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Impact of the COVID-19 pandemic on survival of MSMEs in Zimbabwe

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Abstract
Purpose: This study aimed to assess the impact of COVID-19 and its associated lockdowns on the survival of micro, small, and medium enterprises (MSMEs) in Zimbabwe, where more than 60 percent of economic activity is conducted through MSMEs.
Research methodology: This study was conducted through an online survey of 447 individuals representing MSMEs operating in Zimbabwe. Data were analyzed using the statistical package for social sciences (SPSS), guided by a binary logistic regression model, to assess the impact of COVID-19 on the survival of MSMEs in Zimbabwe.
Results: The model showed that the independent variables had a significant impact on the survival of MSMEs, with an overall accuracy of 87.9% in predicting the effects of COVID-19 on the survival of MSMEs. The study concluded that many MSMEs in Zimbabwe were negatively affected by the COVID-19 lockdown, except for those in strategic economic sectors that were not required to close their operations during the lockdowns.
Limitations: The major limitation of the study was the low response rate of MSMEs operators from remote areas who could not respond to the online survey because of the nature of their business operations, which is survivalistic in nature and would not afford them time to respond to the survey.
Contribution: The study recommends the provision of financial rescue packages by the government, development partners, civic organizations, and government policy realignment to ensure that MSMEs are resuscitated after lockdowns have been lifted.
Novelty: This study contributes to the post-COVID-19 discourse, as global economies are rebuilding after the relaxation of COVID-19 related business operation restrictions. This is more important for developing countries that are most negatively affected and require their economies to recover from COVID-19 related economic depression.
Keywords: *MSMEs, COVID-19, Zimbabwe, Lockdown, Resource Constrained Country*
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1. Introduction

Coronavirus (CoV) originates from the genus Coronavirus of Coronaviridae (Sahin et al., 2020). CoVs are highly mutated and are known to exist in humans and several other animal species. CoVs have

several clinical features, ranging from being asymptomatic to requiring intensive care hospitalization, and are known to infect the respiratory, gastrointestinal, hepatic, and neurological systems (Sahin et al., 2020). On December 31, 2019, the world was alerted by the China Health Authority of numerous cases of novel pneumonia of unknown cause in China's Hubei province in the city of Wuhan through the World Health Organization (Harapan et al., 2020; Kooli, 2021). The exact cause of pneumonia was discovered in early January 2020 to be a novel coronavirus (nCoV), which was named by the WHO as the 2019-nCoV and was subsequently renamed by the Coronavirus Study Group as the severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) (Harapan et al., 2020). This was performed after studying and establishing its severity. However, despite belonging to the same beta coronavirus subclass, genome similarity is only about 70 percent and therefore, possess genetic differences. The WHO renamed the virus the coronavirus disease of 2019 (COVID-19) in February 2020.

Due to the severity of COVID-19, within a very short time frame, the virus had spread from Wuhan City in China to all continents of the world, with statistics from the WHO revealing that it affected more people outside of China, leading to the USA and Europe (WHO, 2020). To control the spread of the COVID-19, countries had to close their borders (Abdelghaffar et al., 2021) and shut down all public activities including business activities across all sectors of economies of most countries affected by the COVID-19 (Kooli, lock Son, & Beloufa, 2022). These measures were commonly known as 'lockdowns' since countries had to lock themselves up and citizens had to lock themselves up indoors, with movement being restricted as public modes of transport were also closed. Those diagnosed with COVID-19 must resort to self-isolation and quarantine to minimize the spread and mortality of the virus (Kooli, 2021). This is because there is no medical cure for COVID-19.

Due to the lockdown measures, businesses of various sizes were affected differently, since some remained functional because of the criticality of their supplies, while others are still yet to open because they are informally registered (Messabia, Fomi, & Kooli, 2022). Since the start of COVID-19, there have been supply shocks, especially for businesses that relied on products, equipment, and spares from China, since China was the first country to institute lockdowns (Seifert & Markoff, 2020). As the rest of the world was affected by COVID-19, countries locked down, leading to demand shocks affecting businesses (Kooli & Lock Son, 2021; Seifert & Markoff, 2020). These shocks, together with other shocks beyond the scope of this discussion, are known as COVID-19 shocks (UNCTAD 2020). The effects of the COVID-19 shocks were of different magnitudes to different countries, with developing countries expected to suffer a knock on their Gross Domestic Product (GDP) of at least 2.5 percent, while developed economies are expected to experience a slowdown in economic activity of around 2 percent of GDP (Maliszewska, Mattoo, & Van Der Mensbrugghe, 2020).

1.1. Problem statement

Businesses in various economic sectors across the globe were affected inconsistently by the lockdown measures, and some sectors were affected worse than others. Some of the most vulnerable sectors include insurance, reality, banks, and hospitality, whereas some of the least affected sectors include pharmaceuticals, telecommunications, food, and beverages, as well as retail businesses (Perspectives, 2020). Similarly, businesses of different sizes were affected differently, with micro-, small-, and medium-sized enterprises being worse than larger corporations and multinational corporations. The logical reason is their lack of financial and supply chain muscles to have escaped the supply shocks as well as the demand shocks that resulted from the COVID-19 lockdowns (Kooli & Lock Son, 2021; Seifert & Markoff, 2020). This study aimed to assess the likelihood of business survival of MSMEs given the constraints caused by COVID-19 induced lockdowns, therefore the models reviewed were adapted to the study and the variables applicable to the study.

