



Navigating Labour Market Disruptions: COVID-19's Impact on BRIC Economies

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Abstract:

The economic and health impact of covid-19 on developed and developing countries have been asymmetrical. The resilience and response of the developing world have been distinct. The primary objective of the study is to analyse the consequences of Covid-19 cases, Covid-19 deaths and the stringency index on unemployment in the emerging economies. We take Brazil, Russia, India and China (BRIC) as a proxy for emerging economies. The Granger Causality test for these emerging economies show that COVID-19 cases are a causal factor for unemployment in Brazil and China, however, it does not show causality for India and Russia. We also recognise the role of non-economic factors like stringency measures in the rise of unemployment. We have got the validation of a-priori expectation using the Granger causality test that the Stringency index is one of the causes for Unemployment in high-population density countries like India and Brazil. Overall, our study suggests that pandemic increases unemployment rate robustly for emerging economies and has a negative impact on the labour markets.

Keywords: Unemployment, COVID-19, BRICS.

Introduction:

Given its unprecedented nature, significant disruptions, and subsequent perceived predictability, the COVID-19 crisis can be considered a black swan event. Among the severely affected macroeconomic variables, employment stands out as one of the hardest hit. Employment has been the most potent anti-poverty weapon in the developing world. The mainstream theoretical understanding of the causes of unemployment has been revolving around forces like efficiency of the labour market or lack of effective demand or inability of the labour force to anticipate the real wages. However, pandemic-induced unemployment can't be explained by mainstream thinking and needs a heterodox explanation. According

to (Antipova, 2020) Covid-19 hit the global economy as a black swan event which caused severe health and economic destruction.

A profound and fundamental shift in economic thought was brought about by John Mynard Keynes through his revolutionary work "*The General Theory of Employment, Interest and Money* (Keynes, 1936)". Keynes' stringent critique of the efficient market theory and his faith in the government intervention as a necessary evil in lifting a depression economy out of the wounds of unemployment has got general consensus among policy makers. (Skidelsky, 2009) validates the same. The fall of Keynesians with successive blows of stagflation in the 1970s and the prevalent supply-side economic policies of the 1990s paved the

way for monetarism but only until the unforeseen challenge of 2007-08 Global Financial Crisis (GFC) hit the global economy. Fiscal policy again became the primary weapon of economic stabilisation. Rising wave of protectionism and inevitable penetration of automation in every mode of production led to a transition from jobless growth to job-loss growth which can be confirmed by the gradual reduction in the employment elasticity. However, with COVID surge; the unemployment scenario witnessed demand as well as supply-side shock with potential hysteresis effect.

Though there has not been much quantitative difference in the severity of pandemic in terms of per-thousand COVID cases in the developing and developed world, there are stark quantitative & qualitative differences between the two towards their COVID mitigation strategies. Since its outbreak in China, the pandemic had both humanitarian and financial implications across the globe. Economic downturns like reduction in output, fall in demand, rising stressed assets and reduced volume of trade led to negative consequences on unemployment. Higher levels of general unemployment, especially the youth unemployment hold serious implications for countries having a greater working population. BRIC member countries not only resemble relatively the same demographic profile but also manifest the idea of an emerging economy. Therefore employment plays a pivotal role in providing its labour force protection against social odds and uncertainties. The International Labour Organisation (World Social Protection Report, 2020-2022) confirms this view which states that the countries with relatively better social

protection and a higher percentage of formal sectors have shown more resilience than countries with poor social protection and higher percentage of informal sector. Unfortunately, an unprecedented event like the pandemic exposed the population in general and the labour force in particular to insecurities and vulnerabilities which holds serious implications for poverty incidence and its severity as confirmed by (Sumner, A., Ortiz-Juarez, E. & Hoy, C., 2020).

There are many studies in literature which clearly reveal the strong relationship between health and economic growth but the recent pandemic poses challenges to both. (Bloom, Sachs, Collier, & Udry, 1998) Suggest that demographic circumstances in the form of low life expectancy, high dependency and low savings have a negative impact on economic growth. Additionally (Lorentzen, McMillan, & Wacziarg, 2008) show that reducing adult mortality translates into low fertility and more investment in physical capital and this ultimately increases economic growth. In their study (Zhang & Zhang, 2005) show that rising longevity reduces fertility but raises saving, schooling time and the growth rate at a diminishing rate. Furthermore, (Preston, 1975) shows that countries with better health status tend to have higher incomes as compared to those who have poor health status. In brief, the impact of COVID-19 has been multidimensional which has bearing on all aspects of life.

