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DETERMINANTS OF LOCKDOWN BEARING CAPACITY: A Micro-Level Analysis of Pakistan

Syed Ammad ALI*, Aamir Hussain SIDDIQUI and Sohail JAVED*****

Abstract

This study aims to find the determinants of a successful lockdown policy by the government to save the nation from the pandemic COVID-19. The study is an attempt to develop a Lockdown Readiness Index and measures the capacity of the Pakistani nation to bear the lockdown situation. This Readiness Index finds that countrywide, only 11 per cent of households are fully ready to live under a complete lockdown; however, with the exclusion of telephone and internet facilities, the readiness of tolerance for the lockdown rises to 21 per cent. While taking into account the likelihood of a partial shutdown and including any four of the six important facilities, the percentage increases to 26 per cent. The study further develops an econometric model by taking various social and economic variables to determine the capacity to bear lockdown conditions. The estimation results suggest that a partial lockdown is relatively more feasible for Pakistan. The study discovered that households in urban areas, those headed by unemployed people, and households headed by women are more likely to withstand the lockdown.

Keywords: Pandemic, COVID-19, Lockdown, Generalized Ordered Logit Model, Pakistan, Lockdown Readiness Index.

JEL Classification: I18, I38, D61.

I. Introduction

At the beginning of 2020, most of the world didn't know about the pandemic that emerged in China cities. People are now well aware of its catastrophic effects, which have already spread worldwide at a massive scale. After the emergence of COVID-19, the entire world searched for vaccination or medication to combat this pandemic. During the early stage of the pandemic, the lockdown was the only option to mitigate the spread of this virus as the world did not have enough information about the treatment of covid-19. The Chinese government had no choice but to lockdown everything

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in cities/areas where this virus spread exponentially. Through this strategy, they significantly reduced the spread of the virus. When the virus spread worldwide, especially in the developed world, which includes Europe, North America, Japan, Australia, and New Zealand, they followed the same stratagem. Though the strategy is considered the only solution to control the pandemic, it has severe economic and social repercussions. The negative consequences of the lockdown on the economic outlook compelled the European and other OECD countries to lift the lockdown. The main reason behind the gradual opening up of the lockdown is the economic slowdown. It shows that every country has a limited capacity to bear the economic losses owing to the lockdown.

Furthermore, country-specific social factors also play an important role in determining the practicability of the lockdown strategy. The lockdown only works if everyone has what they need at home, which is rare in developing countries. Because of these facts, the World Bank, IMF and other international institutions have announced different bailout programs for various countries, especially for developing countries.

The analysis of the measures taken by different countries shows that various countries implemented lockdown strategies differently. China has fully quarantined its city, Wuhan, while European citizens can go outside their homes by showing permission and giving the justification set by the respective authorities. Generally, people can go outside for work and different purposes, such as purchasing food and medicine; in some cities, people can do limited physical exercise but with the necessary social distance.

When we discuss Pakistan, there are diverse opinions about the lockdown strategy. One segment of society believes that a strict lockdown is the only solution to control this pandemic. Though they accept that this would badly affect daily wage earners and poor people, if a person is alive, he can earn for the family. Another segment believes that there should be no lockdown, as this would severely affect the poor and daily wage earners. These people and families would never respect the lockdown and could come out on the street. Such a situation might create chaos in the country. Furthermore, some people believe in smart lockdown, where economic activities remain open with all necessary precautions to limit the spread of the disease.

Pakistan is a country with a complicated legal framework for imposing lockdown policies. Provinces have the power to impose a complete lockdown, but some important sectors, especially those related to the economy, are controlled by the federal government, such as maritime activities, banks, international trade and industrial promotion organisations, airports, special economic zones, etc. Unfortunately, the federal and provincial governments did not agree upon a uniform policy of lockdown.

The lockdown requires that basic needs are available at home, such as electricity, energy, water, sanitation, information, and a sufficient amount of money to purchase food and medicine. However, in developing countries, these basic amenities are not easily available to the masses, especially in South Asian countries like India, Pakistan, and Bangladesh, where the population cannot realistically live under such lockdown restrictions. This situation has raised the question of whether all countries are equally

suited for lockdown stratagems. In other words, what are the fundamentals or factors that induce having an effective lockdown without negative consequences in the country? The answer is, of course, that there must be a standard of good living conditions if the policy locks people up for a long time.

