

The reshaping of the future by the Covid 19 pandemic: an assessment of the impact on population and resources

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Abstract: The WHO declared Covid 19 as a pandemic on the eleventh of March, 2020. This led to individuals, governments, institutions and businesses asking what impact this pandemic would have on the future. What imprint would this outbreak leave on human civilisation? Pandemics can alter the course of history. Pandemics impact people, governments, policies and economies. The pandemic has broken out at a time of significant demographic transition. 2020 was the first year in documented human history where the global population of people over the age of 60 is more than the population of children younger than 5 years of age. The richer countries have high concentrations of aging populations. Historically, pandemics have had significant impacts on cities and urban areas. Public health institutions, garbage collection, sanitation, scientific drainage and hospitals all developed to varying extents in urban responses to epidemics. The covid 19 pandemic has also brought about changes. In 2019, the United Nations reported that there had been a 33 percent increase in the population of migrants across the world. The international migrant population was put at 270 million. The previous forecast was for this population level to be attained in 2050. But the pandemic has slowed the growth of migration. The impact of the pandemic on energy markets was immediate and cataclysmic. Large parts of the global economy were forced to close down. The demand for petroleum fell by 25 percent in the United States. The demand for public transport fell by 70 percent in San Francisco, 60 percent in London and 80 percent in Italy and France between March and May 2020. Pandemics and changes in climate are inextricably linked. As humans encroach further into the wild, the United Nations expects more animal viruses to infect and affect humans. 75 percent of all emerging infectious diseases originate in animals. 60 percent of viruses infecting humans come from wildlife and livestock. Zoonotic epidemics are triggered by flooding, climate variability and other extreme weather events linked to climate change. Climate change has also expanded the span of geographies susceptible to zoonoses. Even though this pandemic has brought to the fore these dangers, steps to effectively tackle climate change and to implement practices in agriculture that are more sustainable have halted. The global food system is responsible for fulfilling the nutrition requirements of 80 percent of the world's population. This system has been greatly disturbed by the pandemic. 4 shocks account for this great disturbance: 1. The movement of agricultural goods has been disturbed by restrictions on transport. 2. Supply chains have been seriously damaged by borders

being sealed and bans on exports. 3. Overall production has been reduced because of major disruptions in the supply of agricultural raw material, labor and services. 4. Food purchasing power has reduced dramatically because of job losses, especially among the socioeconomically disadvantaged sections of society.

Key words: Covid 19, Pandemic, Population, Resources

Introduction: The WHO declared Covid 19 as a pandemic on the eleventh of March, 2020. This led to individuals, governments, institutions and businesses asking what impact this pandemic would have on the future. What imprint would this outbreak leave on human civilisation? Pandemics can alter the course of history. Pandemics impact people, governments, policies and economies.¹

Population: Aging, urbanisation and Migration are key population indicators.

Aging

The pandemic has broken out at a time of significant demographic transition. 2020 was the first year in documented human history where the global population of people over the age of 60 is more than the population of children younger than 5 years of age. The richer countries have high concentrations of aging populations. Case fatality rates of Covid 19 are substantially higher in the 65+ age groups. More than 50% of pandemic deaths in the United states of America were in the 65+ age group.² More than 85% of pandemic deaths in Italy were in the 70+ age group.³ Geriatric care facilities have seen very high mortality rates. Protecting the elderly has to be a major policy focus area, for the present as well as for future epidemics/pandemics.

Urbanisation

Historically, pandemics have had significant impacts on cities and urban areas. Public health institutions, garbage collection, sanitation, scientific drainage and hospitals all developed to varying extents in urban responses to epidemics.⁴ The covid 19 pandemic has also brought about changes. In several countries, urban planning departments are replanning public spaces with a higher degree of importance given to green areas, common outdoor play areas and pedestrian zones. Though the usage of public transport has fallen dramatically with people opting for personal / private transport because of the risk of covid 19 transmission, several cities have undertaken measures to increase bicycle lanes and keep vehicular traffic to a minimum. Some of these cities are New York⁵, Paris⁶ and Bogota.⁷ Urban areas have seen increased access to healthcare and electricity.⁸ Unauthorised settlements/slums are being legalised and given electricity connections, sanitation and health services in India⁹, South Africa¹⁰, Kenya¹¹ and Afghanistan¹². Dispensations in South Africa¹³, Spain¹⁴, Colombia¹⁵ and Togo¹⁶ have created new social safety nets with the introduction of Universal basic minimum income and emergency cash transfers. Technology firms have pledged to support cities with smart city technologies.^{17,18}