It is important to acknowledge that the impact of pandemic goes far beyond mortality and morbidity. It has penetrated into sectors like travel and tourism (Abbas, Mubeen, Lomber, Raza, & Marmirkulova, 2021), supply chains

(Shen & Sun, 2021); (Shrey et al., 2022) FOREX markets (Fasanya, Oyewole, Adekoya, & Odei-Mensah, 2020), housing markets (Yang & Zhou, 2022) and the labour markets (Su, Dai, Ullah, & Andlib, 2022) are no exception. This impending panic altered the perception of economic agents and disrupted the well established pattern of transactions which precipitated into market anomalies for the short-run. In their study (Bauer & Weber, 2021) also show that shutdown measures increased unemployment in the short-run. In addition, the ILO monitor (2021) suggests that in 2020, 8.8 percent of global working hours were lost relative to the fourth quarter of 2019 which is equivalent to 255 million full time jobs and working hour losses were approximately four times greater than during the GFC in 2009. ILO report also notes that globally the working hour losses have translated into employment losses and reduced working hours for those who were employed. IMF's "Policy tracker" on unemployment shows the exponential rise in unemployment in the emerging world was mainly on account of stringent non-economic anti-pandemic regulations and restrictions imposed by the governments. The studies and reports outlined above provide a stepping stone for scrutinising the impact of pandemic on unemployment.

In the anecdote of the present paper we aim to analyse the extent to which the COVID-19 pandemic has caused an increase in unemployment in Brazil, Russia, India and China. This paper also delineates the state of unemployment in these four emerging economies. In addition we also analysed the causality between unemployment and pandemic. The article is organised in five sections:

literature review, methodology, results, discussion and conclusion. The review of literature segment mentions several studies that focus on the unemployment situation in recent years. In the methodology section we provide data on unemployment rate in Brazil, Russia, India and China and offer insights on country specific data. The result section shows details on the unemployment situation amongst Brazil, Russia, India and China. In the discussion section we comment on the scope of further study along with limitations. The last section concludes the research paper.

Literature Review:

Unemployment has been a central subject of the studies conducted by several authors across the globe but in our analysis and for the sake of this study we focus our attention primarily on the publications conducted during 2020 and 2021 which comprehensively deal with the pandemic COVID-19. Some of the important publications which we studied are listed below:

In their evaluation, (Ramakumar & kanitkar, 2020) "delineated that prior to the pandemic COVID-19 the Indian economy was undergoing a slowdown of economic growth and experienced record increase in unemployment and poverty. They noted that the crisis led to a loss of employment of at least 15 million. They used Input-Output (I-O) framework and created four ways to document losses to the Indian economy. Their estimates suggest that India's GDP growth rate in 2020-2021 may range from -4.3 percent to -15%. They argue that given the fiscal stance of the Government of India the chances of early revival appear dismal".

(Diala Al Masri et. al., 2021) “In their study of the Brazilian economy noted that sectors which were more-contact intensive and less teleworkable, such as construction, domestic service, and hospitality, suffered large job losses and reductions in hours. The low income workers experienced the largest decline in earnings due to immediate shock of the pandemic”.

In their analysis (Lambovska & Belas, 2021) “noted that the countries of the European Union (EU) introduced many strict measures to prevent the spread of COVID-19, but these measures have caused significant increase in unemployment, including among young people under the age of twenty-five in the EU. The study delineates that the most affected country was Czech Republic, where the unemployment rate at the end of 2020 was 2.19 times above the level at the end of 2019 and Estonia, where Y-o-Y youth unemployment rose by a factor of 2.5. The results of their study suggest that youth unemployment increased the least in Hungary, Italy, and Belgium”.

A study by (Li, Teng. et. al., 2020) “suggests that in China the COVID-19 pandemic increased unemployment by 27-62 percent from late January 2020 to the end of September 2020. They also noted that cities dependent on export or have a higher share in GDP in the hospitality industry but a lower share in finance and healthcare industries experienced a more pronounced increase in unemployment”.