TABLE 1
Access of Households to the Facilities in Pakistan (In percentage)

Facilities	KPK	Punjab	Sindh	Baluchistan	National
1 Electricity	99	97	88	91	95
2 In-House Drinking Water	77	67	68	45	67
3 Improved House Sanitation connected with proper Drainage	54	68	54	39	59
4 Gas Connection for Cooking	28	38	46	23	37
5 Internet Connection	40	32	33	19	32
6 Mobile Phone	96	95	93	91	94

Source: PSLM 2018-19.

Table 1 shows the data on the access to basic civic facilities available to a household in Pakistan. The survey data revealed that access to electricity is the highest among all six indicators. In contrast, internet access and gas connection were 32 per cent and 37 per cent, respectively, which are the least available facilities.

This study attempts to develop a Lockdown Readiness Index and measures the capacity of the Pakistani nation to bear the lockdown situation. The study further develops an econometric model by taking various social and economic variables to determine the capacity to bear lockdown conditions among households.

The rest of the study is organised as follows: Section II discusses the past literature of the study; Section III presents the methodology and elucidates the econometric model. Section IV comprises results and discussion; Section V discusses the sensitivity analysis, and the conclusion and recommendations are in Section VI.

II. Literature Review

The empirical studies on COVID-19 concerning its impact on social and economic variables are limited. The most recent studies showed the impact of lockdown and coronavirus on economic and social aspects. These studies analysed and predicted the impact on economic growth and development, social behaviour and evaluation of post-corona economic scenarios.

The lockdown is harmful for the economy because it stops economic activities. Balwin and Mauro (2020) argued that a lockdown, either partial or complete, is ex-

treme and brings economic activity to a halt. Such measures are difficult to maintain for a longer period of time. Karin, et al., (2020) realised the huge economic and social cost; they suggested different exit strategies during the lockdown periods. Their study is based on the observations of economic costs like unemployment, reduction in production, and increasing government expenditure to offset the negative economic impact and high health-related expenditure. These studies only considered the merits and demerits of the lockdown but did not consider the determinants of the lockdown. Cadoni and Gaetta (2020) concluded that the duration and imposition of the lockdown depend upon the nature of the spread of disease and socioeconomic conditions. They considered the case of Italy and applied different mathematical models to estimate the time required to ease the lockdown by considering the spread of disease. However, the scholar found that socioeconomic condition is a key factor in maintaining the lockdown.

The empirical studies discussing the pandemic's effect on economic activity, particularly in light of the lockdown, Fernandes (2020) sheds light on the issue from a global perspective and concludes that the damage caused by a pandemic would be different for different countries. The most affected economies would be those with significant reliance on the services sector, including Spain, Portugal, and Greece. Furthermore, as the lockdown continued, the effect would be more extensive, which would vary from country to country. Their study estimated that the global average economic growth would be shrunk by 3-5 per cent, and for each additional month, the damages of lockdown would cause additional losses of 2-2.5 per cent. The World Bank has researched to estimate the future global economic conditions. Maliszewska, et al., (2020) estimated the potential economic impact, particularly on GDP and trade, of a COVID-19 pandemic for the World Bank. They developed a model which was a CEG model, where various realistic assumptions were taken into account. The study estimated a negative impact for some important countries and generally for regions. Their model predicted a 3.6 per cent negative GDP for the world and a 4.4 per cent negative GDP for South Asia, excluding India; it is the region where Pakistan falls.

Some studies looked into the post-Corona impact on individual countries as Ranasinghe (2020) conducted the same study for Sri Lanka, and he believed that the damage in terms of economic growth was associated with the length of the lockdown. Further, it explains that the Sri Lankan economy is vastly dependent on foreign exchange earnings and the exports of textiles, foreign remittances, and tourism are the main sources of foreign exchange earnings. Their study concluded that the economy requires some long-term policy after the end of the pandemic. Bansal, et al., (2020) conducted a descriptive analysis to foresee the negative impact of the lockdown policy. The study's objectives were to determine the impact of the lockdown on various industries such as railways, IT, automobiles, pharmaceuticals, textiles, restaurants, and citizens' social lives. They concluded that the lockdown would adversely affect all businesses, government revenue, and the foreign exchange reserve position.

