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Editorial: Coronavirus disease (COVID-19): Socio-economic systems in the post-pandemic world: Design thinking, strategic planning, management, and public policy

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Editorial on the Research Topic

Coronavirus disease (COVID-19): Socio-economic systems in the post-pandemic world: Design thinking, strategic planning, management, and public policy

Overview

The declaration of the COVID-19 pandemic by the World Health Organization on March 11, 2020, led to unprecedented events. All regions of the world participated in implementing preventive health measures such as physical distancing, travel restrictions, self-isolation, quarantines, and facility closures. The pandemic started global disruption of socio-economic systems, covering the postponement or cancellation of public events, supply shortages, schools and universities' closure, evacuation of foreign citizens, a rise in unemployment and inflation, misinformation, the anti-vaccine movement, and incidents of discrimination toward people affected by or suspected of having coronavirus disease. Attempts have been made to protect the oldest age group at risk, but in many cases, this has led to over-restriction and age discrimination.

The rationale for working on the Research Topic "Socio-economic systems in the post-pandemic world: Design thinking, strategic planning, management, and public policy" was the need to start reflecting on resilience and lessons learned from this public health event that revealed the global unpreparedness in critical areas. Also, the pandemic triggered

both top-down (e.g., policy tools toward labor markets) and bottom-up (e.g., social and technological innovations in education) responses that needed more in-depth analyses.

This Research Topic covers interdisciplinary contributions addressing new thinking, challenges, and transformations required for post-pandemic global, national, regional, and local realities. The presented Research Topic combines studies focused on recognizing the actions and interventions leading to the recovery of socio-economic systems during the tail end and after the pandemic. The studies delivered recommendations regarding, among others, the care of vulnerable, planning socio-economic restart, and imagining the “new normal.”

The presented Research Topic includes 27 articles prepared by 113 authors from all continents. This set of texts contains seven types of papers covering: 14 original research articles (Benó and Hvorecky; Bhandari et al.; Bjursell et al.; Breitenbach et al.; El Deeb; Ferchiou et al.; Kieslinger et al.; Liu et al.; Musango et al.; Poppe; Rasul et al.; Rivera-Rodriguez and Urdinola; Suomi et al.; Chen et al.), two perspective articles (Lee and Kang; Takewaki), four review articles (Contreras et al.; Kumar, Malla et al.; Singu et al.; Hamid and Mir), one study protocol article (Marston et al.), three opinion articles (Lever and Safra; Sciacchitano and Bartolazzi; Vlach and Feketea), one conceptual analysis article (Auriemma and Iannaccone), and two brief research reports (Kumar, Kodidela et al.; Sun et al.).

The editors have identified six themes underpinning and linking together the finally selected papers. The identified macro themes help to distinguish the main contribution focus and the areas of application of the published research. However, these studies are also a testimony of the pandemic's impact on each and every significant aspect of our societies.

Theme I: Resource management of healthcare systems and public health strategies

This theme covers papers that explore the interrelationships between socio-economic conditions, public health strategies, and the preparedness of healthcare systems during the pandemic. For example, Singu et al. explore the link between population characteristics and the emergence and transmission of COVID-19 in the United States, focusing on social determinants and their impact on health outcomes. The paper by Poppe focuses on reconsidering the efficacy of public health strategies used in developed countries in different socio-economic settings, such as Latin America, where informal and casual employment may be prevalent. This study reveals that public health policies have varying degrees of adherence, hence efficacy, depending on country-related macroeconomic indicators. Similarly, the paper by Musango et al. highlights the importance of existing population characteristics and socio-economic contexts when calculating the value money of the

death toll in Mauritius. The study applies a human capital approach to determine a total discounted money value for the human lives lost in the country.