Analysis by (Altman, 2022) “suggests that COVID-19 interventions further aggravated the pre-existing and rising unemployment and poverty levels in South Africa. The author also mentions that South Africa has had high

unemployment since the late 1970’s. The article outlines employment scenario modelling with the purpose of envisaging the future employment in South Africa in context to COVID-19, with a view of 2050. The modelling also shows what employment trajectory might look like in the absence of the pandemic”.

In their study, (Elgin, Basbug, & Yalaman, 2020) “constructed a COVID-19 Economic Stimulus Index (CESI) to standardise the fiscal response of 166 countries. It showed the variation in the extent of fiscal stimulus as well as the severity of the health crisis in different countries and the correlation between the two”.

A study by (Kashni & Thakur, 2021) “dealt with the factors responsible for the rise in unemployment in India and also its impact on job security. It also discusses the movement between labour force participation rate and unemployment during and the immediate aftermath of COVID. Though the study does not offer much rigorous statistical analysis but does provide much needed policy implications for the government”.

In their study (Zhu, Yan, Zhu, & Liu, 2021) “have evaluated the association of COVID-19 cases with factors like demography, health profile and policy response of each country between the time period February 26,2020 to April 30,2021. They compared these factors between BRICS countries using the log-linear Generalised Additive Model (GAM)”.

The World Economic Forum in its (The Global Risks Report , 2021) “cites youth unemployment as one of the challenges emanating from the pandemic. It analyses the extent of the impact of COVID-19 on the unemployment scenario

in different sectors of the global economy. Risk profiling ranges from high-impact sectors like manufacturing and accommodation to low-impact sectors like education and utilities. It portrays a bleak future for youth unemployment by counting the pandemic as a bigger and lasting threat to unemployment than the global financial crisis of 2008”.

In their study (Binder, 2020) “explores the psychological aspects of pandemic where the responses of 500 US consumers were taken. The questionnaire intended to gauge their understanding, how the people pursued the threat of the pandemic and how they plan to change their choices. It also shows the behavioural pattern was shaped by the nature of the consumer and the source of the information available for them”.

(Farayibi & Asongu, 2020) “shows that the COVID-19 pandemic has insignificant negative impacts on basic macroeconomic variables in Nigeria such as inflation, employment, exchange rate, GDP growth, among others”.

In the existing literature we have found many studies which analysed the impact of COVID-19 on stock market (Ganie, Wani, & Yadav, 2022) household consumption (Shuiting, 2020), energy market (Wang, Yang, & Li, 2022), global equity markets (Shaikh, 2020). This study is unique because it will explore the impact of COVID-19 pandemic on labour markets in emerging economies. The study will contribute to the existing literature on the economic impacts of pandemic COVID-19. We have taken into account the most important emerging economies of the world namely Brazil, Russia, India and China. It is important to acknowledge at this juncture that for the proper functioning of economies, labour

markets play a pivotal role and any disruptions in the labour markets have a significant impact on the process of economic growth. Furthermore the recent pandemic COVID-19 has severely impacted the labour markets in developed and developing economies across the world and has culminated into increased unemployment.

The study aims to scrutinise the impact of COVID-19 pandemic on unemployment in select emerging economies namely Brazil, Russia, India and China. These economies also represent the intergovernmental organisation known as BRICS. In this study we have excluded South Africa due to non availability of monthly data; the available data was not enough for the statistical analysis. These selected economies represent nearly half the world population and were severely impacted by the pandemic. As a result the objective of this research is to understand the impact of COVID -19 on unemployment in emerging economies namely Brazil, Russia, India and China (BRIC). We are specifically focusing on the BRICS member countries for various reasons:

- 1) BRIC is an important grouping bringing together the major emerging economies of the world.
- 2) The comparative advantage these countries possess in terms of low labour cost, demographic dividend and abundant natural resources makes them an important group.
- 3) BRICS member nations contribute nearly 24 percent of World Gross Domestic Product (GDP) which hold serious implications for the global economy.

Therefore by studying the impact of covid-19 on unemployment in these emerging economies, we can provide policy insights for the rest of the developed and developing economies around the globe.