The stock market is one of the leading indicators of economic conditions, and during the period of the pandemic, major stock markets worldwide fell by huge index points. De Vito and Gomez (2020) estimated that the listed firms in OECD countries would face a liquidity problem due to the COVID pandemic. The author used different proxies to estimate the short- and long-run liquidity problem. Their estimation suggested that the firms would enter the debt market to avoid a liquidity crunch. To prevent or minimise firms' liquidity crunch, the government would have two policy options: tax deferral and bridge loans. Their analysis suggests that the government should opt for the latter policy, as it is the most cost-effective measure. Ahmar and deVal (2020) looked at the best way to predict the behaviour of the stock market in Spain. Their studies suggest that the Sutte-ARIMA model, a combination of Sutte and ARIMA is better than the ARIMA model for forecasting performance during a pandemic.

Some studies focused on the social implications of the lockdown. Suicide has been proposed as a proxy measure for this purpose by some researchers, as it demonstrates any person most severe social disorder. Mamun and Griffith (2020) analysed suicidal cases in Bangladesh and India. They found that COVID-19 has affected mental health due to panic, anxiety, and stress becoming common factors among migrant workers. The authors have given examples of people who came back from foreign countries due to the Lockdown and faced mental problems like unemployment and the negative attitude of the native people. Thakur and Jain (2020) explained all factors related to COVID-19, including social distancing, social boycotts, healthcare professionals' mental problems, and economic recession. Mamun and Ullah (2020) investigated attempted and completed suicides in Pakistan. Their study was based on 16 suicide cases (Twelve committed and four failed attempts). All of these were because of the COVID-19 lockdown economic recession. Their study concludes that the health problem is a relatively short-term problem compared to the economic recession. All these studies lack the analysis of the factors of lockdown which compelled a person to stay at home. The migrant worker returns to stay at their homes as there is no employment opportunity for them, and their living conditions do not support the lockdown.

Similarly, a worker who has lost his job or earning opportunity, especially a small shop owner in the markets and shopping malls, cannot support the lockdown. We have also found an important study by Rukh, et al., (2020) that investigated the affordability of lockdown in Pakistan. Their study is a part of their special project. On the basis of the data and observation, they concluded that partial lockdowns, though effective, are not affordable. They suggested isolation and quarantine for the affected people.

These studies have clearly shown the absence of important factors necessary to implement the lockdown measure. The question is why a person or family can be agreed to sit at home, or what elements are necessary for a family or household to obey the lockdown measure?

III. Methodology

1. *Data and Measurement*

The Pakistan Social and Living Standard Measurement Survey (PSLM) 2018-19 measures the lockdown-bearing capacity and factors that affect it in Pakistan. These basic conditions are the access and availability of the following six facilities in the sampled household; access to electricity, natural gas, clean drinking water, a proper sanitation system, the internet and mobile phones. While estimating the index, it is realistically assumed that a household would be considered ‘fully ready to bear the lockdown’ if all six facilities were available. If at least three out of six facilities are available for any household, it would be considered ‘partially ready’. We assume that if the household has enough monetary resources, then the above are the factors that are necessary or sufficient for people to stay at home. The assumption of the availability of enough money is chosen based on the government either providing groceries at home or money to purchase groceries for the family.

The variable, electricity, represents a user of electricity from government electricity, solar energy, or natural gas as the main fuel used for lighting. Gas means gas for cooking, while drinking water means the availability of water through piped water, hand pump, motor pump, tube well, closed well, open well, protected and unprotected spring. Access to sanitation means any toilet connected to a drainage or sewerage system. Finally, the index, which ranges from 1 to 6, is simply an index of available facilities. Where a value of 1 indicates a household has one facility, 2 indicates two facilities, 3 is any three facilities in the house, 4 means any four, 5 means any five and the index value is 6, it indicates that this household has all six facilities. However, it has a significant shortcoming in that it does not capture the quality of the services. Although, if two households have the same ranking value, it doesn’t mean they live the same way.

The incorporated factors, which may affect the lockdown-bearing capacity of any household, are the region of whether the household lives in a rural or urban area. This dummy variable takes the value 1 for urban households. The next variable is a dummy for gender, which takes 1 for males. The age of the household head is also incorporated as an explanatory variable, as it determines the social networking of any person. The dependency ratio is also considered an explanatory variable, as higher dependency means the family is more vulnerable to COVID-19. Annual expenditures are the proxy of income. The employment status dummy takes value 1 for employed. The years of education are also incorporated, as the higher level of education, the higher the chances of the households being ready to stay at home. They can also understand the severity of the issue. Finally, a dummy variable, TV, is also incorporated for social awareness, which takes one if the household has a television. A dummy variable is also used for having a computer to add access to technology.