Several papers in this Research Topic have modeled possible responses to the COVID-19 pandemic in the context of informed decision-making and resource allocation. In the article by Ferchiou et al., simulation is used to figure out pandemic preventative measures for various population groups and transmission rates. The model leads to the identification of several lockdown strategies and recommendations for policymakers regarding biosecurity compliance that may be achievable by monitoring general population behavior. Another modeling study by Rivera-Rodriguez and Urdinola was conducted to support policymakers in developing countries, such as Colombia, to decide what public health tools, e.g., lockdown, should be developed based on the foreseeable needs of intensive care unit beds. Bhandari et al. apply hazard modeling to forecast the demand for hospital beds during the pandemic, looking at the impact of selected population variables. A final contribution that used modeling, particularly technical efficiency analysis, is by Breitenbach et al. This work aims to determine the efficiency rate in country-specific response to COVID-19. The analysis was undertaken over a sample of 36 countries representing 90% of the global infection cases and considered pandemic-related infection and death cases in the computation. The developed model highlighted that despite allocating resources for healthcare systems, the efficiency is likely to degrade due to the lack of a systematic approach in responding to the critical challenges raised by the pandemic.

Theme II: COVID-19 and regulatory issues

The COVID-19 state of emergency raised pressure on regulatory frameworks worldwide due to the urgent demand for the development of effective policy tools not only related to health (Benton et al., 2020). The paper by Lee and Kang shows that the authorities needed to address the challenge of managing various forms of regulations related to COVID-19 in people's everyday lives. For example, South Korea has implemented streamlined fast-track services for the biotechnology industry to produce test kits swiftly. The mentioned study focuses on the precision regulation approach that delivers the right regulation methods for the right group of people at the right time. Another essential regulation issue that Sciacchitano and Bartolazzi underline is the importance of transparency in negotiating COVID-19 vaccine production and final vaccine price. Transparency could help avoid misconceptions and strengthen the collaboration between healthcare systems in European Union countries. Transparency is also essential to avoid “vaccine nationalism,” which undermines global efforts to ensure fair access to vaccines for everyone and facilitates

the development of viral mutations. According to the study by [Lever and Safra](#), one of the most noticeable reactions of governments to COVID-19 has been to impose lockdowns and restrictions on freedom of movement and association. These decisions can be temporary measures to control or mitigate the spread of the epidemic while waiting for the vaccine to be developed. However, pharmacological solutions should not prevent considering the endogenous factors in the societies which helped catalyze this pandemic.

Theme III: Environmental effects

One of the initial observations related to the COVID-19 pandemic was its impact on the environment and sustainability management ([Barreiro-Gen et al., 2020](#)). [Kumar, Malla et al.](#) show that societies and the environment have witnessed apparent positive and negative impacts of lockdowns. Closures of facilities and movement restrictions altered energy demand patterns and caused an economic downturn. Such a situation provided unprecedented insights into the dynamics of natural and built environments that can lead to viable conservation paths and help create new recovery environmental pathways. Another study by [El Deeb](#) presents the spread of the COVID-19 infection in Lebanon. The author shows that combining and understanding the disease's spatial, demographic, and geographic aspects over time allows for regionally and locally adjusted health policies and measures that could provide higher social and health safety. The contribution from [Liu et al.](#) aims to analyze the potential spread of the coronavirus through rail transport. The authors also present recommendations for controlling the spread of the disease in Wuhan, China. The study takes into account the effectiveness of control measures such as lockdown, the use of masks, sanitization, and social distancing for railway authorities and passengers. In the study by [Takewaki](#), "resilience" in architecture and engineering has been investigated primarily in terms of conventional natural disaster risks. The paper shows that architectural designers and engineers have an important mandate to think about the functions of buildings and their surroundings in the disease spread. Finally, [Hamid and Mir](#) provide a closer look at the food and the agriculture sector that was hit by lockdowns and market shutdowns which have endangered the supply of agricultural and food items across country borders. Especially food security and supply chain stability has been affected in emerging and less developed countries.

Theme IV: Macro socio-economic effects

The COVID-19 pandemic has also impacted various areas of socio-economic development by, for example, a rise in