The study sought to answer the following questions: How did the COVID-19 pandemic impact the survival of MSMEs in Zimbabwe? How did the lockdowns affect situation pertaining to the survival of MSMEs in Zimbabwe? What are the key requirements for MSMEs in Zimbabwe to recover from the effects of the COVID-19 pandemic and the associated lockdowns?

Therefore, this study surveyed the survival of micro, small, and medium enterprises (MSMEs) in Zimbabwe, a resource-constrained developing country. The Zimbabwean economy is anchored on the activities of MSMEs in terms of GDP contribution and employment provision (Kapesa, Kufakunesu, & Cheza, 2021). The institution of national lockdowns in Zimbabwe was abrupt, giving businesses insufficient time to procure and sell enough to cover the expenditures incurred during the lockdown period. The lockdowns negatively affected the operations and cash flow of businesses of all sizes. However, the extent of such an impact on the survival of MSME operations requires an empirical establishment, which is the essence of this study.

2. Literature review

This section reviews the literature related to micro, small, and medium enterprises and their importance in resource-constrained countries such as Zimbabwe. The literature related to coronaviruses, especially COVID-19, was also reviewed. The purpose of this review is to clearly show the gap between the study plugs.

2.1. Definition of Micro, Small and Medium Enterprises (MSMEs)

Scholars, academics, and practitioners have attempted to define MSMEs from various perspectives using several variables. The result has been a wide array of definitions of micro, small, and medium enterprises classified by geography, economic groupings, and economic sectors (Kapesa et al., 2021). Therefore, a contextual definition of MSMEs is important to guide the discussions that follow in this study. The variety of definitions of MSMEs is based on common features, the key of which include the number of employees, annual turnover, and/or balance sheet size, as represented by the asset base of the enterprises (Bomani, Fields, & Derera, 2015). Presented below are some of the key definitions of MSMEs.

The South African National Small Business Act 102 of 1996, amended by Act 29 of 2004, traditionally classifies small businesses into micro enterprises, such as survivalist enterprises, very small enterprises, small enterprises, and medium enterprises. These classifications were further streamlined in 2018 to only have three classes by removing very small enterprises because of its inconsistency with international best practices for defining small enterprises (DSBD, 2019). The variables used to distinguish the three business sizes are the total full-time equivalent of paid employees and the total annual turnover (DSBD, 2019). Similar categories of micro, small, and medium enterprises appear to be standardized globally, as India also has these three categories of small enterprises as defined by the Micro, Small, and Medium Enterprises Development Act, which was promulgated into law in 2006 (DSBD, 2017).

In Zimbabwe, the Small and Medium Enterprises Development Corporation (SMEDCO) and Ministry of Small and Medium Enterprises define small and medium enterprises (Kapesa et al., 2021). The definitions used are guided by the Act of the Parliament of the Government of Zimbabwe (GoZ) (2011) and Small and Medium Enterprises Act 6 of 2011 (Chapter 24:12). The Act provides a detailed and comprehensive definition of MSMEs, as follows:

"Micro-enterprises, small enterprises or medium enterprises" (MSME) as a business entity, whether corporate or unincorporated, which, together with any of its branches or subsidiaries:

1. *Is managed by one person or jointly by two or more persons; and*
2. *Carries on business predominantly in a sector or subsector of the economy specified in the first column of the Fourth Schedule; and*
3. *Meets the criteria for classification as a micro, small or medium enterprise specified in the second, third and fourth columns of the Fourth Schedule opposite the sector or subsector concerned (or any other criteria relating to maximum employees, total annual turnover or gross value of assets excluding immovable property as may be prescribed generally or for the purpose of any scheme); and*
4. *Qualifies as a micro, small or medium enterprise by application of the formula set out in the Fifth schedule to the criteria specified in the Fourth Schedule."*

The Fourth Schedule to the Small and Medium Enterprises Act (Chapter 24:12) provides details on the variables used to distinguish between micro, small, and medium enterprises. Table 1 below gives an excerpt of the agriculture and manufacturing sectors.

Table 1. MSMEs classification in Zimbabwe

Sector or subsector of economy	Size or class of enterprise	Maximum number of fulltime paid employees	Maximum total annual turnover	Maximum gross value of assets (excluding immovable property)
Agriculture	Micro	5	US$30,000	US$10,000
	Small	30	US$500,000	US$250,000
	Medium	75	US$1,000,000	US$500,000
Manufacturing	Micro	5	US$30,000	US$30,000
	Small	40	US$500,000	US$500,000
	Medium	75	US$1,000,000	US$1,000,000

Source: Small and Medium Enterprises Act (Chapter 24:12)'s Fourth Schedule

As shown in Table 1, MSMEs may have slightly different numbers in different economic sectors; however, the variations are not significant. In addition, the definitions of the Zimbabwean Act are no longer consistent with other international organizations that have been providing definitions that have been adopted by other countries, such as South Africa and the European Union (DSBD, 2017).

The European Commission classifies MSMEs by their number of employees, turnover, and balance sheet size without reference to the value of assets, which may be subjective and difficult to measure (DSBD, 2017). However, the European Commission has three categories of small businesses: micro, small, and medium, as with the quantum of variables, as shown in Table 2 below.

Table 2. SMEs classification in the European Union

Enterprise category	Employee head count	Turnover	Balance sheet total
Medium	< 250	≤ €50 million	≤ €43 million
Small	< 50	≤ €10 million	≤ €10 million
Micro	< 10	≤ €2 million	≤ €2 million

Source: European Commission (2003)

Although the European Commission definitions shown in table 2 above have been adopted by several other countries, there are other frameworks for measuring MSMEs. The only variations are in terms of the number of what makes up which business size. The United Nations Conference on Trade and Development (UNCTAD) classifies firms employing between five and 500 persons as MSMEs, as cited in Okello-Obura and Matovu (2011). The bases of the number are minor points of diversion in the endeavor to classify business sizes, since the variables are similar. This study adopts the framework given by the MSMEs Act from Zimbabwe; that is, both incorporated and unincorporated businesses are included in the study.

