjelm, 2022). Moreover, public policies, including those in response to the Covid-19 crisis, create incentives and constraints that entrepreneurs respond to and that may lead to further unintended consequences and require further interventions. For instance, public policies can create new opportunities for entrepreneurs that are not necessarily productive for the economy (e.g., engaging in rent-seeking behavior to benefit from new profit opportunities created by the restrictions, changing behavior in unproductive ways to be able to acquire government aid) or they can create an environment where the process of entrepreneurial discovery is stifled (e.g., stay-at-home orders) or directed into a less productive channel (e.g., adaptation processes in sectors not well-suited for remote work, migration of businesses to jurisdictions with more favorable regulations). Thus, Covid-19 policies could affect not only the level, but also the type of entrepreneurial activities, and their economic cost could be substantial, for instance, if they create opportunities for socially harmful forms of rent-seeking (Haeffele et al., 2022).

Empirical studies assessing the effect of policy measures during the Covid-19 crisis on entrepreneurship are still rare. For instance, a study of 30 OECD countries provides some indication that monetary policies facilitated entrepreneurial activities, as a greater volume of credit and a low interest rate helped them in obtaining financial resources they needed to carry out and expand their activity (Galindo-Martin et al., 2021). It was also shown that fiscal policies (approximated by total public deficit in

percentage of GDP) had a positive, albeit more moderate, effect on a country's level of entrepreneurship. This is likely due to a direct effect on demand (e.g., due to reductions in taxes) and due to a positive indirect effect on business expectations.

The fiscal policy response to prevent insolvencies and liquidity constraints was particularly impressive in Germany, where the government has adopted a series of intervention measures specifically designed to favor the survival of SMEs and self-employed individuals, with a relatively low eligibility criteria particularly during the first months of the crisis.[3] These support schemes postponed or even prevented the exit of financially weak and economically not sustainable firms, resulting in a backlog of insolvencies defined as the gap between the observed insolvency rates during the Covid-19 pandemic and expected insolvency rates based on pre-crisis setting with no policy intervention (Dörr et al., 2022). The backlog of insolvencies is particularly pronounced among micro-firms (with at most 10 employees) and financially weak firms that were vulnerable to default already prior to the crisis. Supporting financially weak firms by delaying their insolvency may have long-term effects on entrepreneurship and economic recovery, as it might prevent the emergence of more productive enterprises. Remarkably, the emergency-aid program had only a rather moderate impact on the subjective survival probability among the self-employed who received financial support, which was stronger in industries that were severely affected by the crisis (hotels, restaurants, arts, recreation, and cultural activities), among entrepreneurs with higher levels of education, and if support was provided swiftly (Block et al., 2022b).

Policy responses during the Covid-19 crisis had heterogeneous effects on different population groups. For instance, public health measures (i.e., public information campaigns that corrected perceptual bias, testing policies to detect Covid-19 patients, contact tracing, vaccination policies) helped reduce the adverse effects of the pandemic on women-owned businesses, whereas economic support policies (e.g., direct cash

[3] For instance, emergency-aid program ('Soforthilfe') was designed to provide immediate and direct liquidity subsidies of up to €15,000 to self-employed individuals with up to ten employees to cover operating costs, if they had acute liquidity shortfalls. Other measures included, for example, liquidity loans under public guarantee schemes, liquidity support through labor cost subsidies, tax payment deferrals, and temporary changes in insolvency law.

transfers, relief of debt or contract obligations) did not have a similar effect (Birhanu et al., 2022). More aggressive public policy responses to Covid-19 pandemic imposed by governments, such as lockdowns, the closure of non-essential businesses, schools and business centers, had a negative effect on the survival of ethnic minority businesses in Nigeria (Kabir and Abubakar, 2022). In the United States, the Paycheck Protection Program (PPP) and the related Covid-19 Economic Injury Disaster Loans (EIDL) aimed at helping disadvantaged groups, such as minority communities. While there were more PPP loan receipts per business in communities with the minority share of the population or businesses, PPP loan amounts per employee were negatively related to the minority share of the population. In the case of the EIDL program, the distribution favored minority communities both in numbers per business and amounts per employee (Fairlie and Fossen, 2022b).

Moreover, characteristics of regional governors were found to be associated with the level of entrepreneurial activity in their respective regions during the crisis. Specifically, start-up activity (in food and restaurant industry) was higher in the U.S. states where governors had greater discretion than in the states where political power was shared between the two major parties. In addition, personal characteristics of governors, such as being female, was associated with a lower level of new venture creation (Borgholthaus et al., 2022).

3.2.5. Gender

Gender gaps in the level and the type of entrepreneurial activities are a well-documented phenomenon (GEM 2022). A few studies have investigated whether the Covid-19 pandemic has worsened this divide by disproportionally affecting female and male entrepreneurs. In a global study comprising 49 mostly low- and middle-income countries, it was found that women-led businesses have been hit harder during the early days of the Covid-19 pandemic compared to men-led businesses, both in terms of *business survival* and *business performance* (Torres et al., 2022a). Female entrepreneurs had less savings prior to the onset of the Covid-19 crisis, probably due to lower levels of productivity and profitability of their businesses, which likely resulted in a higher propensity of temporary and permanent business closures during the pandemic.

Moreover, social distancing restrictions and closures in schools led women to allocate more time to household chores and childcare, thus, making them more likely to stop working during the pandemic. In a study for Ghana, it was shown that female-owned garment-making enterprises that were more likely to survive the pandemic performed better in terms of sales before the outbreak of the pandemic (Hardy et al., 2022). Ghanian female entrepreneurs who had to close their businesses due to the pandemic found themselves more frequently in non-employment and experienced large decreases in overall earnings. In contrast, male owners of persistently closed firms were able to fully compensate for lost revenues because they had alternative income-generating activities.

There are also signs of a widening gender gap in business performance globally, as women-led businesses reported larger declines in sales revenues than male-led businesses (Torres et al., 2022a; Manolova et al., 2020). This seems to be particularly the case for female entrepreneurs in the hospitality sector, in the less economically developed countries, and in countries that were more severely affected by the pandemic (measured by the country-level drop in mobility). Female entrepreneurs operating in these contexts faced larger reductions in working hours and in the availability of inputs or raw materials than male entrepreneurs. Paradoxically, these types of female entrepreneurs who appeared to be in high need of public support during the pandemic were less likely to access it compared to male entrepreneurs. This might indicate that women have less developed social networks and restricted access to information about public support programs.

