A System Dynamics Approach to SME Resilience Under the Economic Stress of the COVID-19 Pandemic:
A Conceptual Model and Empirical Analysis

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ABSTRACT

The COVID-19 pandemic reshapes our knowledge and reconceptualises our belief in small and medium enterprises (SMEs) as more flexible and resilient than bigger organisations under difficult socioeconomic conditions. The critical issue raised during the Covid-19 pandemic suggests that SMEs have confronted great challenges, which are not just concerned about SME survival, but also the paucity of strategic approach for firm revival and resilience. In dealing with the challenges, and based on a set of investigations, firstly, the authors provide a critically insightful review of the UK government Covid-19 responses based on four themes of UK government interventions. Secondly, they offer contextual evidence based on their analysis of SME performance in relation to the government responding schemes and how that affects SME operations in the UK. Thirdly, they propose a framework with tentative strategic solutions based on both theoretical reviews and the empirical analysis for how SMEs revive and become resilient.

KEYWORDS

Business Strategy, COVID-19 Pandemic Challenge, Dynamic Approach, Resilience, SME

1. INTRODUCTION

It has been acknowledged that Small and Medium-sized Enterprises (SMEs) are the backbone of economies including the UK SMEs with 0-9 employees made up 99% of businesses (OECDa, 2020), and contributed 51% to UK private sector turnover, and 61% of all employment (Santander, 2018). Driving forces include migrant entrepreneurs as economic mechanisms and key talent pool for SMEs; they form the means for SMEs accessing diverse international markets and customers, securing local resources, sharing knowledge across national boundaries (Cai, Meng, & Chakraborty, 2021; Hajro et al., 2017). SMEs are crucial sources of wealth creation, driving economic trade, creativity, creating great economic and social benefits for the nation, while they have also demonstrated that they are highly adaptive to economic changes, thus, being resilient (Clark, 2020). However, the Covid-19 pandemic reshaped our conceptualisation about organisational capabilities, consequently, challenging our belief in SMEs as more resilient to economic changes than bigger firms such as Multinational Enterprises (MNE).

There is a plethora of research that explains dynamic capabilities, which can drive firms and managers abilities to sense and seize new opportunities; Darwinian evolutionary processes entail

organisations to maintain fitness levels (e.g., Levinthal & March, 1981; Peysakhovich & Rand, 2016; Van den Steen, 2019), and how organisational populations evolve (Cunha & Heckman, 2009; Johnson et al., 2013; Nelson & Winter, 1982). However, during the Covid-19 pandemic studies have reported that over 430 million enterprises are at risk of disruption globally, mostly in wholesale and retail trades (Hupkau & Petrongolo, 2020). In coping with the challenging time and difficult social environments, many SMEs revealed very limited absorptive capacity, and seemingly constrained from the benefits of government economic interventions. During these variant states: pandemic-circuit-breakers-endemic, the UK government has offered cash grants to organisations and SMEs that have been affected by lockdowns. Yet, despite the UK's Self-Employment Support Scheme (SEISS) as a safety net for small businesses in the UK during the Covid-19 pandemic, the number of people running their own businesses dropped by 850,000 during the pandemic (ONS, 2022).

The issue raised, thus far, rests on the critical challenge for business resilience, and paucity of strategies that can help SMEs survive and revive. Despite our knowledge advancement, gaps remain in our understanding of uncertainty, consequently, SME resilience across periods of unstable environments. The mechanisms that can drive the evolutionary fitness in the rapid changes of environments remain under-explored, specifically, in relation to firm survival strategies. Addressing this gap motivates this research to advance knowledge in managing changes and uncertainty, by which we bring a theoretical framework that offers some tentative solutions to SME resilience, in using a Systemic Dynamics Approach (SDA). Our framework (Figure 1) focuses on both institutional policy and business strategy. Within which, first, we provide a crucial review of the UK government Covid-19 response, which is based on four themes of UK government interventions. Secondly, in focusing on SMEs in London and how they dealt with the impact of Covid-19, we critically analyse how the responding policy, in effect, affects SME operations while we offer contextual evidence of SME performance from the UK. Thirdly, we construct and offer a potential strategic framework that is conceptualised based on both theoretical and empirical evidence, for how SME can become revival and resilient.

The constructs as depicted by Figure 1, suggest a three-dimensional interaction, leading to the System Dynamics Approach (SDA). First, the lockdown restrictions have led to delays in the supply chains, especially on less robust (more complex) supply chains. However, secondly, an underlying growth opportunity emerged, and this might relate to an increase in border closures that could have led to the reduced marginal cost of the business unit. Then from several perspectives, this, in turn, drives lower marginal cost per unit. Given the probabilistic growth, thirdly, the insights reveal how SME might be able to demonstrate the potential resilience. Our conjectures, as presented by four prepositions, are derived from our SDA, are further explained.

Figure 1. Conceptual Framework of the Study

2. LITERATURE REVIEW AND THE PROPOSED FRAMEWORK

2.1 Background Issues and Literature

The literature shows that research on Knowledge-Based-Views (KBV) has reviewed path dependency and experiential based outcome. Research also suggests that by KBV, the cognitive realm of managerial perception can drive decision choice by their past experiences and meticulous study (Van Reenen, 2021). Further, research explains that with the external environment increasingly turbulent, hypercompetitive businesses deal with change, through innovation and organisational learning (Easterby-Smith et al., 2002; Easterby-Smith & Prieto, 2008), which drive both management of research and practice. Moreover, research has brought up Dynamic Capability-Based-Views (DCBV) that suggest firms and managers remain higher levels of abilities to sense and then seize new opportunities, and to reconfigure and knowledge assets, competencies, and complementary assets with the aim of achieving a sustained competitive advantage (Augier & Teece, 2009; Schoemaker et al., 2018; Teece et al., 1997).

Although studies have offered strategic solutions, many businesses confront ever increasing prevalence of uncertainty, and many employees and SMEs become disproportionately struggling with public health, business contingency, and survival. Covid-19 pandemic imposing restrictions on personal and public life, have also significantly disrupted businesses both large and small firms (OECD, 2020; Joseph, 2021). While the Covid-19 flare-up was the primary worldwide pandemic, many employees were also physically and mentally exhausted from the consequences of pandemic impact (Van Reenen, 2021). An emerging challenge from healthcare significantly affects the worldwide economy, such as the social environmental shocks that have created variant effects on both SME and MNE, which have been struggling on economic survival and revival.

To contribute to our knowledge advancement, we integrate the DCBV-KBV, the dynamic capability-based and knowledge-based views, through which we introduce the SDA (Figure 1). We believe that the SDA can be an effective application for creating firm resilience in the implications of a set of mechanisms. Within the theoretical concepts, we explain that in understanding the effects of Covid-19 on SMEs in London, the SDA becomes the dynamic mechanisms in operating system that enable a re-enactment of techniques in taking care of genuine issues to portray connections among factors in complex genuine frameworks (Maryani, Wignjosoebroto & Partiwi, 2015). We highlight that the SDA can be applied to numerous other businesses to deal with issues like complex relationships, shared collaboration, and modelling roundabout causality, generating potential solutions.