2. *Econometrical Model*

To find the determinants of lockdown-bearing capacity, the dependent variable, the lockdown index, contains values 1 to 6. The study used a Generalised Ordered Logit model, which is better than the ordered Logit model because a higher value means a higher bearing capacity [Williams (2006)].

The conventional formulation of the Generalised Ordered Logit model with M categories is given in Equation (1):

$$P(Y_i < j) = \frac{\exp(\alpha_j + X_i \beta_j)}{(1 + [\exp(\alpha_j + X_i \beta_j)])}, j = 1, 2, \dots, M-1 \quad (1)$$

The lockdown-bearing index has six categories; the generalised-logit (GoLogit2) model will have five sets of coefficients. A key advantage of the generalised-logit model is that it allows the regression coefficients to vary across the j-categories if they are different for some categories, which is impossible with the ordered-logit (Ologit) model.

The empirical investigation of this study is based on the STATA module GOLOGIT2 [Williams (2006)]. The study used the auto-fit option, which allows the estimated coefficient to be varied across the categories.

IV. Results and Discussion:

1. *Lockdown Readiness Index*

The concept of lockdown readiness is based on the availability of six basic facilities available for any household. Do these facilities include access to electricity, access to natural gas, access to clean drinking water, access to a proper sanitation system, access to the internet, and access to mobile phones. Table 2 estimates the index values for complete and partial lockdowns in the provinces and the entire country. This index shows the values in percentage points of the total households with the facilities to sit at home to face the lockdown.

All six factors in the table above should be considered for a complete lockdown. However, for a partial lockdown, four out of six facilities, or at least two factors, the availability of drinking water and sanitation, should be considered as determinant readiness to lockdown. The Lockdown Readiness Index shows that at the national level, only 11 per cent of households are fully ready to face a complete lockdown. If we exclude the telephone and internet facilities, this value increases up to 21 per cent. On the other hand, if we consider any 4 facilities out of all 6 basic facilities, the value reaches 26 per cent. A weaker partial lockdown index, considering the availability of drinking water and sanitation, shows a readiness level of 40 per cent.

The results for provinces reveal that among all provinces, Sindh has the highest score for the readiness for complete lockdown, although it is only 16 per cent. It implies that only 16 per cent of the households in Sindh have the basic resources to stay at home during the complete lockdown. If the availability of telephones and the internet were excluded, the estimate showed 31 per cent of the households or families could face a complete lockdown. But interestingly, for partial lockdown, the score is 17 per cent, which is the lowest among all provinces, and weaker partial lockdown, where only two necessities like drinking water and sanitation facilities are considered enough for staying at home, showed a 41 per cent score.

The second better place, which can face a complete lockdown, is Khyber Pakhtoon Khaw (KPK), where 14 per cent of the households can stay at home and 23 per cent can stay without internet/telephone. Punjab is in third place, with only 8 per cent capable of facing complete lockdown and without telephone and internet, 18 per cent can completely stay at home. However, for partial lockdown, this score is 32 per cent, the highest among all provinces. Baluchistan is at the bottom of the list, with only 3 per cent ready for a complete lockdown and 20 per cent prepared for a partial lockdown.

The data also reveals that in the fragile measure of partial lockdown, KPK has the highest score of 48 per cent, Sindh and Punjab have the same score of 41 per cent, while Baluchistan has the lowest score of 22 per cent. The above analysis showed a very low level of readiness for lockdown in the country due to the lack of the availability of necessities at home. We have not considered the income flow of the households and assumed that the government would provide enough food and medicines or money to purchase basic food and medicines.

TABLE 2
Lockdown Readiness based on In-House available Facilities
(per cent of Households)

Lockdown Situation	KPK	Punjab	Sindh	Baluchistan	National
Fully Ready (who have all 1-6 facilities)	14	08	16	03	11
Fully Ready (who have all 1-4 facilities, except internet connection and mobile phone)	23	18	31	10	21
Partially Ready (Have any 4 facilities)	24	32	17	20	26
Partially Ready (Have Drinking water and Sanitation)	48	41	41	22	40

Source: Authors' estimation based on PSLM 2018-19.