Theoretical Framework and Methodology:

Theoretical Framework:

Infectious diseases remain a major source of morbidity and mortality in many countries, despite great advances in vaccines, diagnostics, therapeutics, and infection control measures. Like most infectious diseases, COVID-19 has also inflicted damages in almost every sector of the economy and disrupted everyday life across the globe. Precautionary measures in the form of stringent lockdowns have been attributed as one of the prominent reasons for slowing down economic activities and shutting down of businesses. "According to (Vobemer, Gebel, Taht, Unt, Honberg, & Strandh, 2018) rising unemployment due to COVID-19 pandemic can culminate into poverty, inequality and crime". Therefore the present paper aims to understand the impact of the pandemic COVID-19 on the select emerging economies namely Brazil, Russia, India and China.

Methodology:

The data used in this study has been taken from various sources. The historical trend of Unemployment in Brazil, Russia, India and China since 1991 has been highlighted in figure 1. In addition to the historical trend in unemployment across these emerging economies, we also take into account the monthly data on unemployment rate from January 2020 to September 2022. In

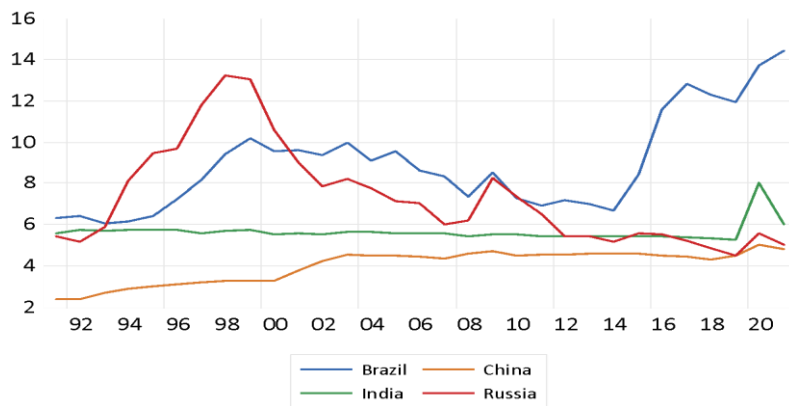
addition to this we also used covid-19 data from January 2020 to September 2022. For the causality analysis of COVID-19, we use the data on confirmed cases and deaths from the COVID-19 dashboard of World Health Organisation (WHO). We have also taken into account the data on the stringency index. Figure 3 shows the trends in covid-19 stringency index. The authors have used nine metrics to calculate the Stringency Index. The nine metrics according to (Hale, et al., 2021) "includes school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls". Since the data was available in numbers, to obtain more robust results we converted the data into square root for unemployment, covid-19 cases and covid-19 deaths except for the stringency index.

The detailed descriptive statistics of Brazil, Russia, India and China are given in table 1. In table 1 Brazil's unemployment has the highest mean 3.529 followed by India, China and Russia. On the contrary Brazil has the highest mean deaths 125.39, followed by India, Russia, and China. Figure 1 presents a comparative analysis of the unemployment situation in Brazil, Russia, India and China. It is evident from figure 1 that Brazil is showing the worst scenario among all other member countries. Brazil's unemployment mean value for the period 1991-2021 has been 8.92 followed by Russia (7.29). However China (4.00) and India (5.64) are performing better in comparative terms. Furthermore in Figure 2 we have also presented the monthly unemployment scenario from

January 2020 to September 2022. Brazil is the worst performer in terms of Unemployment followed by India, Russia and China. Also in the month of April and May 2020 India has experienced more disruptions in their unemployment rates than other economies. The Jarque-Bera statistics show that unemployment rate is normally distributed in Brazil, Russia and China while it does not follow the

