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Impact Of COVID-19 On The Health Of The Small Business In The United States

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Abstract: The Corona Virus Disease 2019 (COVID-19) is getting worse and it continues to severely affect economic development along with social development, entrepreneurial activity, and financial markets. This article examines the impact of COVID-19 on small businesses. We investigate the case of the United States over the period 1995-2020 through means of linear regression. We find that the GDP annual growth, the inflation consumer price, and COVID have a significant and positive impact on business activity. However, the index of economic freedom is not significant. To our best knowledge, no studies have been conducted to investigate this issue.

Keywords: COVID-19, business activity, macroeconomic variables, OLS, econometric software, linear regression

1. Introduction

Coronavirus Disease 2019, also known as COVID-19, was appeared in Wuhan, the capital city of Hubei Province, China in 2019 [22], [33]. Then, this virus has spread around the world. In 7August2021, COVID-19 has affected 202,436,140 cases including 4,290,768 deaths and 181,935,776 total recovered cases in 220 countries and territories (https://www.worldometers.info/coronavirus/).The World Health Organization (WHO) declared that COVID-19 causes illnesses ranging from the common cold to pneumonia, organ failure, and death. This global health concern can affect people of all ages; however, older people and people with pre-existing medical conditions (cardiovascular disease, diabetes, chronic respiratory disease, and cancer) are more vulnerable to suffer from deteriorating health conditions (World Health Organization). Until now, there are no specific vaccines or treatments for coronavirus [30]. Nevertheless, according to the World Health Organization, there are significant numbers of ongoing clinical trials to evaluate potential treatments. Many contributions [3], [12], [14], [27], [35], [37], [40], [44], [50], [51] demonstrated the severe impact of the COVID-19 outbreak on economic development. The decline of the US economy is the largest since the financial crisis (PWC, 2020). It surpassed the financial crisis in 2008 and the great depression in 1933 [5]. Crises threaten business goals, destroy the value of the firm, lead to business failure [17], [39]. Nevertheless, comparing to large firms, SMEs[1] have limited resources weaker market positioning, dependence on government and local agencies [9], [16], [18], [19], [42], [43], [49]. That's why; they are more vulnerable to crisis. More specifically, during or after crises, managers of SMEs suffer from financial issues and emotional/psychological stress [10], [29]. Given the economic importance and the vulnerability of SMEs, there are still a lot of works required to investigate how SMEs cope during the COVID-19 pandemic. Thus we aim is to investigate the impact of COVID-19 on the health of small businesses in the United States. Our goal is twofold. First, although previous studies reported the link between the severe acute respiratory syndrome (SARS) coronavirus or the Middle East respiratory syndrome (MERS) and business activity, to our knowledge no study is aimed to investigate the impact of COVID-19 on the health of the small business. Second, the number of people diagnosed with coronavirus is growing fast in the United States than in other countries and it is suffering from the most abrupt and widespread cessation of economic activity in its history. It's as if "the economy as a whole has fallen into some sudden black hole," said Kathy Bostjancic, chief U.S. financial economist at Oxford Economics. Hence, our paper is organized as follows. The next section summarizes the literature review on the impact of COVID-19 on the economy, financial market, and business activity. In the subsequent section, we describe the methodology of our research and the data collected. Then, we analyzed the results. Finally, we conclude our paper.

2. Literature review

In modern history, the three serious diseases which had killed many people are the 1918 Spanish Flu which is "the deadliest plague in history", 2002 SARS, and 2012 MERS. Alongside cardiovascular disease and cancer, pneumonia and influenza are ranked as the third leading cause of death's probability [48]. Approximately 50 to 100 million people around the world died from the Spanish flu during the period 1918-1919 [26]. The SARS was appeared in China and caused 774 deaths in 32 countries [26], [33]. The MERS was first identified in Saudia Arabia and has led to858 deaths in 27 countries [33]. Nowadays a new virus has emerged which is Coronavirus Disease 2019. Although, this virus is more dangerous than SARS and MERS. It is considered by The World Health Organization as a pandemic rather than an epidemic because of the faster speed rate of contagion, the possibility of mutations, the unknown rate of reinfections, etc. [33]. As mentioned earlier, in the entire world, the COVID-19 has affected 202,436,140 cases including 4,290,768deaths and 181,935,776total recovered cases on 7 August2021(https://www.worldometers.info/coronavirus/). Nevertheless, the countries with thousands of deaths due to