The vulnerability of populations increases with their density. Urban populations are dense in nature. Currently, 55 percent of the world's population resides in urban areas. That percentage is

forecast to grow to 66 percent by 2050. Most of the growth in urban populations will happen in the developing world. It is insightful that the Covid 19 pandemic itself originated in China in Wuhan, a large city with a population of 11 million. Another megacity, the New York metropolitan area, was particularly seriously affected by the pandemic. The pandemic has brought to the fore the criticality of high quality, cutting edge public health and disease surveillance practices in cities of the future.

Urban development experts are also discussing whether urban areas, at least in some parts of the world, will continue to grow, proliferate and prosper as they have in recent history. The pandemic has led to an unprecedented acceleration in the adoption of work from home and remote working modes of functioning. As far back as March 2020, the population of Americans in work from home and remote working modes doubled to 62 percent.¹⁹ Research points to significant gains in productivity from remote working.²⁰ Big corporations like Twitter have even made public their vision of making remote work permanent. This is a pivotal development as it decimates the traditional importance of proximity to the place of work.²¹ If it gains significant traction, the adoption of remote working will be a game changer like few others before it. It will dramatically reduce the importance of urban agglomerations and cities as employment centres. It will allow knowledge / white collar workers to abandon expensive urban areas for significantly cheaper accommodation. This is crucial in the short term given the disruption to wage and economic growth because of the pandemic. In the long term, it is bound to lower the cost of business, lower commute times to workplaces, lower commute costs, lower cost of living for remote workers given the saving on rent and daily travel, lower energy waste, increase proportion of time spent by employees at work when they are at their freshest and possibly reduce work related and inter personal stress at the work place. There are signs that this trend is gaining traction.²² This trend is doubly beneficial: It has the potential to reduce overheated real estate prices and make housing affordable to a larger segment of the population and not just highly paid knowledge workers. It will also stimulate demand and economic activity in other geographies. City administrations of some smaller cities in the U.S. are looking to hasten this change by offering relocation incentives.^{23,24}

Migration

In 2019, the United Nations reported that there had been a 33 percent increase in the population of migrants across the world.²⁵ The international migrant population was put at 270 million. The previous forecast was for this population level to be attained in 2050.²⁶ But the pandemic has slowed the growth of migration.²⁷ Free movement is obstructed for most of the world's population. It is unclear when the situation will return to normal.²⁸ Until then, geographies that are dependent on migrant labour face an increased probability of labour shortages.²⁹ This will likely precipitate the push for automation and other technological development.^{30,31} These developments could result in long term macroeconomic consequences. Developed economies will lose out on migrant labour front and the entrepreneurship brought in by immigrants. Developing economies will lose remittances from their expatriate populations on a massive scale. Remittances are critical to the economies of countries such as Nigeria and India³², and these could go down by as much as 20 percent according to the World Bank.³³ This decrease in the flow of remittances brings with it the risk of precipitating political instability in the region as well as worsening the quality of governance.

Resources: Energy, Climate and Food are key resource indicators.

Energy

The impact of the pandemic on energy markets was immediate and cataclysmic. Large parts of the global economy were forced to close down. The demand for petroleum fell by 25 percent in the United States.³⁴ The demand for public transport fell by 70 percent in San Francisco, 60 percent in London and 80 percent in Italy and France between March and May 2020. This was reversed to different extents as countries started recovering from the pandemic. Global trade declined by 20 percent in 2020.³⁵ This has resulted in a decline in energy intensive shipping. Global energy demand had its biggest fall of the last 70 years.³⁶ These reductions could well be sustained if factors like remote work continue to persist or grow.

There may be long term consequences brought about by market price fluctuations in prices of energy, fuelled further by global oversupply and strains in relations between Russia and OPEC. One important area of consequence may be adoption of electric vehicles, which may be inordinately delayed because of low prices of fossil fuel which in turn prolong their use because of higher affordability.

