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Covid-19 economics: Introduction

As the Covid-19 pandemic began and the world entered into a lockdown in early 2020, economists responded in an unprecedented way. Whether it was because the lockdown precluded them from conducting their usual research or because the pandemic affected all dimensions of our professional as well as personal lives, many of them began writing papers on the pandemic. It started with theory-heavy papers on the optimal policies, soon followed by, as more data became available, an explosion of papers on the economic and health effects of the pandemic, highlighting how unequal those effects were both within and across countries. The speed with which these papers appeared and circulated suggests that they were written to contribute to the policy debates in a timely manner, a fresh contrast to the typical economics research papers that must meet the exacting standards of thoroughness and completeness for journal publications.¹

By definition, economists have an advantage in studying economic phenomenon, including the economic effects of the pandemic. In addition, it turns out that economics has an advantage in studying (a subset of) epidemiological phenomena, including the Covid-19 pandemic, because of its focus on people's choices and interactions. In economics, the modeling of human behaviors consider how people respond to incentives and how their choices are shaped not only by the past and the present conditions, but also by their expectations of the future. By providing such "micro foundations," economics brings two important ideas into epidemiological modeling. One is the tension between what is best for an individual and what is best for the society, because of the inherent externalities in the pandemic situation (for example, people not internalizing the cost of infecting others), as well as the difference between an individual's preferences and social welfare criteria. This tension justifies various policy interventions. The other is a notion of the Lucas critique: Attempts by policymakers to exploit an empirical pattern often fail because people adjust their behavior in response to (or in anticipation of) the policy changes. Overall, economists' foray into epidemiology during the Covid-19 pandemic has been a fruitful one, although it should be noted that some economists had worked with epidemiological models even before the Covid-19 pandemic.

This volume has seven papers, in addition to this introduction. They represent some of the finest economic research on the Covid-19 pandemic and its impact on the economy and public health. While most contributors are macroeconomists, the majority of the contributions straddle the already-porous line between macroeconomics and microeconomics, especially those papers that admit heterogeneity among people.

We start with two papers that aim for a deeper understanding of the empirical patterns, one epidemiological and the other economic. The first paper is by Fernández-Villaverde and Jones, and it sits closest to the epidemiology literature. They estimate an SIR-type model for various countries and cities around the world, and states in the U.S. They show that inverting the model allows for an estimation of the model parameters using only data on deaths. This is an important result because deaths are measured more precisely than cases, whose measurement error can vary wildly across locations and time due to differences in test availability and the willingness of people to get tested. This is a methodological contribution to the estimation of SIR-type models.

The second paper is by Eichenbaum, Rebelo and Trabandt. They document the features of Covid-19 recessions in six countries: declines of similar magnitudes in consumption, investment, and output. They augment the standard New Keynesian model with an SIR-type epidemiological model, which successfully accounts for these observations as well as the moderate deflation during the recession. One important conclusion is that the Covid-19 epidemic represents a negative shock to both labor supply and the demand for consumption: A labor supply shock alone would reduce output, hours and

¹ The RePEc (Research Papers in Economics; repec.org) database lists about 36,000 economics papers on Covid-19 as of April 2022. Such rapid and massive (voluntary) mobilization of economic research efforts was a wholly new phenomenon. However, it does not seem to have had a persistent effect on the way economic research is done.

investment more than consumption, and the other way around for a consumption demand shock. A combination of shocks to consumption and labor supply are needed to account for the empirical patterns.

The next three papers consider the optimal lockdown and vaccination policies, and hence lean more on the theory side. The paper by Garriga, Manuelli and Sanghi emphasizes the interaction between the lockdown policy and the vaccination policy, in particular how the lockdown policy is affected by the expected timing of the vaccine availability. The value that society places on averting deaths is the key determinant of the optimal policy, and the timing and the magnitude of the optimal policy varies substantially in response to this value, over which there is wide disagreement.

Glover, Heathcote, Krueger and Rios-Rull (GHKR hereafter) and Boppart, Harmenberg, Krusell and Olsson (BHKO hereafter) analyze vaccination policies, in particular, the optimal roll-out of vaccines. Unlike Garriga et al., they build heterogeneous-agent models where one critical source of heterogeneity is age and discuss the merits of prioritizing one age group over others. As in the real world, the young in the model work and the old are more vulnerable to the disease. Both papers argue that vaccinating the old first is the optimal policy. However, if social interactions and associated infections are significant enough in the workplace, then vaccinating the young first could control the pandemic more effectively, at the cost of more deaths in the old population.

GHKR finds that vaccinating the young first leads the social planner to offset the additional deaths of the old by imposing more lockdowns earlier than when vaccinating the old first. BHKO emphasizes the difference between the private and the social values of vaccines. In particular, families value the vaccination of an individual less than a social planner would, and, unlike the social planner, they would rather vaccinate the old first. BHKO also distinguishes between the value of a marginal vs. average vaccination, and goes on to show that vaccinating almost all the old gives a higher value than vaccinating a corresponding number of the young.

All three papers offer valuable new insights on optimal policies by combining theory and quantitative analysis.

All of the above papers, like the vast majority of Covid-19 papers in economics, focus on developed countries. By contrast, Hevia, Macera and Neumeyer study the effect of the pandemic across socioeconomic groups in a developing country, Colombia, utilizing high-quality epidemiological data from Bogotá. While the rich and the poor are different in terms of their exposure to the virus and the coping mechanism at their disposal, they find that the most important dimension of heterogeneity, when it comes to Covid-19, is people's age. Incidentally, this validates the decision of GHKR and BHKO to focus on age as the key dimension of heterogeneity.

Finally, perhaps one of the most unexpected development of the Covid-19 pandemic was the extreme politicization of the pandemic itself and the various mitigation policies, be they lockdowns, subsidies, vaccination, or masking. Scientific and economic facts were powerless in the face of partisanship armed with misinformation. The preceding six papers were silent about this unpleasant feature of reality, and so was the majority of economics papers on Covid-19. In fact, this is one area that economists should take more seriously. What good is figuring out what the optimal policy is when it cannot be implemented because of irrational fear or resistance stoked by manipulated information? The last, but definitely not the least, contribution of this volume is the paper by Gonzalez-Eiras and Niepelt, a paper that addresses some of these issues. They consider how politico-economic factors shaped government policy response to the pandemic across the US states and find strong evidence of partisanship.

The papers appear in the order they are summarized here. Each paper is followed by a short comment from the respective discussant, with one exception (the paper by Fernández-Villaverde and Jones). All the discussants have written very insightful, highly complementary comments, which highlights the strengths of the main papers and the avenues for productive future research. After reading this volume, we very much hope you will agree that economists' interdisciplinary efforts were fruitful in advancing our understanding of the pandemic and its economic and public health effects, as well as the effects of various policy measures implemented in response to the pandemic.

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