The Great Lockdown and the Big Stimulus: Tracing the Pandemic Possibility Frontier for the US

KEY TAKEAWAYS

✓ Much of the debate around the appropriate policy response to the pandemic hinges on the trade-off between saving lives and preserving livelihoods. This work directs attention away from this trade-off to the equally important choice over who carries the heaviest economic burden.

✓ The authors advocate the use of a distributional pandemic possibility frontier (PPF), which presents policy makers with a menu of options and shows the effect of those options across different households.

✓ An important point for policymakers is that the economic welfare costs of the pandemic are large and heterogeneous regardless of the policy response, making targeted policy action imperative.

The COVID-19 pandemic has fueled a global health and economic crisis of unprecedented severity. Six months into the pandemic, the death toll in the US is approaching 200,000 and, despite massive fiscal stimulus, the country faces its deepest economic contraction in modern history. Since person-to-person contact is essential for a substantial fraction of the US economy to function, and since such close contact allows the virus to spread easily, both fatalities and economic losses are unavoidable.

Likewise, much of the debate around the appropriate policy response to the pandemic hinges on one question: How large is the trade-off between saving lives and preserving livelihoods? In "The Great Lockdown and the Big Stimulus: Tracing the Pandemic Possibility Frontier for the US," Greg Kaplan, Benjamin Moll, and Giovanni Violante contribute to this debate by quantifying the distributional effects of the pandemic and associated policy responses across different types of workers and households. In doing so, this work directs attention away from the lives vs. livelihood trade-off to the equally important choice over who carries the heaviest economic burden.

This new focus leads to consideration of novel policy proposals that leverage the power of taxation to achieve desired outcomes, which are described in an accompanying BFI Economic Fact. Finally, in the absence of further

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Figure 1 · Using the Pandemic Possibility Frontier to Measure Health and Economic Outcomes
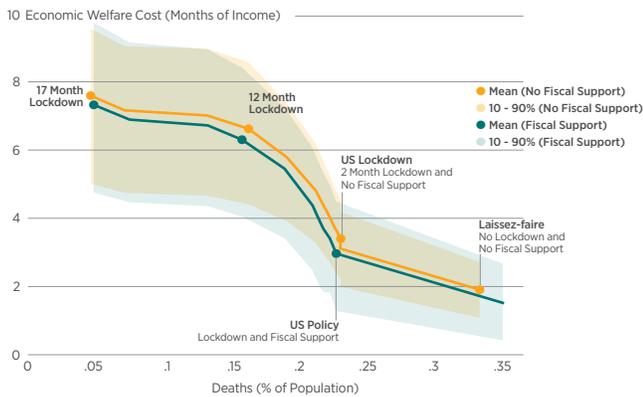
mitigation efforts, the authors' model predicts another recession in the fall, and a prolonged W-shaped recovery.

Exposure and vulnerability to the pandemic

Many of the individuals who are most financially exposed to the pandemic are also the most financially vulnerable. A key determinant of economic exposure is occupation. Socially facing workers who cannot work remotely (such as waiters, hairdressers, and dentists), have experienced especially large drops in earnings. In contrast, the earnings of workers in occupations that produce goods and services that do not require social interaction and have high flexibility to work from home (such as lawyers, academics, and finance professionals) have been left relatively unscathed.

The key to households' ability to weather the pandemic is the size and composition of household balance sheets, eligibility for government transfers, and the ability to take on extra work to compensate for lost income. Jointly, these factors explain the extent to which losses in income and wealth due to the pandemic translate into a fall in consumption and economic welfare.

The authors find that the most exposed households are also the most financially vulnerable, which suggests that the effects of the pandemic have been extremely unequal across the population. There is thus scope for economic and health policies, with appropriate patterns of redistribution, to both contain the virus and mitigate its economic effects.

But what policy options are best? Which policies will minimize death and economic loss, and do so by ensuring that households who need economic and health benefits receive them at an effective level? How can policymakers move beyond blunt actions that treat most households the same and, rather, develop efficient, targeted policy? That's the challenge the authors set for themselves in this work. To evaluate the scope of policy options, the authors integrated an epidemiological

model with an economic model. The full paper provides details of this modeling effort; however, the key point here is that they added additional features to better mirror the current impact of the COVID-19 pandemic, and to incorporate heterogeneity into household decision-making relating, for example, two types of goods, labor, and occupations.[1]