Gender differences are also observed in the type of *business responses* to the Covid-19 crisis (Torres et al., 2022a). For instance, women-led micro businesses and women-led businesses in the hospitality sector were more likely than their male counterparts to adapt labor-cost-saving strategies by introducing leave of absence, reducing wages or working hours of their employees. Interestingly, women-led businesses, particularly micro businesses, in retail and wholesale and manufacturing, were on average more likely than businesses led by men to increase the use of digital technology and digital platforms. This is a remarkable development, given that the digital

gender divide is particularly pronounced in developing countries (Mariscal et al., 2019). At the same time, investment rates in equipment, software, and digital solutions were greater for male-led than for female-led businesses, which might indicate that female entrepreneurs are less able to bear the cost of such investments. Other forms of business model adjustments by female entrepreneurs included offering new products and services, employing new (online) marketing approaches, increased use of digital communication channels. In general, female entrepreneurs applied a combined approach to dealing with the Covid-19 crisis that involved reducing risks and seizing new (digital) opportunities (Manolova et al., 2020).

In more stable times, female entrepreneurs face many barriers when *accessing financial capital*. A study for 19 mostly developing countries shows that during the pandemic female entrepreneurs had an advantage in accessing debt financing from banks and non-bank financial institutions, such as micro-finance institutions, credit cooperatives, credit unions, or finance companies (Hewa-Wellalage et al., 2022). Moreover, no gender differences were reported regarding access to equity financing during the pandemic. This result can be explained by the fact that during a crisis banks and other providers of debt finance favor more conservative lenders. In this situation, prototypical forms of femininity may become an advantage.

3.2.6. Well-being

An important strand in the literature on Covid-19 and entrepreneurship has dealt with the question of how entrepreneurs can protect their well-being during a crisis. Entrepreneurs experienced high levels of stress, burnout, and anxiety after the outbreak of Covid-19, for instance, due to potential loss of income, risk of failure and responsibility for employees and other stakeholders, but also due to the general uncertainty of the situation (Torres et al., 2022b; Xu et al., 2021). Younger entrepreneurs, females, singles, and those with lower income were found to have higher stress levels and lower life satisfaction during the crisis (Backman et al., 2022). Remarkably, more severe national lockdowns increased the adversity of the situation for entrepreneurs' firms and diminished their well-being (Torres et al., 2022b; Stephan et al., 2022). In general, the

pandemic has caused a growing need for psychological safety and has led entrepreneurs to rethink their previous lifestyles (Nummela et al., 2020).

How did entrepreneurs cope with the negative impacts the pandemic has had on their psychological well-being? Several *coping mechanisms* are discussed in the literature. Entrepreneur agility is one of the mechanisms, which refers to flexible and adaptive actions made in response to adversity. Entrepreneur agility can range from high (a pro-active approach to dealing with the crisis) to low (the "wait-and-see" approach). One can distinguish between two types of entrepreneur agility, namely, opportunity agility, that is, outward-oriented recognizing of new opportunities, and planning agility, that is, inward-oriented adaptation of business planning. Entrepreneurs who combined opportunity agility with planning agility experienced higher well-being but planning agility alone lowered well-being (Stephan et al., 2022). Thus, entrepreneurs who do not have a resilient personality can protect their well-being during a crisis by engaging (opportunity) agility.

Psychological detachment from the crisis is another coping strategy discussed in the literature (Backman et al., 2021). There are two types of psychological detachment from the crisis, namely the illusion of age (feeling younger than one's chronological age) and the illusion of space (being located far from the epicenter of the pandemic). These illusions relate to the nature of the pandemic, and particularly, to the fact that the mortality rate was higher for elderly people, and the risk of infection was not evenly distributed across space. Although the illusions of age and space are not necessarily accurate assessments, they were found to help entrepreneurs psychologically detach from the Covid-19 crisis and feel less stressed during the pandemic.

In addition, entrepreneurs applied various problem-focused and emotion-focused coping strategies (Xu et al., 2021). On the one hand, problem-focused coping strategies helped entrepreneurs to deal with economic stressors and included planning and preparing for a recovery, reducing costs of running a business and increasing income by pursuing new opportunities. On the other hand, emotion-focused coping strategies were aimed at managing emotional distress, for instance, by means of getting support from and providing support to families, friends and peers (socializing strategy), turning a

stressful situation into a positive perspective (cognitive reframing strategy), comparing oneself with others who are in the same or worse situation (positive comparison strategy), avoiding information that could remind them of the negative situations of their enterprises (avoidance strategy), learning new things (learning strategy), engaging in relaxing leisure, exercising, and turning to religion.

4. Discussion

The systematic review of literature on the impacts of Covid-19 on entrepreneurship presented in this chapter provides many implications for future research, policy makers, and practitioners, including entrepreneurs, entrepreneurship educators, and other stakeholders (see Table 3 for an overview).

