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# The importance for tuberculosis of mitigating economic crises

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Economic crises are among the most impactful and frequent complex events of modern societies, and have been shown to be detrimental for a wide range of diseases and health conditions, especially in low-income and middle-income countries (LMICs).[1] The most frequent consequences of economic crises are sharp increases in poverty rates, income inequalities, and unemployment, which are among the strongest social determinants of health with the potential to influence population morbidity and mortality rates.[2] Tuberculosis is one of the infectious diseases most affected by poverty and socioeconomic vulnerabilities,[3] and it is expected that large economic recessions, such as the one that Brazil suffered in 2015–16, affect the burden of tuberculosis. Although Brazil technically ended its economic recession in 2017—after more than 2 years of decreasing gross domestic product—its poverty rates continued to increase until the beginning of the COVID-19 pandemic in 2020, demonstrating how economic shocks could have more prolonged effects on the most vulnerable groups than previously thought. This phenomenon reflects also on the temporality from the economic crises to the observed impacts on health, resulting in short-term and long-term increases in the incidence of diseases and their consequences.

To our knowledge, the multi-level regression modelling study by Yunfei Li and colleagues published in *The Lancet Global Health*,[4] is the first to estimate, with nationally representative data and a robust statistical methodology, the impact of the Brazilian economic crisis on the increase in tuberculosis incidence. The authors extracted tuberculosis case notifications from Brazil's National Notifiable Disease Information System, and data on tuberculosis deaths from the Mortality Information System, to compare excess cases and deaths between the pre-recession period and the recession period. This subpopulation analysis showed that the recession had a stronger effect on young adults, who are more sensitive to changes in unemployment and poverty rates.

During this recession in Brazil, increases in poverty and income inequalities were not followed by a corresponding expansion of social protection and health-care services, which could have covered the growing number of vulnerable individuals and thus mitigated the impact of the crisis on health outcomes.[5] On the contrary, structural measures of fiscal austerity were implemented, and the welfare state suffered substantial funding restrictions.[6] As shown in a longitudinal analysis of 5565 Brazilian municipalities, only municipalities with higher coverage of health care and social protection were able to mitigate the impact of the economic crisis on adult mortality.[7]

The increase in tuberculosis case notifications seen in Brazil has been observed in several countries in Latin America during the same period.[8] The region has been facing political as well as economic crises, thus magnifying the impact of the economic recessions on tuberculosis. Although Li and colleagues report the relative proportion of tuberculosis cases from incarcerated population to be 9% (81 371 of 902 743 adults) in Brazil, the literature points towards prisons being one of the main drivers of tuberculosis in the Latin America population.[9] Specific actions can be taken to mitigate tuberculosis in prisons (such as improvements in air ventilation and active tuberculosis screening and diagnosis); however, these actions must be implemented together with social and economic protection at the community level.

Li and colleagues' study is particularly relevant in this post-pandemic period. One of the main consequences of the COVID-19 pandemic has been the increase in poverty rates and socioeconomic vulnerabilities worldwide, which—together with the current effects of the war in Ukraine and the probable incoming global economic recession—have the potential to substantially increase the burden of tuberculosis, especially in LMICs.

To act on the source of the problem, a substantial and prompt increase in the coverage of social protection interventions[3] (such as cash transfers) and of universal health care programmes (such as primary health care)[10] is essential. These actions, together with other interventions identified in the end tuberculosis strategy, such as integrated patient-centred care and prevention, could spare thousands of excess cases and deaths from tuberculosis worldwide over the next decade.

Unfortunately, the escalation of poverty and increase in vulnerable populations, which results in high tuberculosis burden, will not end soon. Tuberculosis is hard to control due to its respiratory transmission, long lead times between infections and disease, and

potential delays in diagnosis and treatment. Even in an optimistic scenario where all relevant stakeholders take seriously the implementation of mitigation interventions for tuberculosis, the next decade will require tuberculosis to be a public health priority worldwide if the tuberculosis-related Sustainable Development Goal 3.3 is to be achieved. Without firm policy responses to the effects of the current and incoming global economic crises, there is the real possibility of large increases of the tuberculosis burden in LMICs over the next decade.

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*Davide Rasella, Otavio T Ranzani*
**davide.rasella@gmail.com**

ISGlobal, Hospital Clínic-Universitat de Barcelona, Barcelona 08036, Spain (DR, OTR); Institute of Collective Health, Federal University of Bahia, Salvador, Brazil (DR); Pulmonary Division, Heart Institute, Faculty of Medicine, Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil (OTR)

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