2.2. Challenges faced by MSMEs

Several factors commonly affect the success of MSMEs regardless of their location. Before the onset of the COVID-19 lockdowns, MSMEs have traditionally faced challenges that need to be highlighted before any attempt to discuss the challenges paused on the operations of MSMEs by the lockdown induced by the COVID-19 pandemic. The Asian Development Bank Institute in a working paper identified the following challenges: difficulties in accessing resources (finance), poor information infrastructure, low levels of business research and development, and insufficient use of information technology (Yoshino & Taghizadeh Hesary, 2016). Similar challenges were also identified by Khatri (2019) and Sugiarto (2018), although there were a few additions to these primary challenges.

The challenges highlighted restrict the propensity of MSMEs to grow and reach their potential in terms of revenue and profitability. These challenges incorporate both internal and external conditions that

inhibit entrepreneurs' ability to achieve their objectives (Sugiarto, 2018). Despite the existence of challenges in the running of MSMEs, they remain important to both developed and developing economies, such as Zimbabwe (Kapesa et al., 2021; Kooli, 2020). MSMEs are key providers of employment, contribute significantly to national income (GDP) (Chinembiri, 2011; Zindiye, Chiliya, & Masocha, 2012), and offer economic opportunities to marginalized groups such as children and women as well as alleviate poverty (Bomani et al., 2015). Some of the major challenges faced by MSMEs are as follows:

2.2.1. Challenges accessing resources

MSMEs most of the time do not have critical resources such as finances, skilled labour, access to markets, market information and technology (Kooli, Shanikat, & Kanakriyah, 2022; Yoshino & Taghizadeh Hesary, 2016). The lack of resources in the ability to access finance was more pronounced. Most financiers, such as banks, require collateral security before they can finance any venture that most MSMEs do not have (Khatri, 2019). Most lenders and providers are comfortable providing resources to larger enterprises than to MSMEs, usually because most MSMEs have trouble maintaining their records (Kapesa et al., 2021).

2.2.2. Poor information infrastructure

Information asymmetry usually exists between providers of capital and those in need of capital, and this information is of intrinsic value to providers of finance, such as providers of credit and financial institutions (Yoshino & Taghizadeh Hesary, 2016). Large businesses are usually listed on stock markets, making information about their operations available on such platforms about their businesses' intrinsic value. On the other hand, MSMEs do not have access to stock markets, making information about their credit worthiness unavailable. This leads to MSMEs being unable to access critical resources such as finances, credit, and skilled labor for their success. This lack of information technology infrastructure further exacerbates information asymmetry, resulting in providers charging risk premiums unless the MSMEs can provide collateral security for their borrowings (Yoshino & Taghizadeh Hesary, 2016). The poor information technology infrastructure challenge is strongly related to the financing challenges faced by MSMEs. This problem is common in developing countries where there are huge infrastructure gaps that extend beyond the ICT infrastructure to other hard infrastructures that negatively impact the operations of MSMEs (Chigora, Kapesa, & Svongoro, 2021).

2.2.3. Inadequate Business Research and Development (R&D) finance

Investments by entrepreneurs in R&D are key determinants of innovation and growth in related businesses (Yoshino & Taghizadeh Hesary, 2016). Most MSMEs cannot afford the expenditure required for researching and developing new products, as it has become common for most big corporations to make such investments. The resultant lack of innovation leads MSMEs to fail to reach their envisaged growth in sales and profitability. Poor R&D investments lead MSMEs to fall short of international competitiveness because the market is now a single global village (Karedza & Govender, 2017). Little or no expenditure on R&D negatively affects MSMEs' products, processes, and organization (Yoshino & Taghizadeh Hesary, 2016). For MSMEs to reach sustainable operational levels, there is a need for innovation, yet these enterprises face resource constraints to make such key investments.

2.2.4. Insufficient use of Information Technology (IT)

There have been significant developments and deployment of IT in the production process, as well as in the marketing and selling of products. The key developments have led consumers to prefer e-commerce transactions to counter transactions. Most MSMEs have not been keeping up with developments in the IT landscape, resulting in their products being less competitive and/or failing to access electronic markets. MSMEs generally cannot afford investing in technology intensive production processes and at the same time they may not have the skilled staff to run such production facilities or to support e-commerce websites. MSMEs thus, MSMEs cannot take advantage of high mobile phone penetration rates. Thus, MSMEs cannot grow or develop optimally. This challenge manifested during the onset of the COVID-19 pandemic when most businesses were thrown into disarray and had to

rediscover how to utilize IT, the Internet, and e-business to survive during the lockdowns, and MSMEs were most affected (Naab & Bans-Akutey, 2021).

2.2.5. Strategic thinking and problem-solving challenges

Strategic thinking and problem-solving tend to be major challenges faced by many firms, especially those categorized as MSMEs. This is particularly so because of the size of their operations, which are usually run as family businesses. Thus, MSMEs are generally challenged with respect to their ability to have sophisticated approaches to acquiring information about their businesses, analyzing that information for the purpose of developing inimitable business insights. Thus, MSMEs generally lack long-term strategies and end up switching strategies occasionally, sometimes yearly or less (Karedza & Govender, 2017). Moreover, MSMEs may lack competencies relevant to systematically dealing with business-related problems. This usually leads managers of MSMEs resorting to 'management by crisis.' Thus, managerial competences for MSMEs were also tested during the COVID-19 pandemic, especially in relation to surviving unexpected situations such as pandemics (Anoke, Onu, & Agagbo, 2022).