Table 3: Implications for research, policy, and practitioners

Main theme	Implications for research	Implications for policy	Implications for practitioners
Entrepreneurial process	• What are the mid- and long-term effects of the crisis on business intent, business performance, and business survival? • What characteristics affect the performance of start-ups during a crisis? • How do businesses that emerged during Covid-19 perform in post-Covid-19 era? • What are the impacts of the crisis on different types of entrepreneurs (e.g., incorporated vs. unincorporated)?	• Create specific support programs for opportunity-driven entrepreneurs in times of crisis. • Address the regional imbalances in entrepreneurial activities; give special emphasis to regions with less resilient entrepreneurial ecosystems. • Design educational programs to support entrepreneurial endeavors that highlight the importance of the context in which potential entrepreneurs are embedded. • Increase public awareness of governmental support programs. • Provide special attention to entrepreneurs who were more severely affected by the Covid-19 crisis, such ethnic minorities and migrant entrepreneurs.	Entrepreneurs: • Enhance the level of integration with entrepreneurial ecosystems. • Develop agility to be responsive and flexible in turbulent times. • Adopt digital technologies to enable the functioning of the firm during crisis situations. Entrepreneurship educators: • Put emphasis on developing critical skills, such as quick learning skills, technological skills, and resilient mindset.
Resilience and Opportunity	• Under what conditions does a crisis serve as an external enabler of entrepreneurship? • How do entrepreneurs embrace digital technologies to manage the crisis? • What is the link between resilience at the individual-, organizational-, and ecosystem level and firm performance during and in the aftermath of a crisis? • How can multilevel resilience (at micro-, meso-, and macro levels) be developed? • What is the impact of the measures taken during the crisis (e.g.,	• Support digital transformation of businesses and economies. • Develop digitalization support programs that assist entrepreneurs to better understand and assess the enabling and disabling affordances of relevant new technologies. • Support start-ups and innovative young firms to build-up resilience in an economy and ensure faster recovery from future crises. • Facilitate investments into dynamic and innovative capabilities to support organizational resilience building.	Entrepreneurs: • Regularly reconsider business model to counter adversity and capture opportunities. • Develop resilience capabilities at multiple levels (individual, organizational, ecosystem). • Embrace digital technologies to optimize revenue channels, reduce costs, obtain access to new customers and information. • Actively cultivate entrepreneurial culture over the company life cycle to avoid the emergence of organizational inertia and to realize opportunities resulting from a crisis.

	business model changes) on entrepreneurial resilience and performance? • How does the Covid-19 resilience of firms vary across regions and why? • What is the role of entrepreneurial ecosystems in weathering the pandemic shock?		Entrepreneurship educators: • Create training programs to develop a resilience mindset. • Teach entrepreneurs how to assess enabling and disabling business technology affordances.
Entrepreneurial finance	• What is the impact of Covid-19 on the entrepreneurial finance landscape, particularly on digital finance instruments? • What are the long-term effects of the pandemic on crowdfunding and the determinants of success of crowdfunding campaigns? • What are the determinants of bootstrapping in the Covid-19 crisis and how did it impact long-term entrepreneurial performance and survival? • To what extent will the changes that investors have made to their investment criteria and preferences (e.g., concerning syndicates, seed stage investments, online interaction with start-ups) in response to the uncertainty created by the pandemic be maintained? • How are different financial entrepreneurial ecosystems influenced by the crisis?	• Intervene to fill the emerging gap in first round funding, e.g., by expanding grants and awards and increasing the volume of seed and start-up investments by government investment vehicles. • Incentivize equity investors during the crisis to specifically target new seed stage deals. • Address seed-stage ventures in selected industries that are more heavily affected by a lack of funding and ventures that more strongly rely on foreign investment. • Ensure that the liability of newness faced by seed-stage ventures, especially in research-intensive ventures that develop innovative new technologies, does not disqualify or hinder them from accessing stimulus packages. • Focus on less experienced entrepreneurs so that they can maintain liquidity in crises.	Entrepreneurs: • Intensify exchange with the backers by providing more updates on the project and communicating with them more frequently and proactively. • Appeal to the public for support during periods of uncertainty. Investors: • The crisis has created opportunities for new and less experienced investors to recruit (more established) syndication partners for co-investments.
Policy responses to Covid-19	• Did governmental support programs achieve their objectives? • What were the main barriers for successful implementation of the government support programs? • Will additional government assistance for start-ups and small	• Combine temporary measures aimed at mitigating immediate effects of the crisis with long-term measures that boost confidence in future market opportunities. • Policy responses to crises should take into consideration the local	Entrepreneurs: • During crisis situations, take cues from political leadership before making relevant decisions (e.g., transitioning to self-employment). • Inform yourself about governmental support programs.

	businesses be needed to reverse the increased concentration of market power among large businesses? • What are the mid- and long-term consequences of policy responses to Covid-19 on entrepreneurship in countries and regions at different levels of economic development?	conditions (e.g., the level of regional economic development). • Design more targeted support instruments with stricter access conditions to balance the costs and the benefits of such programs and minimize the risk of unintended consequences. • Increase the level of preparedness of administrative structures to process a large number of applications within short periods of time. • Implement policies or programs that benefit minorities and people who are disproportionately affected by Covid-19.	• High public expenditure during crisis could generate the expectation of a tax increase and lead to decrease in demand in the future.
Gender	• Did the Covid-19 crisis disproportionately affect female and male entrepreneurs? In how far? • Do pivoting strategies differ between female and male entrepreneurs? • Are there any gender-specific barriers to using digital technologies during a crisis? • What strategies are used by women entrepreneurs to balance the competing work-family demands created by the Covid-19 crisis? • What impact has Covid-19 had on the financial inclusion of women entrepreneurs?	• Design gender-sensitive policy responses to the Covid-19 crisis that are based on evidence from gender-disaggregated data. • Improve access to information about government support programs for women entrepreneurs. • Address the digital gender divide (e.g., in access and use of digital technologies).	Entrepreneurs: • Women entrepreneurs appear to have a somewhat easier access to financing opportunities during less stable times and should make use of this advantage. • Women entrepreneurs should build resilience for their companies, as they were found to be more vulnerable to crisis shocks than male entrepreneurs. • Women entrepreneurs should make investments in software, equipment, and digital tools.
Well-being	• What were the key factors that caused high levels of stress among entrepreneurs during the crisis? • What is the effect of burnout on the health and economic survival of entrepreneurs? • How did entrepreneurs cope with	• Prepare entrepreneurs for the challenges of the entrepreneurial process. • Provide nonfinancial support (e.g., coaching services, workshops, online tools, networking opportunities) to strengthen the	Entrepreneurs: • Being agile in terms of recognizing new business opportunities during a crisis benefits well-being. • Build an emotionally healthy environment. • Use various coping strategies to

	their stress? • What coping strategies are more helpful to entrepreneurs' well-being and health?	well-being of entrepreneurs. • Set up an "entrepreneurship care" structure that includes telephone support, webinars, and emergency services. • Develop training programs to educate entrepreneurs about different coping strategies.	manage stressful situations. Entrepreneurship educators: • Move away from narratives of the heroic figure of the entrepreneur. • Teach techniques that allow entrepreneurs to detach from work-related stressors.