2.2 Outline of the Framework of SDA

The preceding reveals our study objectives that essentially seek an effective approach to business resilience and strategies for SME revival. Within the SDA, we intend to identify potential solutions for SME to explain how the SDA helps firms deal with managing medium to longer-term problems. And in a temporary or immediate, how SME response and exercise on influenced or meaningful measures and means for survival. The measures we consider include wellbeing, financial, and social factors. Prior research findings show that some SMEs did adapt and in the second quarter of 2020, they were going back to business by improvising and taking special measures for survival in the market (Co-operation and Development, 2021). The means as we suggest includes dealing with underlining troublesome compromises between different objectives that are unavoidable. For example, factors like the furlough scheme, and government support funds can make a difference to the present situation of SMEs and help them to resist the shocks of the pandemic (Talk London, 2020). Importantly, our approach helps SMEs' responses to the fundamental challenges and offers relevant measures that would be effective in the required range of viable management strategies that can be implemented.

In prior studies, some models using the SDA have shown multiple ways in investigating, dealing with the different issues related to the production of worldwide business (Joseph, 2021). In applications of the SDA, we expect to see the potential resilience of SMEs. We believe that the SDA can offer

reproduction techniques for the examination of word related mishaps in the development project and enhance fitting, increasing probabilistic attribute of factors, thus, help SME with a relevant answer for what can be done. In using the SDA, we explain how firms deal with managing medium to longer-term problems. And as a temporary or immediate response, we also seek implications of the SDA for employees and SME exercises that can generally be influenced by survival measures. With the SDA, we generate some potential solutions in focusing on the issues related to government responses to the pandemic challenge. We also offer feedback from our analysis of SME business performance.

2.3 The Methodological Approach of the Study

In relation to our objectives indicated earlier, our model constructs as depicted by Figure 1 offer a hierarchical level view of the SDA. With respect to our empirical investigations, we intend to suggest that SME resilience can be highly reliant on several factors. We map them into three dimensions: i) Institutional policy in responding to the Covid-19 pandemic, ii) Impact on business operations, and iii) Business resilience. The methods of the study involve a critical review process in generating a set of possible solutions in utilising available data and scenarios from the Covid-19 pandemic. The overview and modelling processes suggest how alternative strategies increase the potential to resolve the growing problem endemic to all but in one of the most vulnerable business sectors- SMEs. Our initial methods follow the qualitative research design in the implications of documentation reviews. We then employ empirical investigations while we consider current debates and relevant data sets as evidence. Thirdly, we bring up tentative solutions as our understanding of the impact of government decision, and importantly, we offer potentially valuable strategies in using the SDA, which exert a proxy that hitherto may not have been recognised by research in the context of the aftermath Covid-19 Pandemic.

3. THE ANALYSIS OF THE COVID-19 IMPACT AND GOVERNMENT ECONOMIC INTERVENTIONS

3.1 SME Economic Situations in Variant Covid-19 States

The International Monetary Fund lowered its global economic growth forecast after the COVID outbreak cast doubt on its previous prediction. Increased aircraft cancellations, hotel cancellations, and local and international events worth more than $200 billion were all cancelled (Fernandes et al., 2020). UK and other countries such as Iran, Italy, and France implemented state-wide lockdown, to stem the spread of the virus and reduce increasing strain on national public health systems. Stay-at-home policies sowed the seeds of recession in developed nations (Financial Times, 2020).

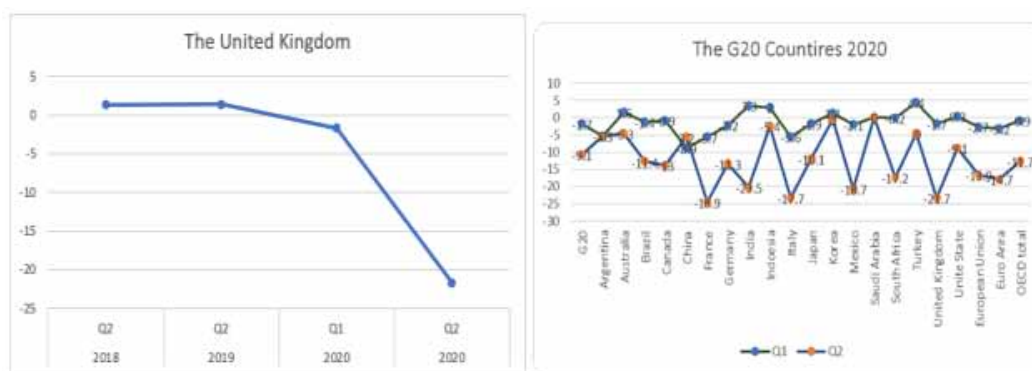Table 1. Mean and standard deviation of the business creations in Q1 2019 to Q1 2020

	N	Minimum (In that quarter)	Maximum (In that Quarter)	Sum	Midpoint	Fx	Mean	SD
2010-2012	2	74,000	86,635	161,004	80,502	40,251	21833	63255
2012-2014	2	96,000	99,208	195,208	97,604	48,802	21833	63255
2014-2016	2	1,00,987	1,10,028	211,015	105,508	52,754	21833	63255
2016-2018	2	1,16,000	1,15,064	231,064	115,532	57,766	21833	63255
2018-2021	3	1,13,000	1,30,525	243,525	121,763	40,588	21833	63255
TOTAL	**11**			**1,04,1816**		**2,40,161**		

Source: Generated by the authors based on the data released by Savvy (2021)

We observed the negative impact in using the comparative data of the last 2 years. There has been a huge decline starting from quarter 2 of 2020. Because of the national lockdown, in quarter 2 there were no new business creations as revealed by the fifth column of data, compared with prior columns of data (Savvy, 2021).

As presented in Figure 2 in using real Gross Domestic Product (GDP) for the observation, at the national level, the UK became one of the most affected countries among G20 countries (OECD, 2020). We reveal that the UK recorded the first largest annual fall 1.7%. Consequently, the second largest annual fall was 21.7%. In the second quarter of 2020, Covid-19 containment measures weighed heavily on world economic activity, showing unprecedented falls in in most G20 countries, where the overall GDP at the extended regional level (Figure 2), in the first quarter 2020 dropped by a record 6.9% (the second line), significantly greater than the average 1.6% fall in the first quarter of 2019 (the first line). With GDP downside trends, the UK was the second hardest hit country after India. The effects of the pandemic began to be more widely felt. As Figure 2 further reveals, there were no new SMEs that evolved during this time.
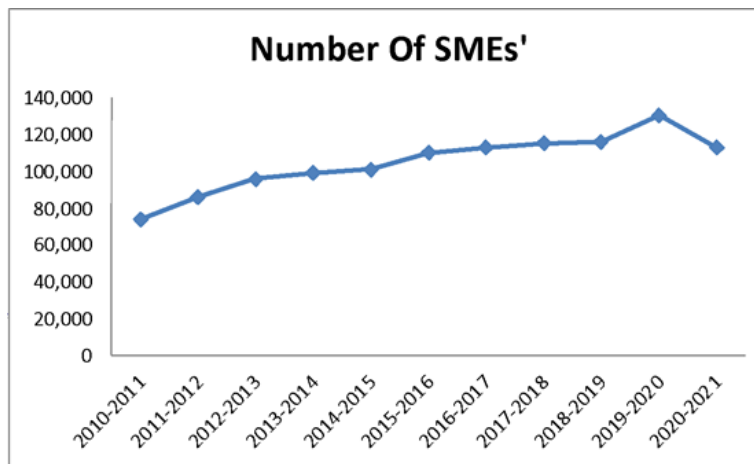
Figure 2. Covid-19 negative impact on GDP. Generated by the authors in using OECD release.