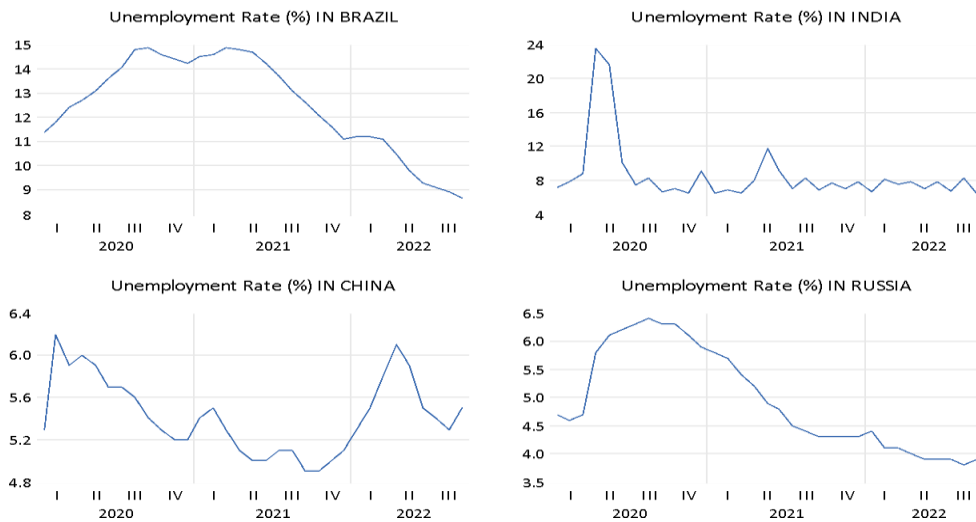
normally distributed pattern as a consequence of pandemic COVID-19 in India. In addition, the COVID-19 variable, namely the number of confirmed cases, does not follow normal distribution in Russia, India and China due to pandemic covid-19. The numbers of deaths are normally distributed in Russia and China whereas it shows non-normality in India and Brazil due to covid-19.

Figure 1: Unemployment: 1991-2021



Source: www.macrotrends.net Retrieved on 26th October 2022

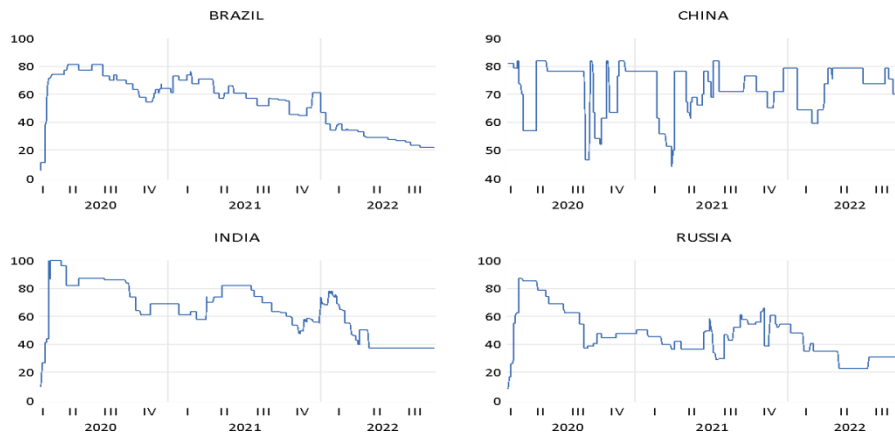
Figure 2: Covid-19 and Unemployment



Source: For Brazil the data is retrieved from the Brazilian Institute of Geography and Statistics. For the India Economy data is compiled from the Centre for

Monitoring Indian Economy Monthly Time Series data. Lastly for China and Russian Federation the data is compiled from www.tradingeconomics.com

Figure3: COVID-19 Stringency Index



Source: (Hale, et al., 2021)

Table 1: Descriptive Statistics:

		Mean	Maximum	Minimum	Standard deviation	Skewness	Kurtosis	Jarque-Bera	Probability
BRAZIL	Unemployment Rate	3.529	3.860	2.949	0.286	-0.565	2.147	2.757	0.251
	Covid-19 Cases	919.52	1878.67	0.00	459.34	-0.247	2.756	0.417	0.811
	Covid-19 Deaths	125.39	290.37	0.00	72.248	0.266	2.574	0.639	0.726
	Stringency Index	52.44	80.54	5.56	19.55	-0.49	2.317	1.937	0.37
RUSSIA	Unemployment Rate	2.215	2.529	1.949	0.199	0.303	1.565	3.33	0.188
	Covid-19 Cases	684.41	2130.01	0.00	415.61	1.080	5.704	16.47	0.000
	Covid-19 Deaths	94.48	191.45	0.00	53.80	-0.025	2.050	1.24	0.536
	Stringency Index	44.03	85.49	8.33	17.16	0.239	3.46	0.60	0.737
INDIA	Unemployment Rate	2.890	4.847	2.529	0.520	2.899	10.856	131.1	0.000
	Covid-19 Cases	912.60	3047.05	1.414	731.07	1.265	4.388	11.46	0.000
	Covid-19 Deaths	101.4	347.51	0.00	76.78	1.148	4.695	11.21	0.003
	Stringency Index	61.55	64.700	10.91	21.45	-0.65	3.028	2.33	0.310
CHINA	Unemployment Rate	2.328	2.489	2.213	0.076	0.411	2.218	1.768	0.413
	Covid-19 Cases	262.74	1365.16	14.03	408.51	1.691	4.398	18.42	0.00
	Covid-19 Deaths	18.409	83.958	0.00	21.797	1.340	3.989	11.223	0.003
	Stringency Index	71.78	79.52	52.98	6.99	-0.99	3.103	5.466	0.06