4.1. Implications for research

The reviewed literature suggests that the Covid-19 crisis has had pronounced and immediate impacts on all stages of the entrepreneurial process. Future research could examine the mid- and long-term effects of the crisis on entrepreneurial outcomes, including business intent, business performance, and business survival. Moreover, more research is needed to understand the impact of the crisis on different types of entrepreneurs. For instance, were unincorporated entrepreneurs more strongly affected by the crisis than incorporated entrepreneurs? The start-up cohort that emerged during the Covid-19 crisis represents a very interesting group of businesses, and future research could investigate how such businesses perform in comparison to other business cohorts that were created before or in the aftermath of the pandemic. A related research question would be to investigate how the crisis has affected entrepreneurial opportunities and the process by which entrepreneurs recognize them. While the literature suggests that the Covid-19 crisis has provided many opportunities for entrepreneurship, especially, for digital entrepreneurship, future research could focus on specific conditions under which a crisis serves as an external enabler of entrepreneurship and how entrepreneurs discover crisis-induced opportunities. Are there different types of individuals who pursue entrepreneurship in times of crisis compared to those who set up businesses in more stable times? What are the specific barriers that hinder entrepreneurs in pursuing these opportunities?

Research on entrepreneurial resilience during the pandemic gave rise to many relevant research questions. For instance, the literature suggests that resilience can be defined at the individual-, organizational-, and ecosystem levels. It would be important to understand how resilience can be strengthened at these various levels and what specific stakeholders should be involved in this process. At the individual level, research could investigate how entrepreneurs can build a resilient mindset that allows them to withstand periods of uncertainty. At the organizational level, one could analyze what crisis management responses are more appropriate and what firm-level capabilities allow for more innovative and timely responses. At the macro level, the role of entrepreneurial ecosystems in weathering the pandemic shock appears a particularly relevant avenue

for future research. Since resilience can be understood as a multilevel construct, a relevant research question would be to investigate how a complex interplay of resilience defined at micro-, meso-, and macro levels impacts firm performance and business survival both during and in the aftermath of the crisis.

Reduced access to finance was one of the main challenges for new entrepreneurs during the crisis. The entrepreneurial finance landscape has changed in response to the Covid-19 crisis, and investors adjusted their investment criteria by making less risky financial investments. Future research could explore the long-term effects of the crisis on the sources of entrepreneurial finance. Will investors maintain their changed preferences (e.g., concerning syndicates, seed stage investments, online interaction with start-ups) or will they return to previous investment criteria once the crisis is over? What new (digital) finance instruments have emerged during the crisis? Has the pandemic had an impact on the determinants of success in obtaining entrepreneurial finance (e.g., crowdfunding campaigns or bootstrapping) and, if so, will the changes persist over time?

One of the emerging research topics concerns the effects of policy responses to Covid-19 on entrepreneurship. Several studies highlight unprecedented public support programs that were implemented in a relatively short time. There is a need for more research to examine the effectiveness of governmental support programs, barriers to their successful implementation, and the mid- and long-term consequences of policy responses on entrepreneurship in countries and regions of different economic development levels. Particular attention should be paid to arbitrage opportunities that emerged during the crisis and the impact of policy measures on the quality of start-ups in terms of their productivity and innovative potential.

Moreover, future research could focus on how the pandemic has differently impacted female and male entrepreneurs and what gender-specific barriers exist that prevent entrepreneurs to pursue crisis-induced opportunities, specifically, in digital sectors. In this respect, more research on digital gender divides is warranted. Finally, the well-being theme suggests that future research could examine the key factors that caused high levels of stress among entrepreneurs during the crisis, the effect of burnout

on the health and business survival of entrepreneurs, and coping strategies that are more helpful to entrepreneurs' well-being and health.

4.2. Policy implications

During the Covid-19 pandemic, governments provided unprecedented support to businesses to keep the economy alive, trying to maintain a good balance between the costs and the benefits of the intervention. The reviewed literature suggests that during the crisis there should be targeted support of specific types of entrepreneurs with strict access criteria, while supporting all start-ups is inappropriate, as such measures can be very costly, and they can increase the risk of unintended consequences. For instance, there was observed a significant backlog on insolvencies in Germany, which suggests that too many not viable businesses have received support from the government. This is problematic in the mid-term, because the limited resources could have been diverted away from potential high-quality start-ups that could not be realized because of this. Moreover, temporary measures aimed at mitigating immediate effects of the crisis should be combined with long-term measures that boost confidence in future market opportunities.

In addition, 'one-size-fits-all'-type of policies should be avoided, as there are strong regional imbalances in the level of entrepreneurial activities, and the impact of the Covid-19 pandemic was not evenly distributed across regions. Thus, the focus should be on regions that have less resilient entrepreneurial ecosystems, for instance, where knowledge and technology intensity is low or where entrepreneurial financing opportunities are limited and were further aggravated by the crisis. In such regions, seed-stage ventures, especially knowledge-intensive start-ups, should receive specific support, for instance, by expanding grants and awards and increasing the volume of seed and start-up investments by government investment vehicles. Governments could try to incentivize equity investors to specifically target new seed stage deals. In addition, it needs to be ensured that these ventures are not unnecessarily hindered from accessing support programs.

Special attention should be provided to entrepreneurs who were more severely affected by the Covid-19 crisis, such ethnic minorities- and migrant entrepreneurs. Several studies call for gender-sensitive policy responses to the Covid-19 crisis that should be based on evidence from gender-disaggregated data. Women entrepreneurs were less likely to invest into digital transformation of their businesses during the Covid-19 crisis, which suggests the existence of gender-specific barriers in technology adoption. It would be important to address the digital gender divide, for instance, in access and use of digital technologies, which might be particularly pronounced in the less economically developed countries.

Moreover, policy makers should aim at building entrepreneurial resilience at micro- (individual-), meso- (organizational-), and macro- (ecosystem-) levels that will help businesses and economies to weather various crisis situations. At the macro level, resilience of entrepreneurial ecosystems should be strengthened. This can be achieved by a thorough analysis of the existing strengths and bottlenecks of entrepreneurial ecosystems. In general, digital transformation of businesses and economies should be supported, as digital technologies proved to be an important source of resilience at all levels during the Covid-19 crisis. Entrepreneurs who were less likely to use digital technologies during the pandemic usually perceived their implementation and maintenance as a burden to doing business. Thus, digitalization support programs should be developed to assist entrepreneurs to better understand and assess the enabling and disabling affordances of relevant new technologies. Moreover, investments into dynamic and innovative capabilities to support organizational resilience building should be facilitated.