The decline in new business creations and the closures imposed by responding to the Covid-19 there has been a sudden increment in unemployment. From this, we can infer that decline in the business creation and the problem leads to the employee turnover and workforce declines (Figure 3), SMEs represent in any event 99.5% of the general populace in every one of the primary business areas and thus are dispersed comparably to the business populace during 2010-2019, when it had large growth, towards the beginning of 2019, but there was a huge decrement in turnover of SMEs after the second quarter of 2020 (Albonico, Mladenov & Sharma, 2020).

From our critical review, using Didier et al. (2020) investigation, we found that funding of enterprises in hibernation and the pandemic's severe economic impact on countries throughout the world, halting of corporate operations. Businesses halted financial flow, which might lead to long-term consequences and maybe inefficient bankruptcy. The major concerns were the breakdown of important connections between businesses and their employees, governments and creditors and supply networks. Prohorovs (2020) emphasised the need of having a thorough grasp of the Covid-19 crises' characteristics so that businesses adjusted to the new circumstances more quickly while minimising losses. Morrison & Saavedra (2020) claimed that policymakers undervalue the significance of bankruptcy law in mitigating the financial burden of Covid-19. SMEs may be highly costly to file for bankruptcy, according to the authors, which might dissuade them from doing so. We also highlight the significance of essential political instruments such as bridging funding and tolerance. In pockets of acute hardship and vulnerability, health, economic and educational disadvantage collide. This should emphasise the importance of effective place-based strategies that address levelling-up and community resilience in these areas (Blundell et al., 2020).

Figure 3. Business Creations for SMEs in quarters (from 2010 to 2021 JAN), source: Created by the authors based on data released by Albonico et al. (2020)

3.2 UK Government Response: Strategic Interventions

Governments have responded with broad fiscal and monetary policies, including increased health-care spending, income support for workers in impacted industries, liquidity support for businesses and financial market interventions to minimise growing spreads. The economic implications of the crisis are difficult to predict because there are so many interconnected components. It's unclear how long countries will be required to maintain social separation measures or what their exit path would be (Bekkers & Koopman, 2020). Michie (2020) develops a philosophical framework for assessing the macroeconomic consequences of the Covid-19 problem for national economies questioning whether the measures adopted and the preparations for the crisis, whose onset had been discussed in advance, were adequate. Ozili and Arun (2021) examined the restrictive measures, monetary policy measures, fiscal policy measures, and public health policies that were implemented throughout the time, investigating the effects of social distancing policies on economic activity and stock market indexes experimentally. Their data suggests that the rising number of lockdown days, monetary policy choices, and overseas travel restrictions had a significant impact on economic activity. The report summarises four themes of interventions by the UK Government in response to the Covid-19 pandemic:

Social Distancing. The social distancing measures implemented in Spring 2020 have resulted in significant alterations in society's organisation keeping their social lives and travel to a minimum. Although the social distancing measures are projected to be less harsh. The future is uncertain because it is unclear how aggressively the virus will spread (Bekkers & Koopman, 2020). According to Bekkers & Koopman (2020) the economic impacts of social distancing measures are significant. Restaurants, a substantial portion of retail stores and personal services, are among the industries that have shut down and are no longer operating. Due to the difficulty of shopping and anxiety about the future, demand for tourism is severely diminished and individuals begin to put off purchasing durable goods.

Government requirements such as the permissible walking distance from dwellings, mass gathering restrictions, school closures, and whether individuals were authorised to go to their places of employment could all be measured (Gil et al., 2020). Hu et al (2020), states an example that proposed a score that considers numerous government initiatives in the United States; depending on the intervention level, this score was used to predict future infections. While this approach may be beneficial when making government choices, it does not account for whether or not social distance has been applied.

Closed borders. The coronavirus pandemic swiftly spread globally in 2020, many countries sought to limit cross-border immigration initially to reduce virus exposure (Dunford et al., 2020). International travel had been restricted, with border controls and in some cases, export restrictions for medical equipment and food. International trade prices are rising as a result of heightened border controls, a scarcity of air freight supply and limits on personal travel, all of which are raising service trade costs. Because the virus and social distancing measures occur at various times in different countries, companies dealing with complicated value chains have difficulty organising their production across their value chain (Bekkers & Koopman, 2020). This policy, according to economics and recent experience, eventually harms all economies, particularly the most vulnerable; exporters' restrictions lower global supply, resulting in higher pricing. As a result, further export limits are imposed to protect home markets, resulting in a "multiplier impact" on global pricing (Financial Times, 2020).

Lockdown and Remote Working. By the end of March 2020, more than 100 nations imposed either complete or partial lockdowns as the globe dealt with the Covid-19 pandemic (Dunford et al., 2020). "Stay at home" directives sparked debate throughout the world, with increased unemployment in both developed and emerging nations. Governments that employed lockdown to compel social separation differed in policy, timing, and length, especially when compared to their country's mortality rate. Gil et al. (2020) noted that lockdown procedures were adopted earlier in some nations in an attempt to avert major epidemics. Israel, for example, went into extreme lockdown on March 19th with just 648 confirmed cases and no deaths up to that point.

3.3 Resilience in the Scenarios of Government Interventions

We are providing an estimation to suggest the significance of government interventions in "The social distancing measures" for preservation of capacity, in generating alternative solutions. In using the simulated results that we have generated, social distancing had enabled the steady-state distribution (g' / g when $á = 0$, $r^3 0$) of safety, enabling some firms steady performance, as revealed by Figure

Figure 4. Estimate for value distribution: lockdown safety performance measures, when $\Delta R = S^2 = \sigma^2 + \sigma'^2 - \rho\sigma\sigma' \geq 0$, á is fixed at 0.5
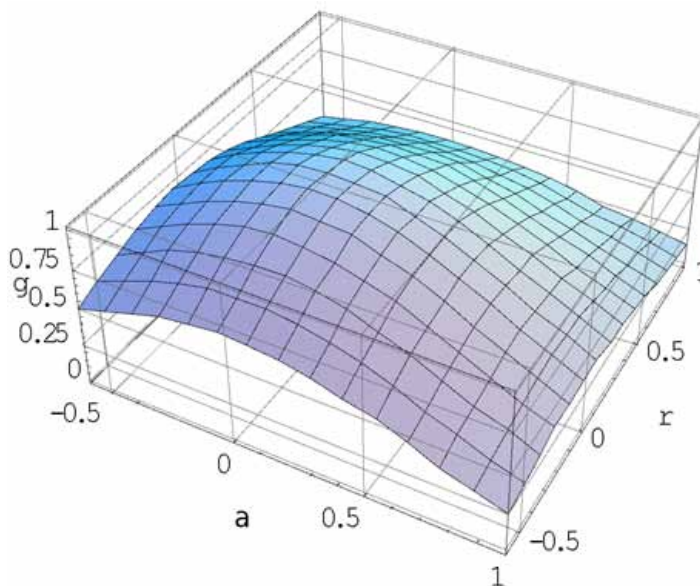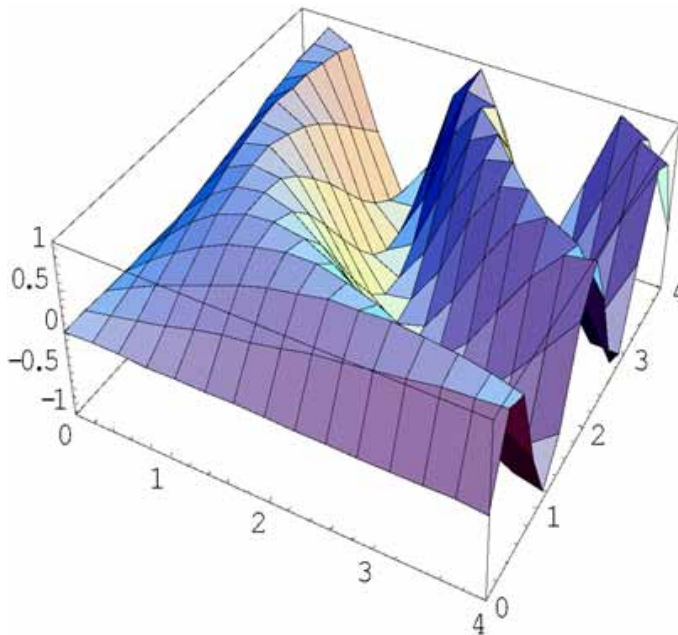
Figure 5. Estimate for decrease/increase in remote working productivity when r = $\hat{\alpha} + \delta^{'} \geq 0$, á is fixed at 0.5