Source: Authors' Calculations

Results:

Table 2 displays the results of correlation. The Matrix shows a positive correlation between COVID-19 cases and unemployment in Brazil whereas it shows negative correlation for Russia, India and China. We observed a positive correlation between COVID-19 Cases and Unemployment in Russia, India and China whereas it showed a negative correlation in Brazil. Next we examine the correlation between Stringency Index and Unemployment. There is a strong positive correlation between Stringency Index and Unemployment in Russia and India, whereas weak correlation in Brazil and China. However, we found a strong and robust correlation between COVID-19 cases and deaths for Brazil, India and China. In brief, these findings suggest that the impact of COVID-19 cases, COVID-19

deaths and stringency index on unemployment is not uniform across our sample countries.

Table 3 presents the unit-root estimates for the total number of confirmed COVID-19 cases, COVID-19 deaths, stringency index and the unemployment rate. The Augmented-Dickey Fuller test estimates elaborate that all the variables are non stationary at level. However they have become stationary at the first difference. In the case of Brazil and China the unemployment variable becomes stationary at the second difference. The variable stringency index was stationary at level. Since all the variables were now stationary, we could find the causality association between these variables.

Table 2: Correlation Matrix

		Unemployment Rate	Covid-19-Cases	Covid-19 Deaths	Stringency Index
BRAZIL	Unemployment Rate	1			
	Covid-19-Cases	0.187996	1		
	Covid-19 Deaths	-0.137143	0.635255	1	
	Stringency Index	-0.116502	0.057627	0.622443	1
RUSSIA	Unemployment Rate	1			
	Covid-19-Cases	-0.190241	1		
	Covid-19 Deaths	0.028732	0.033314	1	
	Stringency Index	0.567295	0.028457	0.361181	1
INDIA	Unemployment Rate	1			
	Covid-19-Cases	-0.108601	1		
	Covid-19 Deaths	0.008006	0.849855	1	
	Stringency Index	0.425281	0.499345	0.623734	1
CHINA	Unemployment Rate	1			
	Covid-19-Cases	-0.21824	1		
	Covid-19 Deaths	0.030735	0.803987	1	
	Stringency Index	-0.192157	0.185822	0.018137	1

Source: Authors' Calculations

Table 3: UNIT ROOT TEST

	COVID-19 CASES				COVID-19 DEATHS				UNEMPLOYMENT						STRINGENCY INDEX			
	Level		1 st Diff		Level		1 st Diff		Level		1 st Diff		2 nd Diff		Level		1 st Diff	
	C	C&T	C	C&T	C	C&T	C	C&T	C	C&T	C	C&T	C	C&T	C	C&T	C	C&T
Brazil	0.00	0.07	0.00	0.00	0.10	0.17	0.02	0.03	0.85	0.11	0.25	0.02	0.00	0.00	0.00	0.00	--	--
Russia	0.03	0.03	0.00	0.00	0.13	0.58	0.06*	0.0*	0.90	0.21	0.09*	0.03	---	---	0.09*	0.06*	--	--
India	0.06	0.08	0.00	0.00	0.21	0.04	0.00	0.00	0.04	0.06	0.00	0.00	---	---	0.09*	0.00	--	--
China	0.01	0.06	0.01	0.02	0.11	0.17	0.00	0.00	0.10	0.91	0.05	0.36	0.00	0.03	0.00	0.01	--	--

Source: Authors' Calculations

Note: ***, **, * denotes significance level at 1%, 5% and 10%, respectively.