To support entrepreneurial resilience at the individual level, educational programs could be designed to prepare entrepreneurs for the challenges of the entrepreneurial process. Such programs could educate entrepreneurs about different coping strategies that would help reduce stress and the risk of burnout in crisis situations. Moreover, they should highlight the importance of the context in which potential entrepreneurs are embedded, as individual resilience and well-being can be affected by factors defined at organizational and ecosystem levels (Fritsch et al., 2019, 2021). It is important to

provide nonfinancial support, for instance, in form of coaching services, workshops, online tools, networking opportunities, to strengthen the well-being of entrepreneurs and resilience of their organizations. One possibility could consist in setting up an “entrepreneurship care” structure that includes telephone support, webinars, and emergency services.

To ensure that those most in need of assistance receive it, public awareness of governmental support programs should be increased. In addition, administrative structures should be better prepared to process a large number of applications within a short period of time.

4.3. Implications for practitioners

Several implications for practitioners, such as entrepreneurs, entrepreneurship educators and coaches, and investors, result from the literature review that can help entrepreneurs navigate turbulent times and seize crisis-induced opportunities.

Entrepreneurs are advised to develop resilience capabilities at multiple levels (individual, organizational, ecosystem). This objective can be achieved in several ways. For instance, organizational resilience can be built by regularly reconsidering the current business model to encounter adversity and capture opportunities and by actively cultivating entrepreneurial culture over the company life cycle to avoid the emergence of organizational inertia and to realize opportunities resulting from a crisis. It appears important to embrace digital technologies, as they may help optimize revenue channels, reduce costs, obtain access to new customers and information, among others. Moreover, entrepreneurs should be aware of various coping strategies to manage stressful situations and build a healthy emotional environment. In addition, enhancing integration with entrepreneurial ecosystems is important to enable the functioning of the firm during crisis situations. Building multilevel resilience appears particularly important for women entrepreneurs who were found to be more vulnerable to crisis shocks than male entrepreneurs.

Liquidity constraints are among the most serious impacts of the crisis businesses face. Entrepreneurs should not disregard making appeals to the public for support during periods of uncertainty, for instance, on crowdfunding platforms. They should intensify exchange with the backers by providing more updates on the project and communicating with them more frequently and proactively. While the uncertainty during crisis is high, entrepreneurs are advised to take cues from political leadership before making relevant decisions, inform themselves about governmental support programs, and be mindful of high public expenditure during the crisis that could lead to a tax increase and decrease in demand in the future.

Entrepreneurship educators are advised to put stronger emphasis on developing critical skills, such as quick learning skills, technological skills, and resilient mindset. It was found that entrepreneurs are differently prepared to assess enabling and disabling business technology affordances. Those entrepreneurs who tend to perceive technology adoption as an additional burden during crisis situations, might miss an important opportunity which could affect business performance in the long run. Thus, training programs could be developed to teach entrepreneurs how to assess enabling and disabling business technology affordances. To build a resilient mindset, entrepreneurship coaches should move away from narratives of the heroic figure of the entrepreneur and emphasize the importance of relatedness within the ecosystem and teach them integration strategies to strengthen the links with various elements of an entrepreneurial ecosystem.

Moreover, the crisis has created opportunities for new and less experienced investors to recruit (more established) syndication partners for co-investments. This represents a worthwhile opportunity for women investors who are traditionally underrepresented in the sector.

5. Conclusions

This chapter presented a systematic review of the literature on the impacts of the Covid-19 crisis on entrepreneurship that was published during the first three years (from January 2020 to January 2023) after the outbreak of the pandemic. It highlighted several

important developments in the already sizeable literature, such as an increasing number of empirical studies, particularly, on the themes related to entrepreneurial process, resilience, and crisis-induced opportunities. Several new themes have emerged recently, such as (unintended) consequences of policy responses to the Covid-19 crisis, entrepreneurial finance, differential impact of Covid-19 on female and male entrepreneurs, and the physical and mental well-being of entrepreneurs. More research on the impacts of the Covid-19 pandemic on entrepreneurship is needed, particularly in the less economically developed countries that were severely affected by the crisis, but for which the empirical evidence remains rather limited. The identified research gaps could serve as a useful guidance for future research. Several implications could help practitioners including entrepreneurs to better prepare for potential future crises.

References

Allison, TH; Anglin, AH; Davis, BC; Oo, P; Seyb, SK; Short, JC; Wolfe, MT (2022): Standing out in a crowd of victim entrepreneurs: How entrepreneurs' language-based cues of personality traits affect public support. *Journal of Small Business Management*, http://dx.doi.org/10.1080/00472778.2022.2056606

Anwar, A; Coviello, N; Rouziou, M (2021): Weathering a Crisis: A Multi-Level Analysis of Resilience in Young Ventures. *Entrepreneurship Theory and Practice*, http://dx.doi.org/10.1177/10422587211046545

Arve, M; Desrieux, C; Espinosa, R (2022): Entrepreneurial intention and resilience: An experiment during the Covid-19 lockdown. *Managerial and Decision Economics*, 44(2), 698-715, http://dx.doi.org/10.1002/mde.3736

Backman, M; Hagen, J; Kekezi, O; Naldi, L; Wallin, T (2021): In the Eye of the Storm: Entrepreneurs and Well-Being During the COVID-19. *Crisis Entrepreneurship Theory and Practice,* http://dx.doi.org/10.1177/10422587211057028

Beland, LP; Fakorede, O; Mikola, D (2020): Short-Term Effect of COVID-19 on Self-Employed Workers in Canada. *Canadian Public Policy-Analyse de Politiques,* Vol. 46, Issue 1, 66-81, http://dx.doi.org/10.3138/cpp.2020-076

Belitski, M; Guenther, C; Kritikos, AS; Thurik, R (2022): Economic effects of the Covid-19 pandemic on entrepreneurship and small businesses. *Small Business Economics*, 58, 593-609.