economic uncertainty and challenges to monetary policy, fiscal policy, and trade policy ([McKibbin and Fernando, 2021](#)). The paper by [Rasul et al.](#) shows that South Asian states have encountered a challenging situation culminating from, among others, a large population, inadequate health facilities, high poverty rates, low socio-economic conditions, and limited access to water and sanitation. The need to contain the COVID-19 spread has led to lockdowns with effects on economic growth, increasing the fiscal deficit, monetary burden, and macroeconomic instability. According to [Auriemma and Iannaccone](#), the adoption of lockdowns has precipitated socio-economic development by generating radical changes in daily life at the national, supranational, and international levels. For example, in Italy, the suspension of commercial activities led to a search for smart employment solutions but also to the digital divide and new forms of relationships. The study by [Marston et al.](#) shows that using digital technologies is an alternative to maintaining economic and social activities during physical distancing adherence. The paper describes how the pandemic impacted social interactions, including the association of the use of digital technologies with psychological wellbeing and levels of loneliness. Another side of technology-related issues has been investigated by [Kieslinger et al.](#), who studied the lack of medical hardware supplies during the COVID-19 pandemic. This situation led to more significant innovation in healthcare systems, especially the local production of COVID-19-compliant healthcare products (e.g., face shields and medical supplies), with implications for reducing dependencies on international supply chains and mainstream mass production.

Theme V: Labor and employment-related challenges

The COVID-19 pandemic caused a shock for the labor markets worldwide, including changes in workforce mobility, work reorganization, and applying various labor market policy measures to decrease the risk of mass unemployment ([International Labour Organization, 2020](#)). The contribution by [Sun et al.](#) is based on a survey among financial managers before the coronavirus disease peaked in China. The authors analyzed the managers' coping strategies, the risk perception directly caused by COVID-19, and the indirect effect that refers to managers' fear that they will not make timely adjustments. [Contreras et al.](#) explain that companies had to switch from physical presence to telework from one moment to the next. The existing knowledge of teleworking and e-leadership played a crucial role in the reorganization process. As a result, the leading companies in this field have enjoyed a considerable advantage in building new production structures and reaching advantages in the market. [Kumar, Kodidela et al.](#) write that the combination of decreased productivity and staying at home is likely to compromise wellbeing by causing stress and anxiety.

However, organizing virtual sessions to learn about workers' motivation and listen to their experiments helped decrease perceived and COVID-19-related stress scores. Also, the study by [Suomi et al.](#) showed that the difference in perceptions of the employed and unemployed was attenuated during COVID-19, with benefitting recipients perceived as more employable and conscientious than in the pre-pandemic period. These results add to knowledge about the determinants of welfare stigma, highlighting the impact of the global economic and health crisis on the perception of others. Finally, [Beno and Hvorecky](#) surveyed companies shortly before the epidemic. Given the situation, they decided to repeat the survey during a different phase of a pandemic to find out the effectiveness of e-working and the causes of decreased work productivity.

Theme VI: Education-related challenges

The COVID-19 pandemic has also impacted risk management in educational institutions, for example, mental health maintenance, staff mobility control, and online education schemes ([Tadesse and Muluye, 2020](#)). [Vlacha and Feketea](#) underline that the spread of COVID-19 and other winter-related common viral infections may co-exist while prevalent among children. Resultantly, there may be consequences from children's lack of school attendance ranging from family's financial security to support the children's educational needs and emotional wellbeing with implications for childcare for affected parents. In essence, there is a need for the children to attend school regularly and yet facilitate students' protection from COVID-19. [Bjursell et al.](#) show that the pandemic has also impacted participation in lifelong learning, with differences between age groups, nations, sectors, and professions. While a study by [Chen et al.](#) analyzes shifts in academic activities from offline to online and/or virtual operations. The research focuses on sustainable knowledge-sharing willingness in virtual academic communities.

Conclusion

The studies presented in this Research Topic allow identifying at least eight directions for further investigations. These are: (1) digital innovations, including artificial intelligence and robotic solutions as well as innovation policy in the public health and health sector; (2) tensions between national

and international health policies and regulations; (3) redesign and resilience in the trade policies, transport systems, and supply chains; (4) emerging transformations and inequalities at the labor markets; (5) planning, management, governance, and evaluation of governmental interventions related to the pandemic (see also [Dunlop et al., 2020](#)); (6) comparative public policy studies focusing on differences across nations and policy transfer (see also [Liu and Geva-May, 2021](#)); (7) impact of the pandemic on trust and risk management and communication; and (8) the advancements in the usage of design thinking, co-production, co-design, social innovation, and citizen science.

Author contributions

All editors of this Research Topic have contributed to this Editorial as well as to the selection and review of the papers accepted in this Research Topic. All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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