5, in using Probability Distribution Function (PDF). Overall, the social distancing measures and the approach to business growth, theoretically, generated a positive value.

To continue with our observations in using data comparison, our results based on the assumption of "lockdown/remote working", as described by Figure 6, suggest that the value distributions, in effect, is such that lockdown does not simply suggest productivity decrease but some value in productions emerged, though they showed the emergences as unstable growth in distribution trends. The probabilistic value suggests that the remote business productivity declines and increases as correlated (R^2 =0.82). Where the government interventions allowed for the flexibility to revise operation mode, contingent on uncertain future developments, (g / g' when $S^{2\,3}$ 0, $á^{\,3}$ 0), thus, driving the slope of the cost decreasing, in turn, the function of potential growth. This suggests that the required measurement and analysis of the combined approach of the SDA are strategic straddles, which helped firms increase the stability in growth, where DCBV and KBV importantly imply. The SDA leads to the next strategic response: "income support schemes" by the government.

Income support Schemes. As Opined by Hupkau & Petrongolo (2020) in these hard times the government tried to help. The UK government has offered cash grants to organisations and the SMEs' that have been affected by the lockdown. It was helpful to those people who were in doubt that they would lose their job or would be removed by the authorities as there was no work for them. SMEs could not cope with the pandemic and lockdown in the Q1 of 2020. Apart from the early warnings by the World health organisation SMEs could not devise a well-planned strategy and suffered the early stage havoc created by the pandemic but according to the article by Co-operation and Development (2021), some of the SMEs' did adapt and in the Q2 of 2020 they were going back to business by improvising and taking special measures in order to survive in the market Economic. The UK's income support interventions also covered those running small businesses namely the Self-Employment Support Scheme (SEISS).

According to Blundell et al. (2020) the Coronavirus Job Retention Scheme for furloughed staff was partly an attempt to keep those important employer–employee ties alive. As a result of the crisis, large, already-successful firms may find themselves in a position to capture a larger market share and exert greater influence over wage-setting, while smaller competitors – or potential competitors – may find themselves unable to weather the temporary drop in demand or to adapt as radically as may be required in order for working practises to be compatible with social distancing. Key legislative reactions to the pandemic in the UK have been the scope of the furlough scheme and support for the self-employed during the lockdown, as well as enhancements in the generosity of the existing safety net. These large-scale measures, as well as the experience of such a seismic shock for which households were unprepared, may influence views toward government assistance, resulting in a renewed focus on social insurance.

The post-pandemic environment may present an opportunity to reconsider competition policy and re-examine the wage-setting power balance between corporations and labour. Price spikes may simply represent equilibrium responses to variations in demand and supply, rather than changes in market power, which is difficult to police (Kossek & Lautsch, 2018). Even though the government set up these schemes to help businesses, the restrictive measures were too harsh and by the time the firms could have benefited from these schemes, it was too late for them to survive in the market. Even those that took advantage of the government's schemes are still attempting to recuperate from the losses they suffered during the pandemic.

The implication is, firstly, with globalisation increasingly integrated systems and the world business opportunities has also inextricably created higher levels of risks and uncertainty in the markets. Ambidextrous firms rather take the initiative and are alert to opportunities beyond the confines of current events, they are cooperative and seek out opportunities to combine their efforts with others, are brokers, entrepreneurs, always looking to multi tasks, looking to build linkages to growth opportunities, to be consistent, as well as transformational. Although knowledge flows is fungible but there is no uniform and equifinal distribution in the internationalisation process. Organisations became proficient at continually making small adaptations to its strategy without losing alignment. For which strategic vacillation enables flexibility in innovation that drives organisations to achieve effectiveness in exploration and exploitation of resources and opportunities. While there were different demands of consumers there also were different approaches between developed and developing countries, with different government police and economic methods also affecting innovation processes.

The economic system will not enable processes to be stopped without affecting the future of businesses, and when the economy stops, many commercial relationships will be broken, either temporarily or permanently (Cepel et al., 2020). Respondents that had briefly shut generally highlighted decreases sought after and representative wellbeing worries as the purposes behind conclusion, with interruptions in the production network being to a lesser extent a factor. Overall, the organisations announced having decreased their dynamic work by 39% since January (Talk London, 2020). Many countries have experienced a supply and demand shock as a result of the Covid-19 epidemic. Factory closures in China, Europe, the United States, and other countries have reduced the availability of exportable commodities and disrupted global value chains (GVCs). At the same time, both individuals and businesses have cut back on their expenditures (Espitia et al., 2021).

4. THE ANALYSIS OF SME PERFORMANCE DURING PANDEMIC

SMEs are recognised as fountainheads of entrepreneurship, innovation, nimble-footed change agents, large employers in terms of absolute numbers, and substantial contributions to society's economy all over the world (Covin and Miller, 2013; Shukla, 2004). According to OECD figures, SMEs represent 99%of businesses in OECD nations and provide 50–60% of their economies' added value. According to OECD estimates, microenterprises and small businesses with fewer than 50 employees employ up to 43% of workers in OECD nations; id-sized businesses (those with 50–249 employees) employ

16%of the population (Levashenko & Koval, 2020). According to recent research by NESTA (2009, p. 1), "between 2002 and 2008, 6% of UK SMEs with the greatest growth rates provided half of the new employment created by existing firms, and innovation has been important in the competitiveness and expansion of these enterprises." SMEs that are innovative appear to be critical components of a dynamic national and regional economic growth process. SMEs are the core of the UK's economy and make up 99%of the country's business populace (Adam et al., 2020).

The UK defines an SME to have less than 250 employees; likewise, the EU characterises a SME as a business with less than 250 workers, a turnover of under €50 million, or a monetary record under €43 million. SMEs make up the majority of all organisations in the UK, so are essential to the UK economy (Wynarczyk, 2013). The Covid-19 pandemic has prompted a number of predictions about how global value chains (GVCs) will evolve in the future. The pandemic is an external shock of unprecedented magnitude inflicted on MNEs, SMEs, new initiatives, and their supply chain partners with international economic ties (Verbeke & Alain, 2020).

The study by Levashenko & Koval (2020) focuses on financial concerns and the development of applicable financial assistance mechanisms for SMEs during a pandemic. According to the authors, SMEs are far more vulnerable to pandemic hazards than major corporations. They place a strong emphasis on the execution and application of financial measures such as direct funding, tax incentives, and so on. As per the authors, the non-financial support system is equally vital. Covid-19's influence on business sectors has been studied in certain studies.