A distributional PPF, as described in two figures

To better understand the trade-offs between health and economic outcomes, the authors advocate the use of a distributional pandemic possibility frontier (PPF), which presents policy makers with a menu of options and shows the effect of those options for different households. The key word here is "distributional," because such measures go beyond the average welfare costs for various policies and provide a measure of each policy's impact on all of those affected.
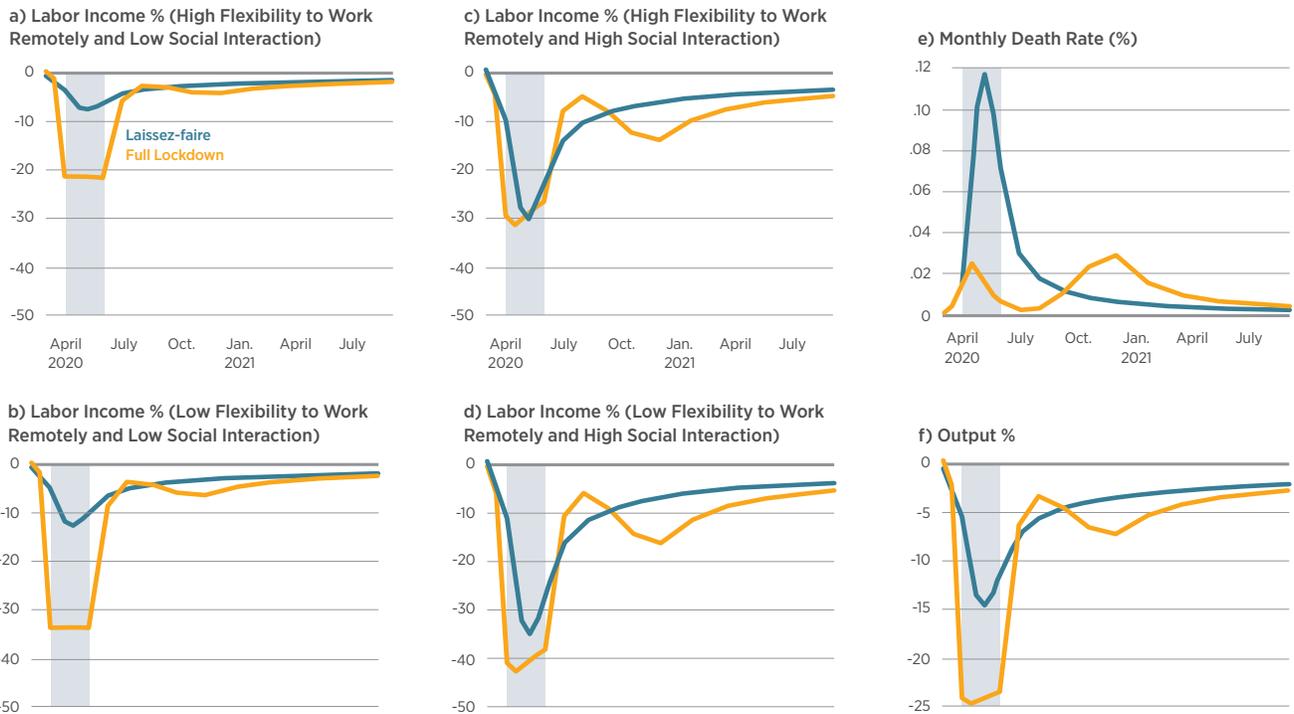
To visualize this idea, let's take a close look at Figure 1, which plots deaths due to COVID-19 on the horizontal (x) axis and the economic cost on the vertical (y) axis, where economic cost is measured in multiples of monthly income. There are two curves, the blue line representing policies that include economic subsidies from the government, the orange line without such subsidies. The first thing to note is the downward sloping nature of the curves, which means that more deaths occur with less stringent policies.

The second feature to note about the curves is their shape: they are roughly flat on each end with a steep slope in the middle. The reason is that if you start, for example, from a position of laissez-faire and then institute a US-style lockdown for a brief period, you will reduce the number of deaths with relatively little increase in economic cost. This is because the initial lockdown both prevents hospitals from being overwhelmed and gives people time to learn about best-practice behavior in limiting the spread of the virus. This would bring you to the dot on the curve labeled "US policy." As we can see from the shape of the curve, to extend the lockdown beyond this point is to realize fewer gains in lives saved at a much higher cost to the economy. This is because we would have already realized most of the lifesaving returns from flattening the curve during the early stages of the pandemic.

When we move farther up the curve, in effect extending the lockdown to roughly one-and-a-half years (the time the authors assume is needed to develop a vaccine), the curve flattens again. This is because as the arrival of the vaccine nears, extending the lockdown can avoid the second wave and associated recession.

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[1]See a Research Brief describing the introduction of heterogeneous households into economic models. (Based on "Microeconomic Heterogeneity and Macroeconomic Shocks," a paper by Greg Kaplan and Giovanni L. Violante.