Bellavitis, C; Fisch, C; McNaughton, R (2022): COVID-19 and the global venture capital landscape. *Small Business Economics*, 59*,* 781–805*,* http://dx.doi.org/10.1007/s11187-021-00547-9

Bergenholtz, C; Klyver, K; Vuculescu, O (2021): Self-Efficacy in Disrupted Environments: COVID-19 as a Natural Experiment. *Entrepreneurship Theory and Practice,* http://dx.doi.org/10.1177/10422587211046548

Birhanu, AG; Getachew, YS; Lashitew, AA (2022): Gender Differences in Enterprise Performance During the COVID-19 Crisis: Do Public Policy Responses Matter? *Entrepreneurship Theory and Practice,* Vol. 46, Issue 5, http://dx.doi.org/10.1177/10422587221077222

Block, JH; Fisch, C; Hirschmann, M (2022a): The determinants of bootstrap financing in crises: evidence from entrepreneurial ventures in the COVID-19 pandemic. *Small Business Economics*, 58, 867-885, http://dx.doi.org/10.1007/s11187-020-00445-6

Block, J; Kritikos, AS; Priem, M; Stiel, C (2022b): Emergency-aid for self-employed in the Covid-19 pandemic: A flash in the pan?* *Journal of Economic Psychology,* Vol. 93, http://dx.doi.org/10.1016/j.joep.2022.102567

Borgholthaus, CJ; White, JV; Markin, E; Gupta, VK (2022): Venture creation in the aftermath of COVID-19: The impact of US governor party affiliation and discretion. *Small Business Economics*, http://dx.doi.org/10.1007/s11187-022-00705-7

Braunerhjelm, P (2022): Rethinking stabilization policies; Including supply-side measures and entrepreneurial processes. *Small Business Economics*, 58, 963-983, http://dx.doi.org/10.1007/s11187-021-00520-6

Brown, R; Rocha, A; Cowling, M (2020): Financing entrepreneurship in times of crisis: Exploring the impact of COVID-19 on the market for entrepreneurial finance in the United Kingdom. *International Small Business Journal*, Vol. 38, Issue 5, http://dx.doi.org/10.1177/0266242620937464

Cowling, M; Brown, R; Rocha, A (2020): Did you save some cash for a rainy COVID-19 day? The crisis and SMEs. *International Small Business Journal-Researching Entrepreneurship*, Vol. 38, Issue 7, http://dx.doi.org/10.1177/0266242620945102

Dai, RC; Mookherjee, D; Quan, YY; Zhang, XB (2021): Industrial clusters, networks and resilience to the Covid-19 shock in China. *Journal of Economic Behavior & Organization,* Vol. 183, 433-455, http://dx.doi.org/10.1016/j.jebo.2021.01.017

Davidsson, P; Recker, J; von Briel, F (2021): COVID-19 as External Enabler of entrepreneurship practice and research. *Business Research Quarterly*, Vol. 24, Issue 3, http://dx.doi.org/10.1177/23409444211008902

De Brito, RP; Lenz AK; Pacheco MGM (2022): Resilience building among small businesses in low-income neighborhoods. *Journal of Small Business Management*, http://dx.doi.org/10.1080/00472778.2022.2041197

Dörr, JO; Licht, G; Murmann, S (2022): Small firms and the COVID-19 insolvency gap. *Small Business Economics,* 58, 887-917, http://dx.doi.org/10.1007/s11187-021-00514-4

Ebersberger, B, Kuckertz, A (2021): Hop to it! The impact of organization type on innovation response time to the COVID-19 crisis. *Journal of Business Research*, Vol. 124, 126-135, http://dx.doi.org/10.1016/j.jbusres.2020.11.051

Emami, A; Ashourizadeh, S; Sheikhi, S; Rexhepi, G (2022): Entrepreneurial propensity for market analysis in the time of COVID-19: benefits from individual

entrepreneurial orientation and opportunity confidence. *Review of Managerial Science,* 16, 2413-2439, http://dx.doi.org/10.1007/s11846-021-00499-0

Fairlie, R (2020): The impact of COVID-19 on small business owners: Evidence from the first 3 months after widespread social-distancing restrictions. *Journal of Economics & Management Strategy,* Vol. 29, Issue 4, 727-740, http://dx.doi.org/10.1111/jems.12400

Fairlie, R; Fossen, FM (2022a): The early impacts of the COVID-19 pandemic on business sales. *Small Business Economics,* 58, 1853-1864, http://dx.doi.org/10.1007/s11187-021-00479-4

Fairlie, R; Fossen, FM (2022b): Did the Paycheck Protection Program and Economic Injury Disaster Loan Program get disbursed to minority communities in the early stages of COVID-19? *Small Business Economics,* 58, 829-842, http://dx.doi.org/10.1007/s11187-021-00501-9

Fairlie, R; Fossen, FM; Johnsen, R; Droboniku, G (2022): Were small businesses more likely to permanently close in the pandemic? Small Business Economics, http://dx.doi.org/10.1007/s11187-022-00662-1

Fritsch, M; Sorgner, A; Wyrwich, M (2019): Self-employment and well-being across institutional contexts. *Journal of Business Venturing*, 34(6), https://doi.org/10.1016/j.jbusvent.2019.105946

Fritsch, M; Sorgner, A; Wyrwich, M (2021): Types of institutions and well-being of self-employed and paid employees in Europe. Small Business Economics, 56, 877–901, https://doi.org/10.1007/s11187-019-00274-2

Galindo-Martin, MA; Castano-Martinez, MS; Mendez-Picazo, MT (2021): Effects of the pandemic crisis on entrepreneurship and sustainable development. *Journal of Business Research*, Vol. 137, 345-353, http://dx.doi.org/10.1016/j.jbusres.2021.08.053

GEM (Global Entrepreneurship Monitor) (2022): Global Entrepreneurship Monitor 2021/22 Women's Entrepreneurship Report: From Crisis to Opportunity. London: GEM.

Gompers, P; Gornall, W; Kaplan, SN; Strebulaev, IA (2021): Venture Capitalists and COVID-19. *Journal of Financial and Quantitative Analysis,* Vol. 56, Issue 7, 2474-2499, http://dx.doi.org/10.1017/S0022109021000545

Guckenbiehl, P; de Zubielqui, GC (2022): Start-ups' business model changes during the COVID-19 pandemic: Counteracting adversities and pursuing opportunities.