Covid-19 pandemic has changed customer conduct, perspectives toward office work, and surprisingly a few perspectives about society itself. SMEs represent 51% of the absolute income produced by UK organisations and 44% of the nation's workforce. Notwithstanding its effect on general wellbeing, Covid-19 has not only caused a significant financial stun on big businesses but has also damaged most of the established and growing small and medium enterprises which resulted in crashing down the whole economy. There were 6 million SMEs in the UK at the start of 2020. The impact of the Coronavirus emergency on SMEsexecution across the UK is enormous. SMEs, 92% report steady or developing income for the year before the pandemic started. Today, 90% of SMEs say their incomes i.e. volume of transactions but also margins are declining (Mckinsey & Company, 2021).

SMES are evenly distributed across sectors and there has been a huge decrease in the turnover of SMEs after the quarter 2 of year 2020 (Albonico et al., 2020). According to the outcomes of the research, the pandemic had effectively caused huge disengagement among independent ventures only half a month after its beginning and before the accessibility of government help through the Covid-19 aid. Millions of businesses have lost income projections, and millions of jobs have been jeopardised. SMEs were most vulnerable to the pandemic's threats. Many governments worked hard to embrace a variety of financial and non-financial assistance measures, including direct financing, tax stimulus, financial guarantees, tax reliefs, low-interest operational capital loans, and so on (Cepel et al., 2020).

Wang et al. (2020) investigated government support for SMEs in the aftermath of the Covid-19 epidemic. Discussing government policies aimed at assisting SMEs and reducing the economic effect of the Covid-19 epidemic. Their theoretical model is critical for evaluating a variety of government policies, such as bank loan insurance, interest rate subsidies, bridge loans, and tax reliefs. The authors stress the significance of providing bridging loans to SMEs during and after the epidemic in order to avoid widespread closures concluding with specific political proposals targeted at establishing politically-oriented banks or investment funds to promote SMEs, analysing risks that SMEs face, improving financial institutions' risk acceptance by giving long-term tax reliefs and investments for SMEs, and so on. The financial success of companies over time in Covid-19 varies, depending on the owner's risk aversion attitudes (Staszkiewicz & Szelągowska, 2019). Such income support schemes or bridging loans would counteract a slow-down in volume of business transactions which has been widely observed especially in the retail context.

4.1 Critical Insights of SME Performance

Although the government tried to alleviate some of the consequences of the pandemic by providing loans with low interest rates and paying partially or in total salaries of some of the employees. Some rules and regulations were eased and the government provided guidance protocols and help lines for certain industries (Rady, 2012). On the other hand, as stated by Clark (2020) that the government did not act fast enough at the beginning of the pandemic. Lack of clear legal framework and the absence of a long-term plan created a state of uncertainty in the business community. In addition, the government failed to address problems related to supply chains. No obvious road map was put in place to make sure supply chains can be kept as functional as possible. As for SMEs, some of them failed to cope with changing dynamics of the economy as a result of the pandemic. Mismanagement, lack of incentive and lack of previous experience caused some of the businesses more losses that could have been otherwise avoided (Chetty et al., 2020).

Lu et al. (2020) investigated the impact of the COVID crisis on SMEs with the goal of evaluating issues related to job recovery and political demands.. Due to a scarcity of epidemic mitigation supplies, employees' incapacity to return to work, interrupted supply chains, and decreased market demand, the majority of SMEs were unable to continue functioning. Due to multiple fixed expenditures but only a little or no revenue, they rated cash flow problems as the major danger to SMEs' survival. To assess the possible consequences of a worldwide pandemic, Keogh-Brown et al. (2009) use a macroeconomic model. Negative shocks to labour supply, such as illness, mortality, and school closures, as well as demand in certain industries characterised by social consumption, are among them. The negative impact on GDP in the UK is expected to be 2.5%and 6%under moderate and severe pandemic scenarios, respectively. School closures, according to Keogh-Brown, account for the majority of the expected GDP decline. Dixon et al. (2010) use a quarterly CGE model to examine the economic impacts of an H1N1 pandemic in the United States. They factor in the following shocks in their model: a 34% drop in inbound and outbound tourism, a 0.41%drop in labour input due to morbidity, mortality, and parents staying at home to care for their children, an increase in medical expenditures, and a 10% drop in leisure activity expenditures (which includes arts, entertainment, lodging and food service). A two-quarters-long outbreak would result in a 1.6% annual drop in GDP. Furthermore, Dixon et al. (2010) demonstrate that demand-side shocks account for the majority of GDP contraction.

4.2 Conceptualising SME Resilience

To highlight, the lockdown approach by the government has sparked a discussion over whether such precautions are necessary. This reluctance on the part of stakeholders and policymakers is likely due to the significant economic cost of lockdown, which includes the forced suspension of numerous productive activities. Despite that the WHO has emphasised the importance and centrality of such measures in reducing the risk of contagion (and thus the virus's spread), the political debate appears to have been heavily influenced by the negative economic impact of such measures (Alfano & Ercolano, 2020). Remote-working was not a common practice prior to the pandemic (Kossek & Lautsch, 2018). Although the number of US employees who worked from home at least half of the time increased from 1.8 million in 2005 to 3.9 million in 2017. Remote working accounted for only 2.9% of the entire US workforce at the time, according to the American Community Survey (2017). In fact, remote working has been a "luxury for the comparatively rich", mostly for higher-income earners (e.g., over 75% of employees who work from home make more than $65,000 per year) and white-collar workers (e.g., over 40% of teleworkers are executives, managers, etc.) (Wang et al., 2021).

From the case study evidence presented for four key UK Government Covid-19 policy interventions and subsequent SME economic performance indicators a number of proposed relationships emerge which culminate in a novel conceptual framework. SMEs account for a significant share of the UK's economy which makes it crucial for the relevant stakeholders to have a systematic premeditated plan to deal with any future pandemic (Shearer & Tetlow, 2021). Broadly, interventions from the UK Government were identified in four themes (1) Closing Borders, (2) Lockdown, (3) Social Distancing

and (4) Income Support have been identified; these interventions culminated in a significant decrease in SME economic activity. The following discussion conceptualises the potential interactions leading to reduced SME resilience. From the propositions and the emerging conceptual framework, initial recommendations are provided and provide a basis for an empirical research agenda.

From the evidence discussed, SME resilience is highly reliant on several factors. One theme contributing to SME resilience is the robustness of the supply chain through a number of different elements. But a more robust supply chain i.e. more diverse and less complex would lead to more confidence or reliance on stock piles, component prices, etc. For example, global supply chains that cross borders would be affected by closed borders or added complexity such as testing to cross borders. Also, although lockdowns do not prevent supply chains from operating, they do restrict movement of people and thus lead to bottlenecks and delays in supply chains. Therefore it is proposed that:

P1(B). An increase in border closures has a negative impact on less robust (more complex) supply chains;

P1(C). More severe lockdown restrictions lead to delays in more complex (less robust) supply chains;

and therefore in turn:

P2. The more robust SME supply chains (the less complex) the greater (weaker) SME resilience.

Further, closed borders and associated additional cost of moving goods and parts and thus either directly or indirectly negatively affects income through increased unit costs and reduced margins. Less earnings per unit sold makes SMEs more vulnerable to other disruptions. Therefore it is proposed that:

P2(A). An increase in border closures leads to increased unit costs (reduced margins per unit)

and therefore in turn:

P2(B). The greater (lower) margins per unit, the greater (weaker) SME resilience.