[1][8] affirmed that the great majority of these were small firms, employing 10 or fewer professional staff. However [25] added that small firms are those employing or 25 or fewer total staff'.

this virus are the United States of America, India, Brazil, Russia, France, the United Kingdom, Turkey, and Argentina (https://www.worldometers.info/coronavirus/). On 7August 2021, the United States has the most coronavirus cases in the World with 36,447,123 cases and 632, 641deaths. This number is expected to rapidly climb in the coming days. [51] found a severe impact of COVID-19 on the economic development in China. More specifically, they highlighted the most affected types of works by the epidemic such as private enterprises and their employees, freelancers, agricultural, forestry, animal husbandry, and fishery personnel. However, they also added that the economy of China will contain maintain steady development despite the significant impact and risks caused by this virus. In the same vein, [50] added that this virus has an impact not only on the economy but also on social development. [20] measured the impact of COVID-19 on the tourism industry in China. They showed that this virus has dramatically affected the tourism industry of the country not only domestically but also globally. [27] affirmed that economic activity was seriously disrupted as nonessential retail and other business activity. However, they also added that, due to the uncertainty channel of the coronavirus, the negative impact caused by this pandemic on the economy can be further amplified and prolonged. [34] used a modeling technique developed by [28] and [35] and explored seven different scenarios. They demonstrated that coronavirus will significantly impact the global economy in the coming year. However, less developed economies may avoid the scale of costs in the case where they decide to invest massively in the public health system. The coronavirus is already disrupting the business. [31] showed that business activity in China has been slowed due to the personnel quarantine, the lack of funds, and the interruption of the supply chain of the enterprises. Thus, the government has put some measures to deal with this fatal virus such as the decrease of enterprises' financial costs, the reduction of loan threshold and loan interest rates, the applying of multiple tax relief, the providing of subsidies for chartered airplanes, and buses to the employees of the enterprises that have returned to work, big data and communication technologies, etc [31]. Undoubtedly, different sectors (i.e. tourism, catering, transportation and health care, energy) in many countries have been affected by the COVID-19 [12], [20], [27], [31], [44], [51]. However, the COVID-19 has created a severe economic crisis in the USA (i.e. demand shock, supply shock, and financial shock), [46]. The negative consequences in the USA surpassed the financial crisis in 2008 and the great depression in 1933 [5]. Many studies consistently report a close and strong association between COVID-19 and oil price, COVID-19 and exchange rates, and COVID-19 and US partisan conflict index [3], [14], [37], [40]. [3] used data on world COVID-19, oil prices, and the US Partisan Conflict index and found that both COVID-19 and oil prices mitigate US political polarization. In the same vein, [22] discussed the link between brand equity and the COVID-19 stock market crash by using U.S. listed firms. Their results revealed that firms with top brands experience higher stock returns well mitigate the Covid-19 stock market crash than other firms. In the same vein, the Department of Labor in the United States affirmed that more than 6.6 million people filed jobless claims on 28 March 2020. Furthermore, IBISWorld presents a list of the ten fastest declining industries in the United States by revenue growth (%) in 2020. These industries are: Wind Turbine Manufacturing (-42, 1%), Wind Turbine Installation (-42, 6%), Sign and Banner Manufacturing Franchises (-21, 2%); Merchant Banking Services (-12, 1%); DVD, Game and video rental (-12%); Unmanned Aerial Vehicle Manufacturing (-11, 9%); Apparel Knitting Mills (-11, 6%); Postal Service (-8, 7%); Hotel and Motels (-8, 5%) and Office Supply Stores (-7, 7%) (https://www.ibisworld.com/industry-trends/).It is noteworthy to mention that COVID-19 hurts the global financial market. [34] affirmed that global stock indices have plunged. In the same vein, Neil Wilson chief market analyst of the online trading platform Markets.Com said: "Markets are at breaking point, there is a real systemic risk now with financial markets in complete turmoil over the coronavirus."[2]. On 12 March 2020, the FTSE 100, Dow, and S&P500 suffered their worst day since the Black Monday crash of October 1987.

