Our objective is to examine the extent to which a country's progress towards universal health coverage (UHC) explains COVID outcomes. We also measure how the effect of UHC varies across different levels of social capital. We proxy the UHC progress using service coverage index (SCI). The SCI is a broad-based measure of UHC, and is tracked at the country level by the World Health Organization (WHO) and its collaborating partners.

Our overall hypothesis is that the UHC-SCI has a protective effect on health, and therefore, is negatively associated with the COVID outcomes (COVID cases and deaths per 100 k population).

Study Design: We use longitudinal data-based generalized linear models (GLMs) to investigate the relationship between the outcome variable (COVID cases and deaths) and the key explanatory variables. We run cross-country linear regressions, with month fixed effects and country-level clustering. We run two sets of linear regressions. First, we regress each COVID outcome on the SCI. Second, we regress each COVID outcome on the SCI and the interaction term between SCI and social capital. Both sets of regressions include controls for GDP per capita, share of population above 65, stringency measures, and COVID testing rates.

Our data for the SCI comes from the WHO while the longitudinal (monthly) data on COVID outcomes and other key variables come from "ourworldindata.org" (University of Oxford). The data on government trust is obtained from the social capital component of the Legatum Prosperity Index (LPI), 2019.

Population Studied: 173 countries.

Principal Findings: Our findings show that there is a positive and strong association between UHC-SCI and COVID outcomes. This is counterintuitive, and we suspect it is likely due to the dependency of testing for the actual ascertainment of cases and deaths. The coefficient on the interaction term (between SCI and social capital), however, is negative and statistically significant.

Conclusions: The effect of UHC seems to be protective among countries that are characterized by high level of social capital.

Implications for Policy or Practice: The effect of UHC seems to be protective among countries that are characterized by high level of social capital.

Early Social Distancing Policies in Europe, Mobility Change and COVID-19 Case Trajectories: Lessons from Spring 2020

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Research Objective: Nonpharmacological policies aimed at improving physical distancing, such as shelter in place orders or gathering bans are a central strategy used to mitigate disease spread, particularly in the early life-course of a pandemic. We sought to assess the relationship between different types of early social distancing policies implemented across Europe, how they related to changes in population mobility and subsequent COVID-19 case growth.

Study Design: Data on national social distancing policies were obtained from the Oxford COVID-19 Government Response Tracker (OxCGRT). For each European country we defined index dates based on the implementation of the country's first social distancing policy. We then compared the value of each mobility metric in the week after the index date versus the 7-day period extending from 9 to 2 days prior to the index date. We included a two-day washout period given the volatility that typically precedes these orders. For mobility, each country was compared to itself over time. We employed a pre-post comparison and two linear mixed-effects models to first assess the relationship between policies and observed changes in mobility, and to assess the relationship between changes in mobility and rates of COVID-19 infections in subsequent weeks. Aggregated and anonymized mobility data was obtained from Google. This data is similar to publicly accessible "Community Mobility Reports," with the addition of novel variables, such as relative change in the average number of hours individuals spent away from their primary place of residence.

Population Studied: Our analytic sample included 6075 country-day observations across 27 European countries.

Principal Findings: Spain saw the largest mobility decrease from the pre-COVID baseline, as measured by the time spent away from residence, with a decline in aggregate mobility of nearly 70%. Sweden had the smallest decrease with approximately a 20% decline from baseline at the end of the study period (April 12th 2020). Policies associated with the largest decline in mobility were: mandatory stay-at-home orders, followed by mandatory workplace closures, school closures and non-mandatory workplace closures. While mandatory shelter-in-place orders were associated with 16.7% less mobility (95% CI: −23.7% to −9.7%), non-mandatory orders were only associated

with an 8.4% decrease (95% CI: −14.9% to −1.8%). Large-gathering bans saw the least change in mobility compared with other policy types. We, in turn, found a strong link between changes in mobility and changes in COVID-19 case growth. Overall, a 10% decrease in the average time spent away from places of residence was associated with 11.8% (95% CI: 3.8%, 19.1%) fewer new cases two weeks later. A more pronounced 50% decrease resulted in 46.6% fewer cases two weeks later (95% CI: 17.5%, 65.4%).