However, arguably the greatest impact has been the reduction of footfall for retailing and hospitality industries. On one hand, reduction in movement of people either through reduction in people movement (lockdown) and effective reduction in space capacity to reduce crowding (social distancing) both negatively impact the volume of business transitions; whereas, on the other hand, income support schemes were intended to remove the pressure from businesses to continue paying employees as evident through the furlough scheme but equally to preserve individual disposable incomes and thus individual economic agency as evident with the SEISS. Therefore, it is proposed that:

P2(C). More severe lockdown restrictions lead to reduced physical business transactions volume;

P2(D). More stringent social distancing requirements and associated reduced space capacity leads to reduced physical business transactions volume;

whereas on the other hand:

P2(E). More (less) significant income support scheme leads to limited (greater) reduction in business transactions volume.
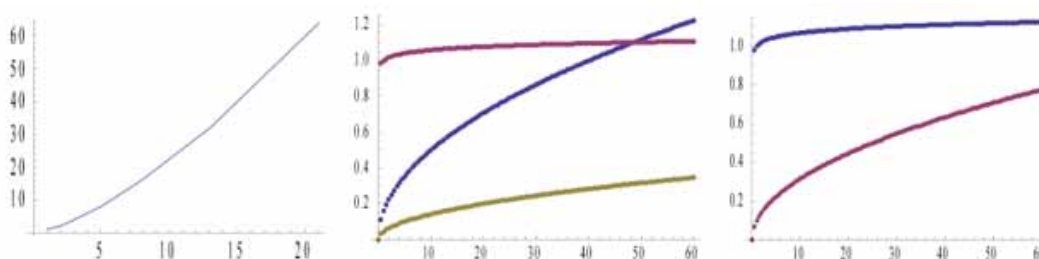
Consequently, Income Support, Lockdown and Social Distancing have a combined effect on SME resilience:

P3. Greater channel flexibility (reduced reliance on single channel e.g. physical) leads to enhanced (reduced) SME resilience.

4.3 The Robustness and Transaction Enhancement

Towards the conjectures, we bring estimates, using PDF (Probability Distribution Function) which, in general, support our argument. Figure 6a reveals the performance landscapes, as associated with complex and flexible innovative processes, the SDA. We then present Figure 6b (middle figure) that shows the 'robustness' remains the position (on the top, red), but once the external circumstance changed, it returned to lower positions (Figure 6c, red), showing a gap in two differentiated distributions. There hence, raised a question, how the robust supply could be transcended across the states of the Pandemic challenges. Seemingly, SME capabilities were limited in path dependent approach, which could only keep fitness in a stable environment, but became inconsistent, unstable, in meeting the external change. Comparatively, in the deployment of transformation strategic approach (in Fig 6c, blue), the position that remains at the top suggests the advantage of SMEs' adaptation and adjustment- in the DBC, the dynamic capability-based-view, that allows for the transaction enhancement.

Figure 6. (a, b, c) The SDA for performance distributions with robust supply, volume enhancement through transactions

Thus, the results suggest that it is the dynamic capabilities in innovation in "robust supply chain" driving firms across different states to remain high performance. Where, actions involve knowledge *priori* and *posteriori* while the changing states of environment affect business activities. Under the environment conditions that are constantly changing, the "enhanced volume" with the "transactional approach" to contextual ambidexterity creates effective responses, leading firms to break through existing patterns of thoughts and operation routines. If otherwise, firms with routine types of approach become less robust or decrease in performance, less resilient. With the SDA, the mechanism underlying the probability distributions is the entropies of knowledge, differentiated states of knowledge, KBV, rather than relying on firms and managerial routines.

Clearly, the resilience of SMEs has a major impact on the UK's economy and all these factors, margin per unit, robust supply chain structure and volume of business transactions combined contribute to the resilience of SMEs. Even though the conceptual model requires empirical testing to ascertain the interaction and relative strength of impact on SME resilience, it is possible to make some initial recommendations for SME managers based on identification of relevant factors and their proposed relationships. These managerial recommendations and the conceptual framework in itself informs and contributes to the research agenda on SME resilience. According to reports released by McKinsey & Company (2021) around 80% of the UK's SMEs have seen a revenue impact due to Covid-19. In which 72% was seen from the SMEs in London.

4.4 Safeguarding Business Transaction Volume

It is proposed that SME resilience is negatively affected by overreliance on few distribution channels i.e. even though income support schemes may protect disposable income to some extent, if lockdown and social distancing measures are in place alternative or dynamic distribution channels need to be available.

Going Online. The role of the SME is to create businesses in these situations would have been admirably tough but most of the SMEs could have gone fully online by quarter 3 of 2020. After the first national lockdown, businesses did not expect another lockdown which led to another failure in the second wave of Covid-19 (Statistics, 2021). Few companies came out of that situation by coming online, e.g Starbucks. Reports say that after the quarter 3 Starbucks decided to close a lot of stores in London but in the second wave of Coronavirus Starbucks went online with a new menu adding breakfast to it as well. Following Starbucks other companies followed the same strategy (Hynes & Ramos, 2021).

Going Outside. Because of the COVID rules of 2 metres "Social distancing" imposed by the government, pubs, restaurants and even cafes started to put their setup for people to sit outside so that people are less prone to get COVID because of proper ventilation and distance. Some pubs started takeaway for beer and other liquor. Businesses who adopted in that condition saw a lot of growth in quarter 1 of 2021 as compared to quarter 3 of 2020 (Clark, 2020).

4.5 Enhancing Supply Chain Robustness

The robustness or complexity of supply chains is proposed to contribute or undermine SME resilience respectively. Extensive global supply chains are a result of realising globalisation drivers and associated benefits (Yip, 1989, 2000), however the pandemic has also exposed that such globalised complex supply chains are more vulnerable to disruption. Therefore, to reduce the negative impact on SME resilience, the robustness of supply chains needs to be enhanced.

Balanced supply chain complexity. Having a robust supply chain structure is necessary especially when the world is so interconnected because of globalisation. Supply chain can have a lot of affect on businesses. SMEs need to draw on inventory principles such as VED (vital, essential, desired) or similar in order to identify less vulnerable partners for components/parts that are more significant to the commercial offering.

Online Infrastructure. Online communication infrastructure with regards to transparency within the supply chain, real time lead times or availability of staffing can greatly reduce the uncertainty and thus enhance the resilience of SMEs. This can include more use of technology, extensive use of online services and putting a database in which data should be organised and analysed periodically to measure the reaction of customers to any fluctuation in both the price and the quality of goods and services.

4.6 Reducing Margin per Unit Volatility

Lastly, margin per unit and thus buffer in cost structure is a key proposed contributor to SME resilience. Therefore, skilled workforce availability to manage specialist processes or produce and handle value adding components is a key driver of unit margins. Therefore, SMEs should play an active role in developing that skill base: Providing Resources: More resources should be allocated towards succession planning and training of skilled workforce and thus reduce scarcity and associated volatility of skill costs during a pandemic. This can include listing an alternative skilled workforce pool that can be used if and when necessary and a comprehensive plan based on scientifically sound and accurate information should be formed as well in order to combat any similar emergencies.