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3. Methodology and data

Our goal is to investigate the influence of COVID-19 on the health of small businesses in the United States. So, governments across the globe are issuing policies and implementing action plans including restrictions (i.e. lockdowns of countries, temporary closure of physical operations of businesses) to prevent the spread of the Covid-19 outbreak. Those restrictions have more severe effects on small-medium enterprises (SMEs) than on larger and global firms. In the UK, SMEs businesses in the U.K account for 99.3 % of all private sector businesses 47.8 percent of private-sector employment, and 33.2 percent of private sector turnover (Federation of Small Business, 2014). At the same time, the coronavirus is a new phenomenon and its impact has not been investigated in sufficient depth. That's why it is important to address the gaps as compared to the previous few contributions. Our research is conducted using linear regression. The dependent variable is the small business optimism index. It is released by the Nation Federation of Independent Businesses (NFIB) every month from surveys addressed to the NFIB Membership. This is an indication of the health of the small business in the United States and it is derived from ten components which are: (1) Plans to Increase Employment, (2) Plans to Make Capital Outlays, (3) Plans to Increase Inventories, (4) Expect Economy to Improve, (5) Expect Real Sales Higher, (6) Current Inventory, (7) Current Job Openings, (8) Expected Credit Conditions, (9) Now a Good Time to Expand, and (10) Earnings Trends. Thus, we expect that the small business optimism index is deemed to be an adequate proxy for business activity. Furthermore, to measure the influence of COVID-19 on small businesses' health, we introduce our main independent variable "COVID-19" which is an indicator variable that equals one if the coronavirus exists and 0 if the coronavirus is absent. Nevertheless, other determinants may be able to take into account. Indeed, we would also expect the business activity may be affected by economic growth. There is a certain consensus that economic growth and entrepreneurial activity are strongly related [1], [2], [13], [15], [21]. So, we include three macroeconomic determinants: the Gross Domestic Product (GDP) annual growth rate, the inflation, consumer price (annual%), and the index of economic freedom which is an annual index created

[2]https://www.theguardian.com/business/live/2020/mar/12/stock-markets-tumble-trump-europe-travel-ban-ecb-christine-lagarde-business-live

by the Heritage Foundation and the Wall Street Journal to measure the economic freedom of countries. The economic freedom index is based on 12 quantitative and qualitative factors grouped on four board categories (https://www.heritage.org/index/about): (1) Rule of law (property rights, government integrity, and judicial effectiveness), (2) Government size (government spending, tax burden, and fiscal health), (3) Regulatory efficiency (business freedom, labor freedom, and monetary freedom), and (4) Open markets (trade freedom, investment freedom, and financial freedom).

Our analysis is conducted using the following model:

$$BUSINESS = f(GDP, COVID, Inf, INDEXEC)$$

$$BUSINESS_t = \beta_0 + \beta_1 GDP_t + \beta_2 COVID_t + \beta_3 Inf_t + \beta_4 INDEXEC_t + \xi_t$$

Where $BUSINESS_t$ is the small business optimism index. GDP_t is the annual growth in the gross domestic product. $COVID_t$ is a binary dependent variable which measures the impact of COVID-19 on small business' health. Inf_t is inflation, consumer price (annual %). $INDEXEC_t$ is the index of economic freedom.β_0 represents the constant. β_1, β_2, β_3, and β_4 are the coefficients and ξ_t is the error term. Our model is estimated by using ordinary least squares methods. To understand the impact of the COVID-19 pandemic, we use real-time data, statistical indicators, and other types of data that are provided by the World Bank. Our study is concerned with business activity in the United States covering the period from January 1995 to March 2020. In sum, we have 303 observations. Table 1 reports the sources and descriptive statistics of our variables.