Climate

Pandemics and changes in climate are inextricably linked. As humans encroach further into the wild, the United Nations expects more animal viruses to infect and affect humans. 75 percent of all emerging infectious diseases originate in animals. 60 percent of viruses infecting humans come from wildlife and livestock. Zoonotic epidemics are triggered by flooding, climate variability and other extreme weather events linked to climate change. Climate change has also expanded the span of geographies susceptible to zoonoses. Even though this pandemic has brought to the fore these dangers, steps to effectively tackle climate change and to implement practices in agriculture that are more sustainable have halted. Quite paradoxically, by holding policymakers and the media in thrall for several months, the pandemic has actually distracted them from the urgent need for action on the climate. The urgency of the matter is highlighted by the fact that in May 2020, in spite of massive falls in energy usage globally due to the economic shutdowns, the carbon dioxide levels recorded were the highest in human history.³⁷ 196 countries were to follow up on their 2015 Paris agreement commitments in November 2020 and release blueprints for the future to reduce carbon emissions.³⁸ However, in a setback to these plans, the COP26 global climate conference was postponed.³⁹ In a related development, the grassroots climate change advocacy that created a global impact over the last few years has now gone back to being almost entirely an online initiative.⁴⁰

The rapidity and scale of the world wide public health and economic response to the virus has demonstrated that global mobilisation on key policy issues is possible, even in the face of unprecedented disturbances to economies and livelihoods.⁴¹

Food

The global food system is responsible for fulfilling the nutrition requirements of 80 percent of the world's population.⁴² This system has been greatly disturbed by the pandemic. 4 shocks account for this great disturbance⁴³: 1. The movement of agricultural goods has been disturbed by restrictions on transport. 2. Supply chains have been seriously damaged by borders being sealed and bans on exports. 3. Overall production has been reduced because of major disruptions in the supply of agricultural raw material, labor and services. 4. Food purchasing power has reduced dramatically because of job losses, especially among the socioeconomically disadvantaged sections of society. All these factors

acting in synergy can bring about long lasting structural changes like changes in the way restaurants function and an increased adoption of food delivery services.⁴⁴ Before the pandemic, the application of data science in agriculture was seeing fast growth, with the forecast growth for AI in agriculture at 25 percent year on year between 2020 and 2026.⁴⁵ New forms of automation are emerging. These trends have now received a strong impetus due to the pandemic and its attendant labour supply squeeze and biohazard issues.⁴⁶ An increased usage of data dependent agriculture and robotic technology usage is being observed.^{47,48}

Increasing food insecurity is a significant danger to political stability. Food inflation has a causal relationship with civil unrest and weakening of institutions of governance.⁴⁹ Multiple geographies witnessed food issues associated protests in the Corona pandemic. Given the political and social significance of the situation, it is no surprise that governments have moved swiftly to secure food supply and logistics chains by ramping up domestic production, setting up multiple sources of food supply and ensuring availability of the necessary human labour requirements. Sector experts predict that food supply chains will be considerably shortened by hyperlocal production of vegetables and the rationalisation of food market interconnectivity through increased interregionalisation.⁵⁰ The pandemic could herald a shift towards the adoption of food production inside cities. The prevalence of urban farming could increase significantly with the increased participation of households. This can be perceived from the significant increases in demand for poultry, seeds and machinery used in indoor farming. With the Chinese now contemplating the broader health impacts of consuming meat, it could well be that the spike in vegetarian food consumption will last for a long time as populations change their food patterns. This sector has been touted as a hot bet for venture capital.

Conclusion

Mankind is at its highest levels of physical comfort in history. All health and economic indicators have never been as good as they are today. Per capita morbidity and mortality from all known causes are at their lowest. This picture of continuous overall improvement has been gently rocked by the pandemic. The pandemic has had the impact it has had because of the interconnected nature of the present day globe. International travel escalated the pandemic. Going forward, mankind will adapt to the new normal. The pandemic will stimulate innovation across the sectors that have been discussed in this paper. The next 5 years will see higher rates of innovation and change in health, technology, travel, food and work norms.

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