In their study, “Bianchi et. al., (2021) estimate the size of COVID-19 related shock to be between 2 and 5 times larger than the typical unemployment shock”. Furthermore (Kartseva & Kuznetsova, 2020) delineates that lockdowns and closure of firms impede the firm’s ability to pay employees their

remuneration which further causes an increase in poverty estimates for different countries. Our results are consistent with existing literature such as (Su, Dai, Ullah, & Andlib, 2022); (Altman, 2022) and (Huang, Makridis, Baker, Medeiros, & Guo, 2020). A similar situation can be observed in table 4 for Brazil.

Table 4: COVID-19 and Unemployment in Brazil, Russia, India and China

	COVID-19 cases		Unemployment		COVID-19 Deaths		Unemployment		Stringency Index	
	F-Statistics	Probability	F-Statistics	Probability	F-Statistics	Probability	F-Statistics	Probability		
Brazil	5.61298	0.0094***	5.54909	0.0098***	4.37656	0.0240**				
Russia	2.16166	0.13354	0.44906	0.6433	2.28448	0.1219				
India	1.43389	0.2566	1.23838	0.3064	18.3734	0.0000***				
China	6.84904	0.0041***	2.15518	0.1378	0.06634	0.9360				

Source: Authors' Calculations

Note: ***, **, * denotes significance level at 1%, 5% and 10%, respectively.

Table 4 presents the empirical estimates of the Granger Causality test. We can highlight a few interesting policy

insights from table 4. The estimated results reveal that the COVID-19 cases are a causal factor for an increase in

unemployment for Brazil and China. However we have accepted the null hypothesis that the COVID-19 cases in Russia and India do not cause an increase in unemployment. Similar causality tests between COVID-19 deaths and unemployment did not show statistically significant results for Russia, India and China whereas it revealed significant results for Brazil. For the causality between stringency index and unemployment we found significant results for Brazil and India, however, the results are statistically insignificant for Russia and China.

Discussion:

Our analysis of the pandemic in Brazil, Russia, India and China establishes causation between variables like number of COVID-19 cases, number of deaths, and stringency index with general unemployment numbers. Findings give a mixed picture where there is no uniformity between the causation of the above variables amongst BRIC countries. Variation in the peak and lean COVID-19 cases time periods, the stringency level of economic lockdown in individual countries led to heterogeneous impacts on labour markets. We observed South Africa as an outlier in BRICS countries where there has been no discernible variation in its unemployment rate before and during the pandemic unlike what we have observed in the rest of the four BRICS countries. Our study also shows that the stringency index is a causal factor for unemployment in countries like Brazil and India. The possible cause of not witnessing such causality for China and Russia might be the authenticity or availability of pandemic data in the case of China and low population density in the case of Russia. We also recognise that the

nature of economic growth; existing public health-care and economic stimulus have bearing on unemployment and may not be ruled out as confounding variables. However, we firmly believe that these variables do not impact the organic correlation and causality reflected in our results. We find great scope for further study in delineating and fixing the impact on unemployment by factors like health-care information asymmetry, transformation in the mode of production during pandemic, reverse migration and the presence of government funded unemployment allowance.

Conclusion:

We firmly believe that the pandemic has adversely affected the employment scenario in sample emerging countries. Such unforeseen shock has a serious bearing on the social and economic life of the vulnerable population of emerging countries. Enhancing the penetration of social net with aggressive government support looks imminent in the face of net decay in societal welfare as the hysteresis effect of pandemic will last even after the resumption of normal economic activities. Curative measures like unemployment allowance or quasi UBI can be implemented in the short-run with a firm long-run focus on employment-centric economic growth. The once-in-a-century crisis not only warrants the holistic review of the existing mitigation and adaptation strategies but it should also propel the emerging world to have national policies on the new impending issues like the GIG economy, rising youth unemployment, decreasing labour force participation rate and informality of the economy.

Notes:

1. We observed South Africa as an outlier in BRICS countries where there has been no discernible variation in its unemployment rate before and during the pandemic unlike what we have observed in the rest of the four BRICS countries.
2. Some of the working papers which we have listed in the main text are outlined below:
 - i. Apurva Shrey, Avi Dutta & Debjit Roy (2022). Impact of COVID-19 disruptions on Supply Chain: Insights from India. Working Paper No. 2022-06-01. Indian Institute of Management Ahmedabad.
 - ii. Diala Al Masri, Valentina Flamini & Frederik Toscani (2021). The Short-term Impact of COVID-19 on Labour Markets, Poverty and Inequality in Brazil. IMF Working Paper, WP/21/66.
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