

THE COVID-19 PANDEMIC has imposed the need to think about the relationship between development, economy, and health. More than ever, it is necessary to return to an approach of political economy of health, beyond the restrictive view of the traditional economy of health and allocation of scarce resources. This special issue of *Cadernos do Desenvolvimento* is not only a punctual contribution, though necessary; it is a landmark of the restart of a vigorous research program in a move forward in the relationship between health and development, drawing on the concept of Economic and Industrial Complex of Health (CEIS), one that articulates the economic, political, and social fields of health with the innovative and productive base and social rights. In the last instance, it is part of an effort of conceiving and working on the conformation of a national development project that is, at the same time, dynamic, sustainable, equanimous and fair, marking the moral bond, unfortunately lost, between economy, production, innovation, and life.

The tragedy of Covid-19 has exposed the country's structural fragilities that threaten the Unified Health System (SUS). The research program of CEIS, developed in the past twenty years at the Oswaldo Cruz Foundation (Fiocruz), has since its conception alerted to severe issues that have become hindrances to the guarantee of health access in this crisis. The emphasis of CEIS in the endogenous interdependence between the economic, productive, technological, and social dimensions of the universal access to health and the intrinsic relationship with national development, provided a basis from which it was possible to anticipate multiple vulnerabilities that would be aggravated, such as the chronic commercial dependence of strategic health products.

In order to update CEIS research agenda, the prospective action of Fiocruz has led to the construction of a structuring research network with a strong scientific potential to think health, CEIS and development. In a strategic collaboration with institutions of excellence in the field of political economy, especially Universidade Federal do Rio de Janeiro, Universidade Estadual de Campinas and Universidade Federal Fluminense, the project "Challenges for the Unified Health System (SUS) in the national and global context of social, economic and technological changes - CEIS 4.0" involves over 35 highly qualified researchers in a coordinated investigation committed to the universal access to health, SUS and development.

"Development, health and structural changes: The Economic and Industrial Complex of Health 4.0 in the context of Covid-19" - title of this issue of *Cadernos do Desenvolvimento* - presents the first outcomes of CEIS 4.0 project, in the framework of the commemoration of Celso Furtado's 100th anniversary of birth and 120th anniversary of Fiocruz's foundation, and under the inexorable impact of the pandemic. Furtado stated that consistent knowledge of social reality is an essential condition to make a break-

through in the historical impasse manifested as underdevelopment. Fiocruz is a manifestation of this spirit and has always historically analyzed in depth the true health conditions in Brazil in order to overcome crises and build new paths.

Reinforcing the theoretical-political bases of CEIS research program on collective health and on the Latin-American structuralist approach, this issue presents a set of qualified and timely interventions to respond to the pandemic crisis, articulated around the economic and social development of the country.

This issue begins with an article of my authorship that establishes the conceptual bases of this edition's guiding project and presents the updated configuration of CEIS 4.0, stressing the endogenous, analytical and political interdependence between the economic and social dimensions of development. Highlighted by the crisis, demographic and epidemiological changes, increasing globalization and financialization, the 4th technological revolution, the deepening of economic and technological asymmetries, climate changes and those in the world of work, are vigorous ongoing processes that have the potential to radically transform health, both in its social and productive bases. These changes have been engendering new research problems and demand new responses and theoretical formulations. In the current context of challenges intensified by Covid-19 pandemic, the paper seeks to show the importance of deepening CEIS research program and the need to overcome false and linear dichotomies in order to advance in the theoretical-conceptual dimension, and rethink national and global development strategies.

The recent changes in the global dynamics of production and innovation and their impacts on public policies, with the deepening of the financialization process, are discussed in the paper by Cassiolato et al. The analysis of Covid-19 pandemic draws on its effects on the economy and society, the role of new digital technologies in global changes, industrial and innovation policies and, especially, in the productive and innovation system of health. The paper by Lastres et al. draws on the analysis of the set of revelations associated with Covid-19 and discusses the position of health as an axis of a new development project. Besides environmental and inequity issues, it examines processes and impasses related to the role of the State and public services, the new productive and technological dynamics, and the systemic and contextualized view of production and development, placing the territory as a vital element of the analyses and propositions of policies.