Conclusions: Social distancing policies had a significant but heterogeneous impact on mobility. Across countries studied, relative change in time spent away from home was positively associated with slowed covid-19 case growth.

Implications for Policy or Practice: Our findings begin to offer actionable insight into what types of early policies may have been most effective in decreasing aggregate mobility and, in turn, Covid-19 case growth. With a better understanding of policies' relative performance countries can more effectively invest in, and target, early non-pharmacological interventions.

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Heterogeneity in Response to India's Initial COVID-19 Nationwide-Lockdown: A Quasi-Experimental Study Using Aggregate Mobility Data

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Research Objective: India's March 2020 nationwide lockdown garnered early support from the World Health Organization, but has also been the subject of criticism due to strict enforcement and the inaccessibility of basic supplies for those under lockdown. Given the scale of the policy and relevant concerns, there is an urgent need to better understand the impact of this policy on its intended outcome: slowing covid case growth.

Study Design: We assessed state-level variation in response to the nation-wide lockdown. Using a public dataset of differentially privatized aggregate mobility data, we assessed the combined impact of the Janta Curfew and lockdown using a Single Interrupted Time Series (SITS) design. Our primary outcomes were change in relative mobility and change in state-level COVID-19 case growth. We first looked at variation in mobility between states and then used the results from state-level SITS to assess the relationship with COVID-19 case growth. To do so, we used a model with rate of increase in COVID-19 cases over time as our dependent variable and change in aggregate mobility as our predictor, controlling for population demographics, such as: size, urbanicity and poverty as well as known COVID-19 cases (cumulative as of March 25th). For COVID-19, we used "Covid19India" which aggregated statistics from the Ministry of Health and Family Welfare (MoHFW), each state or union territory and the Indian Council of Medical Research (ICMR).

Population Studied: Our analytic sample included 10,512 state-day observations, representing 1.21 billion individuals across 36 states and union territories in India.

Principal Findings: We observed an immediate and pronounced decrease in mobility following the policy's implementation. Overall the lockdown was associated with an 86% decrease in mobility as compared to a location-specific pre-lockdown baseline. However, these effects were not homogeneous by mobility type, nor were they homogeneously sustained in the post-policy period. Visits to grocery stores and pharmacies (slope = 0.62% increase in visits per day) and transit stations (slope = 0.24%) began to recover relatively quickly whereas visits to retail and recreation (slope = −0.41%), and parks (slope − 0.47%) continued to decline during the post period. We observed significant state-level variation in mobility responses (71% to 95% decrease in visits to retail and recreation sites). States with the largest decreases in aggregate mobility to retail and recreational sites had a relatively slow (7.2%) rate of increase in COVID-19 case growth in contrast to states with the lowest decreases in mobility, who saw a 53% rate increase in COVID-19 cases (p = 0.03) over the same time period.

Conclusions: States that were most effective in responding to the lockdown policy, as measured by decreased mobility, were also most effective in slowing covid case growth (controlling for state wealth, size, and urbanicity).

Implications for Policy or Practice: While our findings suggest India's nationwide lockdown may have been effective in achieving its primary goal, we require a better understanding of what drives sub-national variation in policy adherence over time as well as careful tracking of unintended economic and wellbeing costs.

The Compounding Effect of Having HIV and a Disability on Child Mortality Among Mothers in South Africa

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Research Objective: Emerging studies suggest that people with disabilities are at a higher risk for HIV. However, less is known about impact of maternal disability and HIV on child mortality. We aimed to examine the potential compounding effect of maternal disability and HIV status on child mortality in South Africa.