2. Behavioral Determinants of Lockdown

The estimation results, based on the generalised ordered logit model, are mentioned in Table 3. The estimated GoLogit2 odd ratios define the effect on dependent variables of the selected categories versus the entire categories equal or less than the selected categories. Table 3 columns 2 to column 6, shows the availability of the facilities. In contrast, the households have all 6 facilities, in the highest category 6. The first column shows 'how category 2, 3, 4, and 6 increase or decrease the odds compared to category 1 due to changes in the category of each independent variable.

Similarly, comparison 2 demonstrates 'how categories 3, 4, 5 and 6 increase or decrease the odds compared to categories 1 and 2 due to changes in the category of each independent variable.' The third column demonstrates 'How categories 4, 5 and 6 increase or decrease the odds compared to categories 1, 2, and 3 due to change in the category of each independent variable.' The fourth column demonstrates 'how categories 5 and 6 increase or decrease the odds compared to categories 1, 2, 3, and 4 due to changes in the category of each independent variable.' While comparison 5 shows 'How category 6 increases or decreases the odds compared to categories 1, 2, 3, 4, and 5 due to changes in the category of each independent variable.'

The estimated odd ratios may have a value equal to 1, which indicates that the likelihood of occurrence (success) of any event is equal to the non-occurrence (failure) of that event. If it is less than 1, it indicates a negative impact or low chances of occurrence of any event. If it is greater than 1, it indicates a positive impact or a high chance of occurrence of any event.

The estimated odd ratios for the variable region are 2.45, 4.38, 5.92, 5.19, and 4.12, indicating that the likelihood of having more facilities or bearing a lockdown is significantly higher for urban households than rural households across all categories. The likelihood of bearing the lockdown for male-headed households is 0.37, 0.60, 0.57, 0.65, and 0.84; for categories 1 to 5, respectively, it is significantly negative across all the categories, indicating female-headed households have higher odds. While the age of the household head and dependency ratio is equal to 1, indicating no certain effect across all categories. The odds of the total annual expenditures of the household, which is a proxy of the income, being 2.78, 1.93, 2.11, 2.29, and 1.85 for categories 1 to 5, respectively, show the chances of bearing the lockdown are much higher (positive) for wealthier households. The coefficients of employment status show that the likelihood of bearing the lockdown for employed household heads' is much lower than for the unemployed, as the odd ratio is 0.85 across all the categories.

The likelihood of surviving the lockdown is much higher for educated households. The estimated odds for education are 1.18, 1.13, 1.13, 1.12, and 1.14 for categories 1 to 5, respectively. Social awareness and access to television also increase the chances of surviving the lockdown across all categories. As the odds ratio for TV is 9.94, 3.93, 2.42, 1.95, & 1.81 for categories 1 to 5, respectively, the odd ratio

is higher for households with fewer facilities. Similarly, the odds ratio for computers is 3.39, 3.56, 3.15, 2.30, and 1.69 for categories 1 to 5, respectively, which is again higher for households with fewer facilities. It may be plausibly due to media campaigns and shows that the household has a relatively better financial position. Access to modern technology, i.e., computers, laptops or tablets, increases the likelihood of being in lockdown.

TABLE 3
Odds Ratio Estimation: Determinants of Lockdown Bearing Capacity

Factors	Lockdown Index Categories(1-5) based on number of facilities owned by households				
	Comparison#1	Comparison#2	Comparison#3	Comparison#4	Comparison#5
	Category 2, 3, 4 & 5 against category 1	Category 3, 4 & 5 against category 1 & 2	Category 4 & 5 against category 1, 2, & 3	Category 5 against category 1, 2, 3, 4	Category 6 against category 1, 2, 3, 4 & 5
	Y > 1 vs. Y ≤ 1	Y > 2 vs. Y ≤ 2	Y > 3 vs. Y ≤ 3	Y > 4 vs. Y ≤ 4	Y > 5 vs. Y ≤ 5
Region	2.45	4.38	5.92	5.19	4.12
(Urban=1)	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gender	0.37	0.60	0.57	0.65	0.84
(Male=1)	[0.000]	[0.000]	[0.000]	[0.000]	[0.028]
Age of Head	1.01	1.00	1.00	1.00	1.00
	[0.017]	[0.220]	[0.260]	[0.044]	[0.721]
Dependency Ratio	1.00	1.00	1.00	1.00	1.00
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Annual Expenditures	2.78	1.93	2.11	2.29	1.85
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Employment (Employed=1)	0.85	0.85	0.85	0.85	0.85
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Education	1.18	1.13	1.13	1.12	1.14
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
TV	9.94	3.93	2.42	1.95	1.81
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Computer	3.39	3.56	3.15	2.30	1.69
	[0.006]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	0.00	0.00	0.00	0.00	0.00
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]

Source: Authors' estimation.