Table 1 Descriptive Statistics

Variables	Sources	Descriptive Statistics			
		Mean	Std	Min	Max
$BUSINESS_t$	National Federation of Independent Business	98.12	5.46	81.55	108.55
GDP_t	world bank and https://www.thebalance.com/us-economic-outlook-3305669	2.41	1.50	-2.5	4.7
$COVID_t$	https://data.humdata.org/dataset/novel-coronavirus-2019-ncov-cases	0.016	0.127	0	1
Inf_t	world bank and https://www.thebalance.com/us-economic-outlook-3305669	2.16	0.95	-0.3	3.8
$INDEXEC_t$	Heritage Foundation	77.49	1.98	75.1	81.2

4. Results

Table 2 depicts the regression results. Our findings suggest that the GDP annual growth rate is significant with a positive expected sign. This indicates that when the GDP annual growth rate increases, the small business optimism index increases as well. Moreover, the inflation, consumer price (annual %) is also significant and has a positive sign showing that the small business optimism index depends positively on inflation. Just as the literature on the effect of macroeconomic determinants has established that economic growth and entrepreneurial activity are positively related [1], [2], [13], [15], [21], we find that both GDP annual growth and inflation, consumer price affect the business activity. However, surprisingly, our results reveal that there is no strong relationship between the business optimism index and the index of economic freedom.

Table 2: Regression Results

Dependent variable: $BUSINESS_t$	Estimates (P-value)
GDP_t	2.082*** (0.000)
$COVID_t$	5.059** (0.008)
Inf_t	0.634* (0.044)
$INDEXEC_t$	-0.154 (0.352)
Constant	103.61*** (0.000)
Number of observation	303
F(4, 298)	54.40
Prob > F	(0.0000)
R-squared	0.4220
Adj R-squared	0.4143
Root MSE	4.1824
AIC	1731.9573
BIC	1750.5259
Rank	5

*Legend: * p<.05; ** p<.01; *** p<.001*

Another important finding is that COVID has a strong positive impact on business activity. This result is expected since coronavirus has affected the whole economy (see, for instance, [27], [34], [50], [51]. Thus, it is obvious that this new phenomenon will strongly affect business activity. To test the robustness of our model, some tests are realized. We use the Breusch-Pagan test which is developed by [6], to test for heteroscedasticity based on squared least squares residuals. We find BP chi2 (1) = 3.14 with prob > chi2 = 0.0765. This means that the null hypothesis of homoscedasticity is accepted and heteroscedasticity is rejected. Furthermore, the Adj R-squared equals 0.4143, which means that our independent variables explain 41.43% of the variability of the dependent variable. Moreover our model is statistically significant, F (4, 298) = 54.40, p=0.0000. This means that overall; the model applied can statistically significantly predict the dependent variable (i.e. the business optimism index).

5. Conclusion

The COVID-19 has led to a cessation of economic activity all over the world and it has established itself as a global health threat. Specifically, the United States is hurtling toward a recession that could make millions of Americans losing their jobs, income, and wealth. It is worthy to note that the American economy has weathered many unpredictable events such as financial crises, natural disasters, and terrorist attacks. But this time the threat is more important because of the speed of contagion and the absence of specific treatment. Indeed, the virus threat has caused a collapse in both production and consumption. Thus, understanding how the health of the small businesses in the United States is affected by the coronavirus has fast become an emerging research question. Our findings suggest that the GDP annual growth, the inflation consumer price, and COVID have a significant and positive impact on business activity. Nevertheless, the index of economic freedom is not significant. Overall, our paper has a relevant implication for businesses. It is worthwhile to note that the adoption of quarantine measures, restrictions on the import, and the mandatory policy of lockdowns have caused the recession by reducing the capacity of the economy to produce goods or services [7], [44]. Thus, companies need to be prepared for such events to attenuate their effects. Companies may be more interested in

strategies that emphasize flexibility, responsiveness, and diversification to manage turbulent and unpredictable events. [38] concluded that SMEs leaders need to be proactive and develop different scenarios for possible strategic action to be prepared for sudden and unexpected events. Thus, they suggested developing digital technologies in SMEs to ensure the connection and the smart workings between the employers [11], [47]. In the same vein, it has been demonstrated that SMEs recover better from the consequences of crises if they have already a crisis plan and a crisis management team [4], [24], [36]. They may also think of training their teams on new technologies. In this way, employees will be able to work more efficiently at a distance in the case of a sudden event such as global health threats, terrorism, etc. Furthermore, it is essential to train the managers of SMEs on crisis stress management and social media as a channel for effective communications during the crisis [32], [45]. Finally, we stress that our results should not be interpreted as definitive and further studies may be conducted to investigate the impact of this new pandemic.

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