The third paper, by Sabbatini et al., analyses the global dynamics of the productive and innovation system of CEIS and how structural fragilities have been made evident with the emergence of Covid-19 pandemic. The authors discuss the measures that stimulate internalization, development, and the use of technologies included in the concept of revolution 4.0, not only as part of a socioeconomic project, but also as a means to face

the sanitary emergency. Hiratuka e Sarti et al. point in their paper how the changes in the accumulation strategies of global leader firms promote structural transformations and how these transformations expose the structural productive and technological vulnerability of CEIS in Brazil. The authors analyze the changes in the strategies of global leader firms of CEIS to evaluate the new accumulation dynamics of the sector, pointing the implications for the overcoming of the economic and social challenges of the health sector in Brazil.

Vargas et al. study the impacts of Covid-19 pandemic on the organization of and incentive to activities of science, technology and innovation in health, worldwide and in Brazil. The authors analyze both the mechanisms of coordination of and support to the activities adopted to face the pandemic and the recent evolution of the scientific production on Covid-19. Maldonado and Cruz, in their turn, demonstrate the recent intensification of the use of telemedicine and the debate around this technology on global and national levels. The authors show the main impacts of the pandemic on telemedicine in Brazil, how this discussion must be inserted in a national development strategy, and to what extent will the interests of public health and the humanized access to health prevail.

Opening a new research approach to the job market in CEIS, Gimenez and Cajueiro point to the occupational fragilities made evident in the pandemic and their relation to the contradictions present in the world of health. On the one hand, there is SUS that demarcates an advanced structure of universal services delivery, from basic care to more complex procedures; on the other hand, the financial, technological and productive limitations of CEIS that block the expansion of quality occupations. Santos and Manzano et al. analyze the distribution of health professionals in Brazil, stressing the disparities through the regions. The authors show how the disparities are partly attenuated by the broadness and decentralization of SUS, compensating the relative scarcity of private health services, especially in the regions with lower per capita income. The studies emphasize that the generation of qualified health occupations depends on a strong and developed productive base, compatible with the requirements of universal access and the SUS of the 21st century.

Dweck et al. demonstrate how the structural fragilities of CEIS associated with the Brazilian public finances have manifested in the pandemic. The authors show the impact of fiscal norms on the funding of SUS in this context and the imbalance in the design of the Brazilian fiscal federalism between services delivered by subnational agencies. They also approach the need of constructing an agenda that responds to the structuring challenges of SUS and the vulnerabilities of CEIS. Rossi and David show how the pan-

democratic struck Brazil amid the application of a reform agenda centered on austerity and the reduction of the State's role in economy, making evident the need to revise the mechanisms of health funding for the coming years and the urgency to discuss the future of public health funding in Brazil.

Finally, closing this issue, the paper written by the project's executive coordination team shows the Brazilian context of production and innovation in health and the capacity to respond to Covid-19 pandemic. The analysis comprises the critical aspects of innovation in health geopolitics, how these dynamics interfere in the national sovereignty in health, and what is the knowledge acquired in this moment of crisis that should be retained. The paper unfolds the set of contributions of analyses on CEIS 4.0 dynamics and highlights that health and wellbeing are structural leverages for the overcoming of the crisis.

This journal issue marks the starting point of a renewed research program, with the aim of highlighting the need to advance in the debate on the structural aspects that obstruct the superation of this sanitary and humanitarian crisis and its social, economic and environmental consequences. Those who study and design public policies in this field have the responsibility to extract the learnings from this difficult context to overcome the current crisis and those that will certainly arise in the future.

Our wish is that the efforts of this network of researchers may contribute to the strengthening of a vigorous research program in the political economy of health, through an approach at the same time systemic and structural, and that it increasingly incorporates other fields of knowledge in the social, exact and natural sciences. It is a theoretical and political necessity to advance in the elaboration of investigations that explore the endogenous interdependence between the economic, social and environmental dimensions of development. We hope that a deeper understanding of the structural changes and afflictions that historically accompany the Brazilian reality, overwhelmingly revealed in a context of loss of lives resulting from Covid-19 pandemic, may help in the proposition of a reality and a project, possible and necessary, for a nation committed to life, development, science, technology and innovation, to human and environmental values, and to social equity.

Have a good reading.

Carlos A. Graboia Gadelha

*CEIS 4.0 Project Coordinator
Invited editor*