2.2.6. Other challenges

The literature records several other challenges affecting the growth and development of MSMEs in both developed and developing countries. These challenges are similar across the economic spectrum and include a lack of economies of scope and scale, incurring higher costs of transacting than larger enterprises (Majoni, Matunhu, & Chaderopa, 2016; Yoshino & Taghizadeh Hesary, 2016), weak supply chains negatively affected by government regulations and policies (Zindiye et al., 2012), lack of intrapreneurial and technical skills for the next levels of their enterprises, and the inability to produce products of quality that makes them competitive (Chivasa, 2014).

Added to these challenges are challenges specifically linked to COVID-19, which may be similar to the challenges discussed above but are summarized hereby. COVID-19 affected both supply- and demand-side businesses (Seifert & Markoff, 2020), including MSMEs. Supply chains are negatively affected because most MSMEs cannot afford to buy large quantities or face challenges with warehousing facilities (Jackson, Weiss, Schwarzenberg, & Nelson, 2020). For some MSMEs, economies were locked down while supplies were yet to be delivered, and this had more serious repercussions on the operations of most MSMEs than the larger entities. Most MSMEs in Africa rely on supplies procured from China and the COVID-19 pandemic drastically affected the supply chains for most MSMEs, especially given that COVID-19 and lockdowns emanated from China (Bharti, 2021). On the demand side, economic lockdowns affect consumers' buying power, as well as their demand for non-basic products, which results in some MSMEs facing threats of business closure (Messabia et al., 2022). Closure was motivated mainly by the survivalist nature of micro and small enterprises.

The numerous challenges highlighted above have existed ever since the evolution of business enterprises, and it is therefore imperative that management for various businesses, including MSMEs, is agile enough to convert these challenges into opportunities while at the same time capitalizing on already existing opportunities. Achieving this requires management to be proactive and strategic with the ability to plan and forecast the near future. Thus, MSMEs must endeavor to implement strategic planning and management. In addition, proper marketing strategies are relevant to achieve desired business growth levels, survival, and business sustainability as part of the strategies for MSMEs (Anoke, Ngozi, Uchechukwu, & Joyce, 2022). However, it must be noted that with the best strategies, businesses can still be affected by disasters and pandemics such as COVID-19, which led to most developed countries locking down their economies to try figuring out possible ways of containing the pandemic.

2.3. COVID-19, Lockdowns, and its impact on MSMEs

The 2019-nCov broke out from the Chinese city of Wuhan (Hubei province) and was reported for the first time at the end of December 2019 (Di Gennaro et al., 2020). This led to the subsequent attempts to establish its clinical features and it was renamed as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) by the International Committee on Taxonomy of Viruses (Coronavirus Study Group of

the International Commission on Virus Classification) (She, Liu, & Liu, 2020)(Yuen, Ye, Fung, Chan, & Jin, 2020;) and the disease caused by the SARS-CoV-2 was named COVID-19 by the World Health Organisation on the 11th of February 2020 (Di Gennaro et al., 2020). The World Health Organization (WHO) declared 2019-nCov a global health emergency by the end of January 2020 (Yuen, Ye, Fung, Chan, & Jin, 2020), before declaring it a global pandemic in March 2020 (Di Gennaro et al., 2020; She et al., 2020). After the declaration of the global pandemic status, most countries embarked on national lockdowns.

Despite COVID-19 being declared a global health pandemic, there is no known antiviral treatment or vaccine for its management during 2020 (Sahin et al., 2020). Countries across the globe have resorted to preventing the spread of COVID-19 by adhering to a number of guidelines issued by the WHO, which include the use of face masks, covering coughs and sneezes, regular washing of hands, avoiding contact with infected people, maintaining safe distance from other people (social distancing), and following advice given by healthcare providers amongst many others (Di Gennaro et al., 2020). To ensure adherence to the WHO guidelines to prevent the spread of COVID-19, lockdowns were announced globally with Zimbabwe's initial 21-day total lockdown, which started on the 30th of March 2020. China was the first country to announce travel restrictions in late January 2020 (Jackson et al., 2020). According to pronouncements by the Government of Zimbabwe, only essential service providers (businesses) could remain operational for limited time periods.

For developed economies, lockdowns were a source of major challenges emanating from supply shocks (direct result of lockdowns) as well as the resultant demand shocks (rise in unemployment due to retrenchments, erratic social welfare systems, and the demise of corporate investment plans) in their economies (UNCTAD, 2020). Thus, the COVID-19 lockdowns created a crisis that transformed into labor markets and economic shocks that affected both supply (production of goods and services) and demand (consumption and investment) (International Labour Organisation 2020); (UNCTAD 2020). The effects of the COVID-19 induced lockdowns did not spare businesses of all sizes or in most economic sectors, except those providing essential services. However, MSME operations are expected to be the worst affected in terms of sustaining their operations (International Labour Organisation 2020). Initially, COVID-19 created shocks in Asia, which, according to the World Bank, transformed into global shocks on Gross Domestic Product (GDP) and trade, with a baseline decline in GDP of at least 2 percent (Maliszewska et al., 2020). The impact of the pandemic is likely to be worse given the time it has taken to resolve it, with a minimum decline in global GDP of 4 percent (Maliszewska et al., 2020). However, global trade is anticipated to decrease by between 13 percent and 32 percent (Jackson et al., 2020).