5. CONCLUSION

The worldwide Covid-19 pandemic has impacted every country, not only the health sector but also the corporate sector. Shopping habits, production processes, and modes of travel and employment have all evolved due to this pandemic. This will have an impact on the economy's future performance. The research aims to fill the vacuum by bringing in robust solutions to have an expendable environment for

SMEs. The main intention of the research is to find a connection that impacts SMEs' resilience in the long term which will be helpful to withstand any crisis effectively whether it's a pandemic or a war. As, the SMEs are not as tenacious and sturdy to survive any mishap that could occur in the future. The research helps to draw a plan of actions which will help the SMEs to become resilient. The research illustrates that the resilience of SMEs is unequivocally linked to three major conditions: the Government took some measures to deal with Covid-19 pandemic and curb the spread of infection such as strict lockdowns, closing of the borders and social distancing. These measures though helped in stopping the spread of infection to some extent but had a major negative impact on the businesses of all kinds. These measures had an operational impact on SMEs' Volume of business transactions, robust structure of supply chain and margin per unit of the products. The more the volume of business transactions, the more resilient SMEs are built. Which clearly got affected by the lockdown and social distancing, these two operational impacts on SME had a negative impact on the resilience of SME. Closing borders of countries affected the margin per unit and supply chain structure hence making SME weaker. Robust supply chain structure got affected by lockdowns and closing borders, which resulted in making SMEs' less resilient. Even though the government brought on "income support" which did have an impact on Volume of business transactions but was not enough for SME to survive in the market.

FUNDING AGENCY

REFERENCES

AdamS.HelenM. T. W. (2020). https://ifs.org.uk/uploads/publications/bns/BN277-Income-protection-for-the-self-employed-and-employees-during-the-coronavirus-crisis.pdf

Albonico, M., Mladenov, Z., & Sharma, R. (2020). *How the COVID-19 crisis is affecting UK small and medium-size enterprises*. Retrieved from https://www.mckinsey.com/industries/public-and-social-sector/our-insights/how-the-covid-19-crisis-is-affecting-uk-small-and-medium-size-enterprises

Baldwin, R. E. (2020). *Thinking ahead about the trade impact of COVID-19*. Retrieved from http://www.econis.eu/PPNSET?PPN=1695280946

Bekkers, E., & Koopman, R. B. (2020). Simulating the trade effects of the COVID-19 pandemic: Scenario analysis based on quantitative trade modelling. *World Economy*. Advance online publication. doi:10.1111/twec.13063 PMID:33362334

Blundell, R., Costa Dias, M., Joyce, R., & Xu, X. (2020). COVID-19 and inequalities. *Fiscal Studies*, *41*(2), 291–319. doi:10.1111/1475-5890.12232 PMID:32836542

Boettke, P., & Powell, B. (2021). The political economy of the COVID-19 pandemic. *Southern Economic Journal*. *Southern Economic Journal*, *87*(4), 1090–1106. doi:10.1002/soej.12488 PMID:33821055

Cai, H., Meng, K., & Chakraborty, S. (2021). Migrants and exports: Decomposing the link. *Journal of World Business*, *56*(2), 101166. Advance online publication. doi:10.1016/j.jwb.2020.101166

Cepel, M., Gavurova, B., Dvorsky, J., & Belas, J. (2020). The impact of the covid-19 crisis on the perception of business risk in the sme segment. *Journal of International Studies (Kyiv)*, *13*(3), 248–263. doi:10.14254/2071-8330.2020/13-3/16

Chetty, R., Friedman, J., Hendren, N., & Stepner, M. (2020). *How did COVID-19 and stabilisation policies affect spending and employment? A new real-time economic tracker based on private sector data.* Academic Press.

Clark, D. (2020). *UK SME turnover 2020*. Retrieved from https://www.statista.com/statistics/687367/uk-sme-turnover/

Claudia Hupkau, B. P. (2020). *COVID-19 and gender gaps: Latest evidence and lessons from the UK*. Retrieved from https://voxeu.org/article/covid-19-and-gender-gaps-latest-evidence-and-lessons-uk

Covin, J. G., & Miller, D. (2013). International entrepreneurial orientation: Conceptual considerations, research themes, measurement issues, and future research directions". *Entrepreneurship Theory and Practice*, *38*(1), 11–44. doi:10.1111/etap.12027

Cunha, F., & Heckman, J. J. (2009). The economics and psychology of inequality and human development. *Journal of the European Economic Association*, *7*(2-3), 320–364. doi:10.1162/JEEA.2009.7.2-3.320 PMID:20209045

De Loecker, J., Eeckhout, J., & Unger, G. (2020). The rise of market power and the macroeconomic implications. *Quarterly Journal of Economics, 135*, 561–644. Retrieved from https://doi-org.gcu.idm.oclc.org/10.1093/qje/qjz041

Denny-Brown, N. (2021). The impact of the COVID-19 pandemic on the Long-Term care workforce. *Health Services Research*, *56*(S2), 15–16. doi:10.1111/1475-6773.13733

Didier, T., Huneeus, F., Larrain, M., &Schmukler, S. L. (2021). *Financing firms in hibernation during the COVID-19 pandemic*. World Bank. 10.1596/33611

Dingel, J., & Neiman, B. (n.d.). How many jobs can be done at home? *Covid economics: Vetted and real-time papers, 1*, 16–24. Retrieved from https://cepr.org/sites/default/files/news/COVID-19.pdf

Dunford, D., Dale, B., Stylianou, N., Lowther, E., Ahmed, M., & De la Torres Arenas, I. (2020). *Coronavirus: The world in lockdown in maps and charts*. Retrieved from https://www.bbc.co.uk/news/world-52103747

Earn, D. J. D., Dushoff, J., & Levin, S. A. (2002). *Ecology and evolution of the flu*. Elsevier Ltd., doi:10.1016/S0169-5347(02)02502-8

Easterby-Smith, M., & Prieto, I. M. (2008). Dynamic capabilities and knowledge management: An integrative role for learning? *British Journal of Management*, *19*(3), 235–249. doi:10.1111/j.1467-8551.2007.00543.x

Easterby-Smith, M., Thorpe, R., & Lowe, A. (2002). *Management Research: An Introduction* (2nd ed.). Sage Publications.

Eggo, R. M., Cauchemez, S., & Ferguson, N. M. (2011). Spatial dynamics of the 1918 influenza pandemic in England, Wales and the United states. *Journal of the Royal Society, Interface*, *8*(55), 233–243. doi:10.1098/rsif.2010.0216 PMID:20573630

Espitia, A., Mattoo, A., Rocha, N., Ruta, M., & Winkler, D. (2021a). Pandemic trade: COVID-19, remote work and global value chains. *World Economy*. Advance online publication. doi:10.1111/twec.13117 PMID:33821085

Espitia, A., Mattoo, A., Rocha, N., Ruta, M., & Winkler, D. (2021b). Pandemic trade: COVID-19, remote work and global value chains. *World Economy*. Advance online publication. doi:10.1111/twec.13117 PMID:33821085

Fernandes, A., Paunov, C., & Bas, M. (2021). *The resilience of trade to COVID-19, work in progress*. World Bank. Retrieved from https://voxeu.org/article/2020-trade-impact-covid-19-pandemic

Hajro, A., Gibson, C., & Pudelko, M. (2017). Knowledge exchange processes in multicultural teams: Linking organisational diversity climates to teams' Effectiveness. *Academy of Management Journal*, *60*(1), 345–372. doi:10.5465/amj.2014.0442

Hannan, M. T., & Freeman, J. (1989). *Organisational Ecology*. Harvard Uni. Press. doi:10.4159/9780674038288

He, D., Dushoff, J., Day, T., Ma, J., & Earn, D. J. (2011). Mechanistic modelling of the three waves of the 1918 influenza pandemic. *Theoretical Ecology*, *4*(2), 283–288. doi:10.1007/s12080-011-0123-3

Hudson, D. S. (2020). The economic, social and environmental impacts of COVID 19. Academic Press.