Research Brief: "The Pandemic Possibility Frontier: Distributional Effects of Policy Responses to COVID-19"
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Figure 2 · Comparison Between Laissez-Faire and Lockdown

a) Labor Income % (High Flexibility to Work Remotely and Low Social Interaction)

c) Labor Income % (High Flexibility to Work Remotely and High Social Interaction)

e) Monthly Death Rate (%)

b) Labor Income % (Low Flexibility to Work Remotely and Low Social Interaction)

d) Labor Income % (Low Flexibility to Work Remotely and High Social Interaction)

f) Output %

The third, and crucial, feature of this figure is the distributional picture that it portrays, as shown by the blue and orange bands around the curves. These bands show the heterogeneous effects of each lockdown policy over time, rather than just averages. For example, at the blue dot labelled "US Policy" (which corresponds to the US lockdown, combined with the US fiscal stimulus), the welfare costs range from about one month on the lower end to nearly five months. In sum, this figure provides a picture of the disparate impact of various policies over time.

So, who are those households that fall within Figure 1's distributional frontier? To answer that question, let's take a look at Figure 2, which describes how heterogeneous households are impacted by a US-style lockdown vs. a

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laissez-faire approach, and which includes the following occupational distinctions:

- **Essential:** Jobs that are needed for the economy to function and cannot be performed remotely, like nurses, firefighters, or mail carriers.

- **Low social intensive/high flexibility:** Remote jobs where products do not require high social density, like writers, software developers, and accountants.

- **Low social intensive/low flexibility:** Jobs that mostly require on-site presence but still allow for social distancing, like carpenters, electricians, and plumbers.

- **High social intensive/high flexibility:** Jobs that are best performed when workers are in contact with customers or other workers, but which can also be done remotely, like teachers and therapists.

- **High social intensive/low flexibility:** Jobs where workers need to need to be in close contact with customers or other workers, on-site, like cooks, waiters, and many performance artists.

With these distinctions, let's turn to Figure 2, where the blue line describes a laissez-faire scenario, the orange line a full lockdown, and the shaded area represents the primary lockdown period in the US between April 1 and June 1, 2020. As we can see from Panel (e), the monthly death rate spikes under a laissez-faire scenario but then quickly

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Figure 3 · Economic Welfare Losses Across
Earnings Distribution

Notes: Everyone loses from the pandemic, both under laissez-faire and lockdown, but households who lose the most are always those in the middle of the distribution. The economic losses of the poorest ones are limited because the main source of their income is not labor, but government transfers which remain unchanged.

declines over time. Under a lockdown, the death rate is initially subdued but peaks again after restrictions ease.

For workers in various occupations, the differences are striking and are largely driven by an occupation's degree of social intensity. Panels (c) and (d), for example, which represent high social-intensive jobs, reveal similar loss of labor income regardless of whether there was a lockdown. However, jobs with low social intensity, represented in panels (a) and (b), experience large differences in income loss with and without a lockdown. In all four cases, double dips of varying degrees occur under a lockdown policy.

Finally, that up-and-down pattern takes an ominous turn when considered in terms of output, as illustrated in Panel (f), which forecasts another recession—though milder than the first—and a recovery extending into the summer of 2021. Also, that recession forecast is reinforced by the double-dip in labor income revealed in Panel (d).

Figure 3 shows the distribution of economic welfare losses across the earnings distribution. Everyone loses from the

pandemic, both under laissez-faire and under lockdown, but households who lose the most are in the middle of the distribution. The economic losses of the poorest are limited because their main source of income is not labor, but government transfers which remain unchanged.

Conclusion

This work reveals what is missed when analysts and policymakers rely on averages to determine the costs and benefits of health and economic policies related to the COVID-19 pandemic. The authors utilize a new framework that integrates updated epidemiological and economic models and, importantly, includes households of various financial vulnerabilities employed in jobs that are affected differently by lockdown policies. The results are clear: there are large differences across households in the costs and benefits of various government interventions.

A key point for policymakers is that the economic welfare costs of the pandemic are large and heterogeneous regardless of the policy response. Even smart containment and fiscal policies that offer a more favorable trade-off in terms of mean outcomes entail very uneven outcomes. Thus, while most of the emphasis in public debate has been on the extent of the trade-off that governments face in terms of lives and livelihoods, this work emphasizes the equally important and inescapable choice over which parts of the population should carry the heaviest burden of the economic costs. Through their focus on a distributional PPF, the authors offer a framework to integrate these different aspects of the policy trade-offs.

Finally, the authors' model predicts that, in the absence of a further lockdown in the fall of 2020, the US will experience a second wave of the virus and another (though milder) recession: the recovery will be W shaped and very prolonged. Importantly for policymakers, the model predicts that the economic costs going forward will fall more heavily on the most vulnerable members of the population, calling for a more distinct and targeted policy response.

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