MSMEs have always played a significant role in the Zimbabwean economy after high levels of deindustrialization and company closures (Karedza & Govender, 2017). MSMEs have been providing employment, contributing significantly to national GDP, and alleviating poverty (Bomani et al., 2015). Most MSMEs operating in Zimbabwe relied on trade with other countries, mainly imports (Karedza & Govender, 2017), and the travel restrictions and closure of borders resulted in their businesses and strategies being disrupted and negatively affected to various extents. Therefore, this study assessed the impact of the COVID-19 lockdown on the survival of MSMEs operating in Zimbabwe. The following section outlines business survival models from a literature perspective, to guide the methodology used in the study.

2.4. Business survival/failure models

Several periods of business disruptions have been experienced. The survival or death of a business is a strategic issue. As the effects of the COVID-19 pandemic deepen, it threatens the survival of MSMEs in developing regions, such as Africa, South Asia, and Latin America (Abubakar, 2020; TechnoServe, 2020). The International Labour Organisation notes that nearly 90% of employment in South Asia and Sub-Saharan Africa is provided by MSMEs, making the survival of these businesses critical (Centre, 2020; TechnoServe, 2020). Therefore, it is imperative to examine the impact of the COVID-19 pandemic on MSME survival in Zimbabwe.

Studies have been conducted on the survival of businesses under various circumstances. As a result, models have been created to predict business failure, and the classical model was created by Fitzpatrick in 1932 (Durica, Valaskova, & Janoskova, 2019). This was followed by the development of other business failure prediction models, such as the Altman model in 1968, Springate model in 1978, and Ohlson model in 1980 (Durica et al., 2019). An analysis of the models classifies them into statistical tools (Multiple Discriminant Analysis (MDA) and Logistic Regression (LR) or logit) and/or artificial intelligence tools (including decision trees and neural networks) (Durica et al., 2019). From the two broad categories, emphasis is placed on statistical tools since the study is a statistical analysis and did not consider superiority between artificial intelligence and statistical tools as the debate cannot be settled easily (Daubie & Meskens, 2002).

Generally, studies on the prediction of business failure have been of interest to a number of stakeholders, including investors, stockholders, financiers, and suppliers among many others (Daubie & Meskens, 2002). Therefore, from the statistical models of predicting business failure/survival, there is also an argument about the superiority between the Multiple Discriminant Analyses (MDA) and Logistic Regressions (LR) (Durica et al., 2019). Some authors submit that statistical tools have been used more frequently despite several shortcomings of the methods that have been observed, such as the requirement of data to follow a specific distribution, as well as problems associated with multicollinearity, autocorrelation, and heteroscedasticity affecting the statistical models (Daubie & Meskens, 2002). The models discussed in the literature are predictive in nature and based on financial ratios (Daubie & Meskens, 2002; Durica et al., 2019).

3. Research methodology

This study was conducted through an online survey of entrepreneurs running MSMEs in several sectors of the Zimbabwean economy. The survey was conducted between October, 2020 and March, 2021. The primary purpose of the survey was to establish the financial effects of the COVID-19 lockdown on enterprises. This study was conducted as a survey to establish the effect of the COVID-19 lockdown on MSMEs in Zimbabwe. The survey allowed for a combination of methods of recruiting participants, collecting data, and using several instruments to gather data (Ponto, 2015). The structured questionnaire was administered through social media platforms, e-mails, and an online survey platform called the survey monkey. This was meant to ensure the achievement of a nationally representative study; therefore, participants were selected using a combination of random and multistage sampling from the ten provinces of Zimbabwe. However, since Harare is the economic capital of Zimbabwe, more participants were recruited there. Participants were also selected from rural areas, but the researchers were cognizant of the extent of the lockdown in rural areas, where there was no enforcement of the lockdown regulations to the same extent as those from urban areas.

3.1. Model Specification and Data Analysis

To assess the survival of MSMEs, a binary logistic regression model was used, borrowed from the business failure models, but applying variables applicable in this study. Thus, the logistic regression model examines the relationship between a categorical dependent variable and set of independent (explanatory) variables (Durica et al., 2019). The use of a logistic regression model was motivated by the dichotomous dependent variable, which is the effect of the COVID-19 lockdown on business survival, where data collected were binary, with responses being either negatively affected or not affected. Logistic regression requires independent variables to be linear and mutually exclusive (independent) (Durica et al., 2019). These are the guidelines used to select the independent variables for the study: economic sector of the MSMEs, duration of business operations, and the source of finance for the MSMEs.

The basic principles of logistic regression outlined by Hosmer and Lemeshow (2000) are cited in (Durica et al., 2019), with the principle being given by the logit transformation of the probability of MSMEs being negatively affected by the COVID-19 lockdown p = P (negatively affected):

$$\text{logit (p)} = ln\frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

where β_0, β_1, β_2 and β_3 are the coefficients estimated from the dataset of the MSMEs by maximising the log-likelihood function.
X_1 is the independent variable economic sector in which MSMEs operate in
X_2 is the explanatory variable duration of the MSMEs operating
X_3 is the explanatory variable, source of finance for the MSMEs.

To eliminate multicollinearity of the independent variables and hence improve the stability of the model, stepwise regression was used so that only statistically significant variables were included in the model. The dataset used in the model was collected through an online questionnaire, as described above. The results of the study are presented in the following section.