International Small Business Journal, Vol. 40, Issue 2, http://dx.doi.org/10.1177/02662426211055447

Hashemi, H; Rajabi, R; Brashear-Alejandro, TG (2022): COVID-19 research in management: An updated bibliometric analysis. *Journal of Business Research*, 149, 795–810, https://doi.org/10.1016/j.jbusres.2022.05.082

Haeffele, S; Lofthouse, JK; Forzani, A (2022): The Perils of Regulating COVID-19: Insights from Kirznerian Entrepreneurship and Ostromian Polycentricity. *Economics of Governance,* http://dx.doi.org/10.1007/s10101-022-00284-z

Hardy, M; Litzow, E; McCasland, J; Kagy, G (2022): Gender Differences in Informal Labor-Market Resilience. *World Bank Economic Review,* Vol. 37, Issue 1, 112-126, http://dx.doi.org/10.1093/wber/lhac028

Hewa-Wellalage, N; Boubaker, S; Hunjra, AI; Verhoeven, P (2022): The gender gap in access to finance: Evidence from the COVID-19 pandemic. *Finance Research Letters,* Vol. 46, http://dx.doi.org/10.1016/j.frl.2021.102329

Hoang, HV; Nguyen, C; Nguyen, DK (2022): Corporate immunity, national culture and stock returns: Startups amid the COVID-19 pandemic. *International Review of Financial Analysis,* Vol. 79, http://dx.doi.org/10.1016/j.irfa.2021.101975

Huggins, R; Thompson, P (2022): Cities, innovation and entrepreneurial ecosystems: assessing the impact of the COVID-19 pandemic. *Cambridge Journal of Regions Economy and Society,* Vol. 15, Issue 3, 635-661, http://dx.doi.org/10.1093/cjres/rsac023

Iancu, A; Popescu, L; Varzaru, AA; Avram, CD (2022): Impact of Covid-19 Crisis and Resilience of Small and Medium Enterprises. Evidence from Romania. *Eastern European Economics*, Vol. 60, Issue 4, 352-374, http://dx.doi.org/10.1080/00128775.2022.2032177

Kabir, I; Abubakar, YA (2022): Public policy responses to COVID-19 and the survival of ethnic minority businesses (EMBs): does entrepreneurial orientation (EO) matter?*International Journal of Entrepreneurial Behavior and Research*, http://dx.doi.org/10.1108/IJEBR-05-2021-0429

Kalenkoski, CM; Pabilonia, SW (2022): Impacts of COVID-19 on the self-employed. *Small Business Economics,* 58, 741-768, http://dx.doi.org/10.1007/s11187-021-00522-4

Khurana, I; Dutta, DK; Ghura, AS (2022a): SMEs and digital transformation during a crisis: The emergence of resilience as a second-order dynamic capability in an

entrepreneurial ecosystem. *Journal of Business Research,* Vol. 150, 623-641, http://dx.doi.org/10.1016/j.jbusres.2022.06.048

Khurana, I; Dutta, DK; Schenkel, MT (2022b): Crisis and arbitrage opportunities: The role of causation, effectuation and entrepreneurial learning. *International Small Business Journal-Researching Entrepreneurship,* Vol. 40, Issue 2, http://dx.doi.org/10.1177/02662426211061679

Korsgaard, S; Hurt, RA; Townsend, DM; Ingstrup, MB (2020): COVID-19 and the importance of space in entrepreneurship research and policy. *International Small Business Journal-Researching Entrepreneurship,* Vol. 38, Issue 8, http://dx.doi.org/10.1177/0266242620963942

Krammer, SMS (2022): Navigating the New Normal: Which firms have adapted better to the COVID-19 disruption? *Technovation*, Volume 110, http://dx.doi.org/10.1016/j.technovation.2021.102368

Kraus, S; Breier M; Dasí-Rodríguez, S (2020): The art of crafting a systematic literature review in entrepreneurship research. *International Entrepreneurship and Management Journal*, 16, 1023–1042, https://doi.org/10.1007/s11365-020-00635-4

Kuckertz, A; Brändle, L (2022): Creative reconstruction: a structured literature review of the early empirical research on the COVID 19 crisis and entrepreneurship. *Management Review Quarterly*, 72, 281-307.

Li, HY; Ozdemir, SZ; Heslin, PA (2022): Merely Folklore? The Role of a Growth Mindset in the Taking and Timing of Entrepreneurial Actions. *Entrepreneurship Theory and Practice,* http://dx.doi.org/10.1177/10422587221128270

Manolova, TS; Brush, CG; Edelman, LF; Elam, A (2020): Pivoting to stay the course: How women entrepreneurs take advantage of opportunities created by the COVID-19 pandemic. *International Small Business Journal-Researching Entrepreneurship,* Vol. 38, Issue 6, http://dx.doi.org/10.1177/0266242620949136

Mariscal, J; Mayne G; Aneja U; Sorgner A (2019): Bridging the gender digital gap. Economics: The Open-Access, Open-Assessment E-Journal, 13(9), https://doi.org/10.5018/economics-ejournal.ja.2019-9

Mason, C; Botelho, T (2021): Business angel investing during the covid-19 economic crisis: evidence from Scotland. *Venture Capital*, 321-343, http://dx.doi.org/10.1080/13691066.2021.2019564

McGee, JE; Terry, RP (2022): COVID-19 as an external enabler: The role of entrepreneurial self-efficacy and entrepreneurial orientation. Journal of Small Business Management, http://dx.doi.org/10.1080/00472778.2022.2127746

Meurer, MM; Waldkirch, M; Schou, PK; Bucher, EL; Burmeister-Lamp, K (2022): Digital affordances: how entrepreneurs access support in online communities during the COVID-19 pandemic. *Small Business Economics,* 58, 637-663, http://dx.doi.org/10.1007/s11187-021-00540-2

Meyer, KE; Prashantham, S; Xu, SQ (2021): Entrepreneurship and the Post-COVID-19 Recovery in Emerging Economies. *Management and Organization Review,* Volume 17, Issue 5, 1101-1118, http://dx.doi.org/10.1017/mor.2021.49

Modgil, S; Dwivedi, YK; Rana, NP; Gupta, S; Kamble, S (2022): Has Covid-19 accelerated opportunities for digital entrepreneurship? An Indian perspective. *Technological Forecasting and Social Change,* Volume 175, http://dx.doi.org/10.1016/j.techfore.2021.121415

Mota, RD; Bueno, A; Gonella, JDL; Ganga, GMD; Godinho, M; Latan, H (2022): The effects of the COVID-19 crisis on startups' performance: the role of resilience. *Management Decision*, 60(12), 3388-3415.