[] is the p-values based on robust standard error.

V. Sensitivity Analysis

In order to reassure the relationships of different socioeconomic variables, the dependent variable is transformed into binary outcomes; instead of 6 categories, where it takes one of the households to have at least four categories, or in other words, they can bear partial lockdown. Otherwise, it is 0. The estimated results in Table 4 also endorse the estimation results of the main model. Again, urban households have a 6.255 times greater chance of carrying the partial lockdown capacity than rural households. The employed and male-headed households' odd ratios of 0.534 and 0.889 show that the lockdown-bearing capacity for households headed by a male is 47 per cent less than female-headed and 12 per cent less than unemployed household heads. Similarly, as per the main model findings, households with high income, educated, and socially aware (those with television) and those with access to technology have a high chance of bearing the lockdown.

In contrast, male-headed and employed households have low chances of bearing the lockdown. The result for males is consistent with the outcome of the pandemic, which shows that 74 per cent of the total affected population is male.¹ However, the variables' age and dependency ratio have equal chances of bearing the lockdown.

TABLE 4
Sensitivity Analysis Odds Ratio

Factors	Odds Ratio	Std. Err.	Z	P>z
Region (Urban=1)	6.225	0.262	43.42	0.000
Gender (Male=1)	0.534	0.033	-10.27	0.000
Age	0.999	0.001	-1.08	0.281
Dependency Ratio	0.995	0.001	-6.96	0.000
Annual Expenditures	2.303	0.090	21.43	0.000
Employment (Employed=1)	0.889	0.048	-2.19	0.029
Education	1.134	0.005	27.86	0.000
TV	2.510	0.085	27.09	0.000
Computer	3.254	0.298	12.90	0.000
Constant	0.000	0.000	-23.53	0.000

Source: Authors' estimation.

¹ <http://covid.gov.pk/stats/pakistan>; the official website of the Government of Pakistan for information regarding COVID19.

V. Conclusion and Recommendations

The Covid-19 Pandemic was one of the biggest challenges in the world after the world wars. It was a global pandemic which closed down almost the entire world and froze the global economy. Lockdown was deemed the only effective way to deal with the situation around the world, as recommended by the World Health Organization (WHO). Different countries have different experiences and outcomes of this lockdown policy. Economists are trying to assess the consequences of the pandemic and suggest strategies to get the economies back on track.

Since the measure of lockdown has emerged as a tool for controlling the COVID pandemic, no empirical study has focused on the determinants of successful lockdown policies. This study attempts to develop a Lockdown Readiness Index and measure the capacity of the Pakistani nation to bear the lockdown situation. The study further developed an econometric model by taking various social and economic variables to determine the capacity to bear lockdown conditions.

This study has focused on two issues: first, making an index of lockdown and then estimating its likelihood of success. The index considered six elements that are necessary for a household and family to stay home. The availability of all factors is considered an indicator of readiness for a complete lockdown; the lack of these factors suggests a partial lockdown. The index value was found to be substantially lower for a complete lockdown in the country, while the partial lockdown index was found to be relatively higher. Only 11 per cent of households nationwide, according to the Lockdown Readiness Index, are completely prepared to go into a complete lockdown. If the telephone and internet facilities 'aren't included, this ratio rises to 21 per cent. On the other hand, the figure increases to 26 per cent if we consider any four of the six fundamental amenities, which is a sign of a partial lockdown. A weaker partial lockdown indicator that considers the accessibility of drinking water and sanitary facilities indicates a readiness level of 40 per cent.

According to the data for the various provinces, Sindh gets the highest rating for total lockdown, despite having a score of only 16 per cent. This suggests that only 16 per cent of 'Sindh's total households have enough basic means to stay inside during the lockdown. Khyber Pakhtoon Khaw (KPK), which can experience a complete lockdown, is the second-best location where 14 per cent of households can remain at home while 23 per cent can do so without internet or phone access. Only 8 per cent of the population in Punjab can withstand the total lockdown, and only 18 per cent can stay at home if there is no phone or internet. Punjab is ranked third in this category. Baluchistan ranks last out of all the countries, with only 3 per cent prepared for total lockdown and 20 per cent for partial lockdown.