4. Results and discussions

Data were collected using an online survey administered through a platform called Survey Monkey, and responses were obtained from 447 randomly selected individuals across Zimbabwe. Invitations to participate in the survey were sent to 680 e-mail addresses obtained online from either the website or social media pages for the MSMEs. Therefore, the response rate was 65.7%, which is regarded as acceptable, given the target sector of the survey. To achieve this response rate, follow-up was performed every seven days for a period of one month, during which the data were collected. The key demographic features collected in the study included respondents' gender and age, and the details are summarized in Table 3.

Table 3. Respondents' Age * Respondents' Gender Crosstabulation

		Respondents' Gender		Total Frequency	Percentage
		Male	Female		
Respondents' Age groups	Below 30 years	83	34	117	26.2
	30 to 40 years	113	61	174	38.9
	41 to 50 years	55	41	96	21.5
	Above 50 years	28	32	60	13.4
Total Frequency		279	168	447	
Percentage		62.4	37.6		

Source: Processed data by researcher (2022)

As shown in Table 3, there was a representation of all age groups in the study, with the majority aged between 30 and 40 years (38.9%). The same age group had the highest representation of both males and females. The least represented age group was participants aged > 50 years (13.4%). Overall, 62.4% of the respondents were male and 37.6% were female. Although gender was not representative of the national population, it was representative of the economic activity in the formal and semi-formal populations of Zimbabwe. The sectors represented by the participants are presented in Table 4.

Table 4. Economic sector in which MSMEs are operating

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hospitality	10	2.2	2.2	2.2
	Food and beverages	103	23.0	23.0	25.3
	Retail	111	24.8	24.8	50.1

	Professional services and consultancy	96	21.5	21.5	71.6
	Financial services	19	4.3	4.3	75.8
	Telecommunications	9	2.0	2.0	77.9
	Other	99	22.1	22.1	100.0
	Total	447	100.0	100.0	

Source: Processed data by SPSS (2022)

Table 4 highlights the economic sectors from which participants were drawn, showing that the highest number of participants were from the retail sector, representing 24.8% of all participants, closely followed by the food beverages sector, with 23% of participants and the least represented sector being the hospitality sector (2.2 %). It is notable that the participants represented all the major economic sectors where MSMEs in Zimbabwe operated with a classification of participants from sectors with negligible respondents being categorized as other, with a total of 22.1% of all the study participants. In addition to the economic sectors, the duration of operation of the MSMEs surveyed was also collected, and the responses are presented in Figure 1.

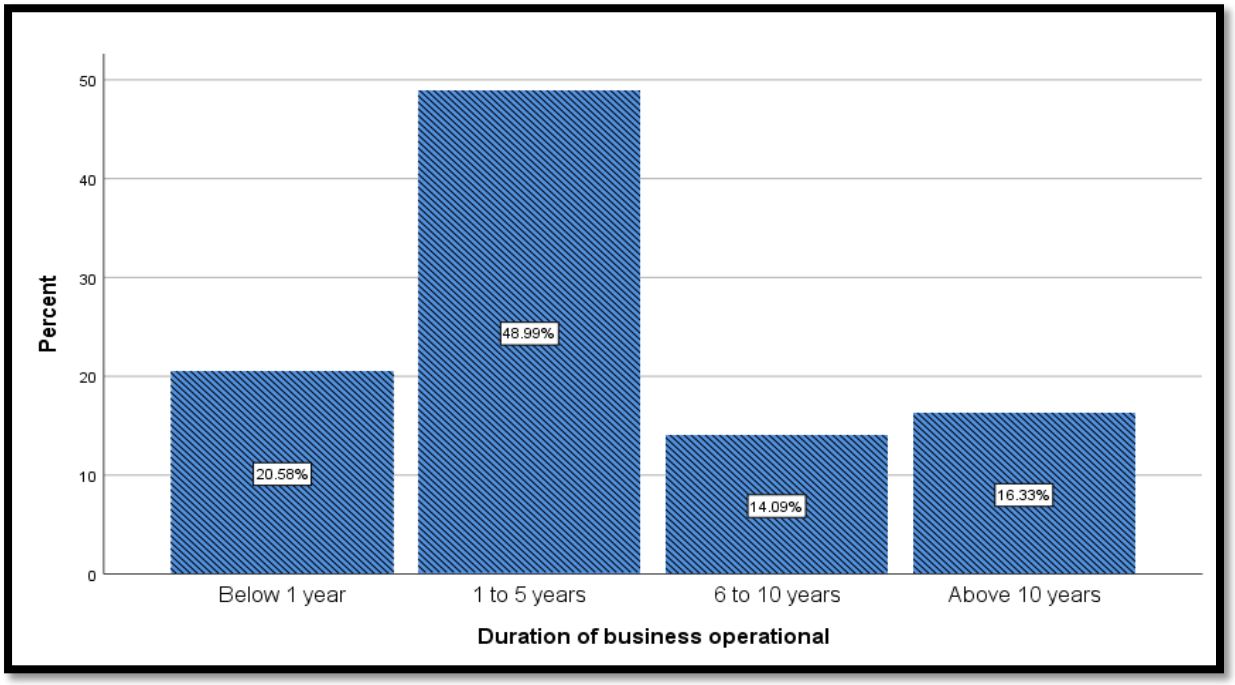

Figure 1. Duration business has been operational (Source: Processed data by SPSS (2022))

As shown in Fig 1, the highest number of MSMEs surveyed were operational for between 1 and 5 years (48.99%), while those operational for between 6 and 10 years were the least in number (14.09%).

To establish the effects of the COVID-19 lockdowns, one of the factors that affected these businesses was the source of finance. Therefore, the sources of finance for the MSMEs surveyed were established, as shown in Table 5.