Nummela, N; Paavilainen-Mantymaki, E; Harikkala-Laihinen, R; Raitis, J (2020): When all doors close: Implications of COVID-19 for cosmopolitan entrepreneurs. *International Small Business Journal-Researching Entrepreneurship,* Volume 38, Issue 8, http://dx.doi.org/10.1177/0266242620954127

OECD (2020): SME policy responses. http://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/ Accessed on March 31, 2023.

Otrachshenko, V; Popova, O; Nikolova, M; Tyurina, E (2022): COVID-19 and entrepreneurship entry and exit: Opportunity amidst adversity. *Technology in Society*, Volume 71, http://dx.doi.org/10.1016/j.techsoc.2022.102093

Paul, J; Alhassan, I; Binsaif, N; Singh, P (2023): Digital entrepreneurship research: A systematic review. *Journal of Business Research*, Vol. 156, https://doi.org/10.1016/j.jbusres.2022.113507

Pereira, I; Patel, PC (2022): Impact of the COVID-19 pandemic on the hours lost by self-employed racial minorities: evidence from Brazil. *Small Business Economics,* 58, 769-805, http://dx.doi.org/10.1007/s11187-021-00529-x

Popescu, AI (2021): BUSINESS FORMATION DURING THE CORONAVIRUS PANDEMIC. A REGIONAL ANALYSIS CONSIDERING KNOWLEDGE AND TECHNOLOGICAL INTENSITY. *Economic Computation and Economic Cybernetics Studies and Research*, Vol. 55, http://dx.doi.org/10.24818/18423264/55.4.21.13

Rakshit, S; Islam, N; Mondal, S; Paul, T (2021): Mobile apps for SME business sustainability during COVID-19 and onwards. *Journal of Business Research,* Vol. 135, 28-39, http://dx.doi.org/10.1016/j.jbusres.2021.06.005

Ramli, K; Spigel, B; Williams, N; Mawson, S; Jack, S (2022): Managing through a crisis: emotional leadership strategies of high-growth entrepreneurs during the COVID-19 pandemic. *Entrepreneurship and Regional Development,* Vol. 35, Issue 1-2, 24-48, http://dx.doi.org/10.1080/08985626.2022.2143905

Sharma, GD; Kraus, S; Liguori, E; Bamel, UK; Chopra R (2022): Entrepreneurial challenges of Covid-19: Re-thinking entrepreneurship after the crisis. *Journal of Small Business Management*, DOI: 10.1080/00472778.2022.2089676

Smith, JB; Smith, CG; Kietzmann, J; Ferguson, STL (2022): Understanding micro-level resilience enactment of everyday entrepreneurs under threat. *Journal of Small Business Management,* Vol. 60, Issue 5, http://dx.doi.org/10.1080/00472778.2021.2017443

Srivastava, J; Gopalakrishnan, B (2022): Work from home amenability and venture capital financing during COVID-19. *Applied Economics,* Vol. 54, Issue 44, 5073-5098, http://dx.doi.org/10.1080/00036846.2022.2041175

Stam, E; Van de Ven, A (2019): Entrepreneurial ecosystem elements. *Small Business Economics*, 56, 809-832.

Stephan, U; Zbierowski, P; Perez-Luno, A; Wach, D; Wiklund, J; Cabanas, MA; Barki, E; Benzari, A; Bernhard-Oettel, C; Boekhorst, JA; Dash, A; Efendic, A; Eib, C; Hanard, PJ; Iakovleva, T; Kawakatsu, S; Khalid, S; Leatherbee, M; Li, J; Parker, SK; Qu, JJ; Rosati, F; Sahasranamam, S; Salusse, MAY; Sekiguchi, T; Thomas, N; Torres, O; Tran, MH; Ward, MK; Williamson, AJ; Zahid, MM (2022): Act or Wait-and-See? Adversity, Agility, and Entrepreneur Wellbeing across Countries during the COVID-19 Pandemic. *Enterpreneurship Theory and Practice,* http://dx.doi.org/10.1177/10422587221104820

Torres, J; Maduko, F; Gaddis, I; Iacovone, L; Beegle, K (2022a): The Impact of the COVID-19 Pandemic on Women-Led Businesses. *World Bank Research Observer,* Vol. 38, Issue 1, 36-72, http://dx.doi.org/10.1093/wbro/lkac002

Torres, O; Benzari, A; Fisch, C; Mukerjee, J; Swalhi, A; Thurik, R (2022b): Risk of burnout in French entrepreneurs during the COVID-19 crisis. *Small Business Economics,* 58, 717-739, http://dx.doi.org/10.1007/s11187-021-00516-2

Tranfield, D; Denyer, D; Smart, P (2003): Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207-222.

Verma, S; Gustafsson, A (2020): Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*, 118, 253–261, https://doi.org/10.1016/j.jbusres.2020.06.057

Welsh, DHB; Othman, D; Alserhan, B; Zeqiri, J; Al-Madadha, A; Ramadani, V (2022): The impact of the international crisis on the entrepreneurial intentions of refugees. *International Journal of Entrepreneurial Behavior & Research,* Vol. 28, Issue 3, http://dx.doi.org/10.1108/IJEBR-02-2021-0150

Xu, XY; Huang, D; Chen, QR (2021): Stress and coping among micro-entrepreneurs of peer-to-peer accommodation. *International Journal of Hospitality Management,* Vol. 97, http://dx.doi.org/10.1016/j.ijhm.2021.103009

Yang, Y; Kph, Y (2022): Is restaurant crowdfunding immune to the Covid-19 pandemic? International Journal of Contemporary Hospitality Management, Vol. 34, Issue 4, 1353-1373, http://dx.doi.org/10.1108/IJCHM-06-2021-0817

Zahra, SA (2021): International entrepreneurship in the post Covid world. *Journal of World Business*, Vol. 56, Issue 1, http://dx.doi.org/10.1016/j.jwb.2020.101143