These findings imply that a partial lockdown is more feasible for the country because the low index value indicates insufficient preconditions for the person to agree to sit at home.

The results of the estimation confirm that people living in urban areas, households headed by females, the unemployed, the better educated, and those with access to technology have the greatest capacity to bear the lockdown situation. However, the age of the head of household and the dependency ratio would have no role in determining the lockdown scenario.

Therefore, in case of any future disaster, a partial lockdown may be preferred, as the preconditions for a complete lockdown do not exist sufficiently, and it is difficult for households to stay at home. Thus, partial lockdown is generally a better policy option, and a greater number of households may agree to stay at home.

References

- Ahmar, A. S., and E. B. Del Val, 2020, SutteARIMA: Short-term forecasting method, a case: Covid-19 and stock market in Spain, *Science of The Total Environment*, 729: 138883. doi: 10.1016/j.scitotenv.2020.138883
- Baldwin R., and B.W. Di-Mauro, 2020, *Economics in the time of COVID-19*, A Vox EU.org Book, London: UK, Centre for Economic Policy Research Press.
- Bansal, C. N. K., S. Sharma, and A. Gautam, 2020, A study on impact of COVID-19, a global pandemic on Indian economy: With special context to goods and service tax, *Journal of Xidian University*, 14(3): 1809-1818. ISSN No:1001-2400, DOI:20.10090.JXU.2020.V14I3.276311.1747
- Cadoni, M., and G. Gaeta, 2020, How long does a lockdown need to be?, arXiv: Populations and Evolution (q-bio.PE), 2004: 11633, doi.org/10.48550/arXiv.2004.11633
- De Vito, A., and J. P. Gomez, 2020, Estimating the COVID-19 cash crunch: Global evidence and policy, *Journal of Accounting and Public Policy*, 39(2): 106741.
- Fernandes, N., 2020, Economic effects of coronavirus outbreak COVID-19 on the world economy, University of Navarra, Spain, IESE Business School, Working paper, 1240. Available at SSRN 3557504, DOI: 10.2139/ssrn.3557504.
- Karin, O., Y. M. Bar-On, T. Milo, I. Katzir, A. Mayo, Y. Korem, and R. Milo, 2020, Adaptive cyclic exit strategies from lockdown to suppress COVID-19 and allow economic activity, medRxiv, New York: Cold Spring Harbor Laboratory Press, doi: <https://doi.org/10.1101/2020.04.04.20053579>.
- Maliszewska, M., A. Mattoo, and D. Van Der Mensbrugge, 2020, The potential impact of COVID-19 on GDP and trade: A preliminary assessment, World Bank, Policy Research Working Paper Series, 9211.

- Mamun, M. A., and I. Ullah, 2020, COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty?, The forthcoming economic challenges for a developing country, *Brain Behavior and Immunity*, 87: 163-166. DOI:10.1016/j.bbi.2020.05.028
- Mamun, M. A., and M. D. Griffiths, 2020, First COVID-19 suicide case in Bangladesh due to fear of COVID-19 and xenophobia: Possible suicide prevention strategies, *Asian Journal of Psychiat*, 51: 102073, doi: 10.1016/j.ajp.2020.102073
- Ranasinghe, R., 2020, Post-COVID19, Novel Corona economic recovery: Critical review on economic immunity of Sri Lanka, available at SSRN: <https://ssrn.com/abstract=3587179>.
- Rukh, L., M. Nafees, and F. Khan, 2020, Pakistan's response to COVID-19 pandemic and efficacy of quarantine and partial lockdown: A review, *Electronic Journal of General Medicine*, 17(6) em240. DOI:10.29333/ejgm/7951
- Thakur, V., and A. Jain, 2020, COVID 2019-suicides: A global psychological pandemic, *Brain Behavior and Immunity*, 88: 952-953, <https://doi.org/10.1016/j.bbi.2020.04.062>.
- Williams, R., 2006, Generalized ordered logit/partial proportional odds models for ordinal dependent variables, *Stata Journal*, 6: 58–82.