Table 5. Sources of business finance

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Personal and family savings	381	85.2	85.2	85.2
	Bank borrowings	20	4.5	4.5	89.7
	Remittances from a relative in the diaspora	12	2.7	2.7	92.4
	Loan from a microfinance institution	13	2.9	2.9	95.3
	Government supported finance	21	4.7	4.7	100.0
	Total	447	100.0	100.0	

Source: Processed data by SPSS (2022)

As shown in Table 5, 85.2% of the MSMEs surveyed were financed by personal and family savings, while the rest of the sources of finance were insignificant. However, the findings are consistent with expectations, since most MSMEs do not have the capacity to meet financing requirements from providers of finance. The relationship between the sources of finance is analyzed using the binary logistic regression model presented later. However, since businesses are generally financed from personal and family savings, there is a possibility of a huge impact, as the businesses did not have enough financial depth to sustain their operations during the prolonged lock-down periods. The study also sought the perceptions of the study participants regarding whether the lockdowns were economically sensible, and the results obtained are presented in Table 6.

Table 6. COVID-19 lockdown decision was economically sensible

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	235	52.6	52.6	52.6
	Yes	212	47.4	47.4	100.0
	Total	447	100.0	100.0	

Source: Processed data by SPSS (2022)

As shown in Table 6, more than half of the participants (52.6%) of study participants indicated that the lockdown was not an economically sensible decision, whereas 47.4% perceived the COVID-19 lockdown to be economically sensible. As long as the economic effects of lockdowns have not been established globally, their effects could be more severe in developing countries such as Zimbabwe, where they rely on imports of most of their industrial and technological requirements.

The purpose of this study was to assess the impact of the COVID-19 lockdowns on the survival of entrepreneurial MSMEs based on evidence from Zimbabwe. The study therefore assessed the effects of various factors on the survival of MSMEs in Zimbabwe using a logistic regression model whose results are presented hereunder. The logistic regression model was run using the Statistical Package for Social Sciences (SPSS) version 25. To eliminate collinearity of the independent variables, the forward stepwise likelihood ratio was used in the model. Independent variables were added to the model one after another and, at step 1, duration business has been operational was added to the model, while in step 2, the variable sources of business finance were introduced to the model and, finally, in step 3, the economic sector was introduced into the model. The omnibus test results at the 95% confidence interval for the model coefficients are presented in table 7.

Table 7. Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	23.308	1	.000
	Block	23.308	1	.000
	Model	23.308	1	.000

Step 2	Step	9.132	1	.003
	Block	32.440	2	.000
	Model	32.440	2	.000
Step 3	Step	4.778	1	.029
	Block	37.218	3	.000
	Model	37.218	3	.000

Source: Processed data by SPSS (2022)

As shown in Table 7, the coefficients are all significant, given a p-value > 0.05, after all three steps, as well as for the model after the introduction of each of the three independent variables. However, the Hosmer–Lemeshow test only suggests a good fitting model in step 1, thus suggesting that the duration the MSMEs have been operational is a good fit for the model, as the p-value is not significant (p-value < 0.05). For steps 2 and 3, p-value > 0.05, implying a lack of goodness of fit for the model in steps 2 and 3. Therefore, the Hosmer-Lemeshow test of the model does not support the significance shown by the omnibus test of model coefficients.

Table 8. Hosmer and Lemeshow Test Results

Step	Chi-square	Df	Sig.
1	2.235	2	.327
2	13.478	4	.009
3	23.531	7	.001

Source: Processed data by SPSS (2022)

As shown in Table 8, Step 1 provides an acceptable goodness of fit for the model. The classification table presented below assesses the reliability of the model by comparing observations with the predictive accuracy of the model, the results of which are summarized in Table 9.

Table 9. Classification Table [a]

			Predicted		
			COVID-19 lockdown affected business survival		Percentage Correct
	Observed		Not affected	Negatively	
Step 1	COVID-19 lockdown affected business survival	Not affected	0	50	.0
		Negatively	0	397	100.0
	Overall Percentage				88.8
Step 2	COVID-19 lockdown affected business survival	Not affected	5	45	10.0
		Negatively	4	393	99.0
	Overall Percentage				89.0
Step 3	COVID-19 lockdown affected business survival	Not affected	0	50	.0
		Negatively	4	393	99.0
	Overall Percentage				87.9

a. The cut value is 0.500
Source: Processed data by SPSS (2022)

As shown in Table 9, the model correctly predicted all 397 respondents who were observed to be negatively affected, but at the same time, completely missed the respondents not affected by the lockdown after step 1. The model is therefore highly reliable in predicting the respondents negatively affected by the COVID-19 lockdown but very poor in predicting respondents not affected by the lockdown. Overall, after all three variables were included in the model, Table 9 shows that the model had an 87.9% chance of correctly predicting the respondents as either being negatively affected or not

affected by the lockdown. Therefore, the model reports a high level of accuracy in predicting the outcome of the business, and is therefore fit for the purpose. Moreover, the model is more accurate in predicting MSMEs being negatively affected by the COVID-19 lockdown because the reported lowest percentage accuracy is 99%. The model tested the significance of including the variables using the forward stepwise (likelihood ratio) method, and the results are given in Table 10.