Imai, K. S., Kaicker, N., & Gaiha, R. (2021). Severity of the COVID-19 pandemic in india. *Review of Development Economics*, *25*(2), 517–546. doi:10.1111/rode.12779 PMID:34149301

Johnson, D. D., Price, M. E., & Van Vugt, M. (2013). Darwin's invisible hand: Market competition, evolution and the firm. *Journal of Economic Behavior & Organization*, *90*, 128–140. doi:10.1016/j.jebo.2012.12.016

Kim, S., & Kim, S. W. (2010). The trade-off of service quality and cost: A system dynamics approach. *Asian Journal on Quality, 11*(1), 69-78.

Kossek, E. E., Lautsch, B. A., & Eaton, S. C. (2006). Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work–family effectiveness. *Journal of Vocational Behavior*, *68*(2), 347–367. doi:10.1016/j.jvb.2005.07.002

LevashenkoA. (2020). Measures of financial and non-financial support to small and medium-sized enterprises (SMEs) in the wake of COVID-19. 10.2139/ssrn.3629597

Levinthal, D. A., & March, J. G. (1981). A model of adaptive organisational search. *Journal of Economic Behavior & Organization*, *2*(4), 307–333. doi:10.1016/0167-2681(81)90012-3

Li, X., Li, A. J., & Du, B. (2021). Covid-19. *Stem Cell Research (Amsterdam)*, *55*, 102468. doi:10.1016/j.scr.2021.102468 PMID:34298434

Măiță, Pădurean, & Apostol. (2021). COVID-19 crisis - impact of the pandemic into the perception of business risk through romanian SMEs sector. *Revista De Management Comparat International*, *22*(4), 507–518. doi:10.24818/RMCI.2021.4.507

Markel, H., Lipman, H. B., Navarro, J. A., Sloan, A., Michalsen, J. R., Stern, A. M., & Cetron, M. S. (2007). Nonpharmaceutical interventions implemented by US cities during the 1918-1919 influenza pandemic. *Journal of the American Medical Association*, *298*(6), 644–654. doi:10.1001/jama.298.6.644 PMID:17684187

Michie, J. (2020). The covid-19 crisis - and the future of the economy and economics. *International Review of Applied Economics*, *34*(3), 301–303. doi:10.1080/02692171.2020.1756040

Miller, M. A., Viboud, C., Balinska, M., & Simonsen, L. (2009). The signature features of influenza pandemics— Implications for policy. *The New England Journal of Medicine*, *360*(25), 2595–2598. doi:10.1056/NEJMp0903906 PMID:19423872

Mishra, A. C., Chadha, M. S., Choudhary, M. L., & Potdar, V. A. (2010). Pandemic influenza (H1N1) 2009 is associated with severe disease in india. *PLoS One*, *5*(5), e10540. doi:10.1371/journal.pone.0010540 PMID:20479875

MorrisonE. R. (2020). Bankruptcy's role in the COVID-19 crisis. 10.2139/ssrn.3567127

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. Harvard University Press.

OECD. (2020). *Coronavirus (COVID-19): SME policy responses*. Retrieved 15 July 2020, from https://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/

OECD. (2022). *Small and medium-sized enterprises and trade*. Retrieved 15 August 2020, from https://www.oecd.org/trade/topics/small-and-medium-enterprises-and-trade/

ONS. (2022). https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/february2022#coronavirus-and-measuring-the-labour-market

Ozili, P., & Arun, T. (2020). *Spillover of COVID-19: Impact on the global economy.* Academic Press.

Penn, M. (2022). *Statistics Say Large Pandemics Are More Likely Than We Thought*. Retrieved 23 August 2021, from https://globalhealth.duke.edu/news/statistics-say-large-pandemics-are-more-likely-we-thought

Peysakhovich, A., & Rand, D. G. (2016). Habits of virtue: Creating norms of cooperation and defection in the laboratory. *Management Science*, *62*(3), 631–647. doi:10.1287/mnsc.2015.2168

Pitalia, S. (2020). Covid-19. *The British Journal of General Practice*, *70*(695), 280. doi:10.3399/bjgp20X710021 PMID:32467201

ProhorovsA. (2020). Getting ready for recession. 10.2139/ssrn.3596611

Schoemaker, P. J. H., Heaton, S., & Teece, D. (2018). Innovation, Dynamic Capabilities, and Leadership. *California Management Review*, *61*(1), 15–42. doi:10.1177/0008125618790246

Shukla, P. (2004). WTO and survival of small-scale industry: The five myth entrepreneurial framework with case study of rajkot diesel engine industry. *The Journal of Entrepreneurship*, *13*(1), 69–92. doi:10.1177/097135570401300104

SME employment growth three times faster than larger businesses. (2018). Retrieved 11 December 2018, from https://www.santander.co.uk/about-santander/media-centre/press-releases/sme-employment-growth-three-times-faster-than-larger-businesses

Staszkiewicz, P., & Szelągowska, A. (2019). Ultimate owner and risk of company performance. *Ekonomska Istrazivanja*, *32*(1), 3795–3812. doi:10.1080/1331677X.2019.1678499

Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, *18*(7), 509–533.

Van den Steen, E. J. (2018). Strategy and the strategist: How it matters who develops the strategy. *Management Science*, *64*(10), 4533–4551.

Verbeke, A. (2020). Will the COVID-19 pandemic really change the governance of global value chains? *British Journal of Management*, *31*(3), 444–446. doi:10.1111/1467-8551.12422

Viscusi, W. K. (2021). Economic lessons for COVID-19 pandemic policies. *Southern Economic Journal*. *Southern Economic Journal*, *87*(4), 1064–1089. doi:10.1002/soej.12492

Wang, B., Liu, Y., Qian, J., & Parker, S. K. (2021a). Achieving effective remote working during the COVID-19 pandemic: A work design perspective. *Applied Psychology*, *70*(1), 16–59. doi:10.1111/apps.12290

Wang, S. S., Goh, J. R., Sornette, D., Wang, H., & Yang, E. Y. (2021). Government support for SMEs in response to COVID-19: Theoretical model using wang transform. *China Finance Review International*, *11*(3), 406–433. doi:10.1108/CFRI-05-2021-0088

Wynarczyk, P. (2013a). Open innovation in SMEs. *Journal of Small Business and Enterprise Development*, *20*(2), 258–278. doi:10.1108/14626001311326725

Wynarczyk, P. (2013b). Open innovation in SMEs: A dynamic approach to modern entrepreneurship in the twenty-first century. *Journal of Small Business and Enterprise Development*, *20*(2), 258–278. doi:10.1108/14626001311326725

Yip, G. (1989). Global Strategy in a world of nations? *Sloan Management Review*, 1-13.

Yip, G. (2000). Global Strategy in the Internet Era. *Business Strategy Review*, *11*(4), 1–14. doi:10.1111/1467-8616.00152

Yong, C. (2020). Covid-19. *Journal of the American College of Cardiology*, *75*(20), 2639–2641. doi:10.1016/j.jacc.2020.04.014