Table 10. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Duration business has been operational	-.727	.153	22.484	1	.000	.483	.358	.653
	Constant	3.912	.456	73.734	1	.000	50.005		
Step 2[b]	Duration business has been operational	-.662	.157	17.785	1	.000	.516	.379	.702
	Sources of business finance	-.358	.114	9.973	1	.002	.699	.559	.873
	Constant	4.306	.483	79.457	1	.000	74.113		
Step 3[c]	Economic sector business operates in	.181	.085	4.575	1	.032	1.199	1.015	1.416
	Duration business has been operational	-.768	.166	21.291	1	.000	.464	.335	.643
	Sources of business finance	-.339	.116	8.591	1	.003	.713	.568	.894
	Constant	3.661	.559	42.838	1	.000	38.886		

a. Variable(s) entered on step 1: Duration business has been operational.
b. Variable(s) entered on step 2: Sources of business finance.
c. Variable(s) entered on step 3: Economic sector business operates in.

Source: Processed data by SPSS (2022)

As shown in Table 10, the model indicates that all three variables are significant, as the individual p-values are all less than 0.05. Therefore, all three coefficients of the model are significant, including the constant. In addition to the binary logistic regression of the relationship between the effects of the COVID-19 lockdown and the survival of MSMEs in Zimbabwe, the study also inquired requirements for businesses to reopen, as summarized in figure 2.

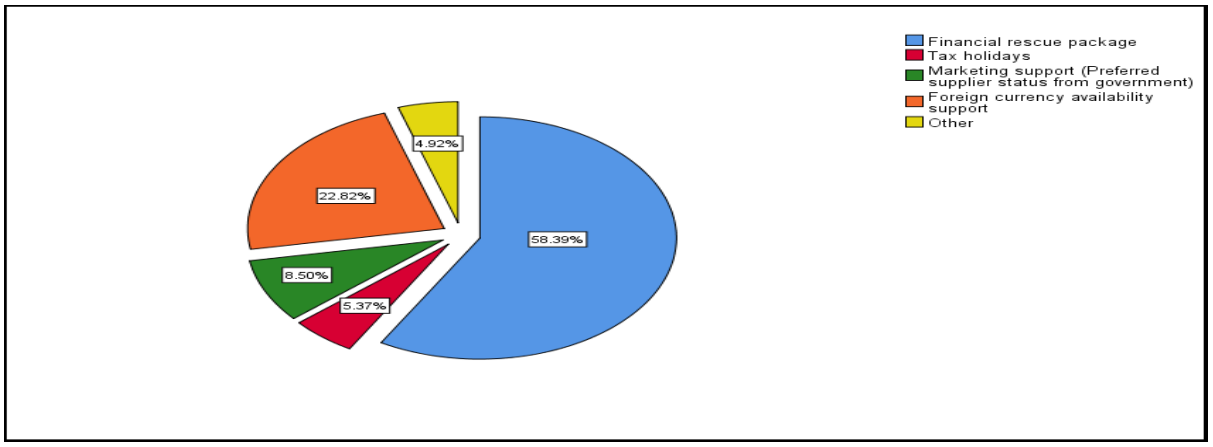

Figure 2. Needs by MSMEs to reopen after lockdown (Source: Processed data by SPSS (2022))

As shown in figure 2, most entrepreneurs (58.39%) indicated that they required a financial rescue package to reopen their businesses after the lockdown restrictions were lifted. Another significant requirement was foreign currency availability, with 22.82% of the respondents. Similar results were also proposed by the International Trade Centre (2020) in relation to the impact of the COVID-19 lockdowns on SMEs. In the other category, respondents also suggested several requirements, such as the reopening of borders by Zimbabwe's major international trading partners, the removal of lockdown restrictions, production stability in the foreign suppliers of their businesses, and the financial stability of their clients. Therefore, the key requirement by both businesses negatively affected and those not affected by the lockdown is a financial rescue package, especially given the length of the lockdown, which ran into many months of no business activity for the MSMEs.

5. Conclusion

After conducting the study and presenting the findings in the section above, conclusions and recommendations from the study are highlighted. The purpose of this study was to assess the impact of the COVID-19 pandemic and the associated lockdowns on the operation and survival of MSMEs in Zimbabwe. Therefore, based on the results presented above, the following conclusions are made for the study. MSMEs operating in Zimbabwe were negatively affected by the COVID-19 lockdown. The authors also conclude that the factors that explain the negative effect of the COVID-19 lockdown were operational duration, the economic sector from which the MSMEs operate, and the source of finance for the MSME businesses in Zimbabwe. Finally, the primary reason contributing to a high number of MSMEs being negatively affected is that businesses are mostly financed by personal and family savings.

The study makes the following recommendations to ensure the MSMEs operating in Zimbabwe can be salvaged from extinction as proposed by Abubakar (2020); Bouey (2020); and Di Domenico, Pullano, Sabbatini, Boëlle, and Colizza (2020) in their separate studies. Therefore, the authors recommend the need for financial rescue packages for MSMEs from the government, development partners, and civic communities. Additionally, the government should develop economic policies that encourage the resuscitation of MSMEs' businesses. The policies may include tax holidays for MSMEs until economic recovery from the effects of the COVID-19 lockdown is visible. Moreover, the authors note the need for the deployment of innovative finance to rescue MSMEs that have been financially affected by the lockdown and require unconventional financing to recover.

The study has provided an insight into the effects of the COVID-19 lockdown on the survival of MSMEs. The data used in the study were collected from Zimbabwe, a developing country that has the majority of its operating businesses being categorized as MSMEs. As much as the sample size may not be representative enough, as some of the most affected MSMEs cannot afford access to the online platform used to administer the survey, the findings are indicative and provide direction for future research and interventions necessary to address the effects of lockdowns. The findings may be applicable to MSMEs operating in other countries, provided that there are a significant number of MSMEs.

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