

# Battling COVID-19 with dysfunctional federalism: Lessons from India

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## Abstract

The Indian federation is highly centripetal, and historically, this has left states without the requisite legislative and fiscal authority to take independent action and initiate policies of significance. Consequently, India's response to the global COVID-19 pandemic was to impose a very severe countrywide lockdown using the mandate of the Union (federal) government. This centralized one-size-fits-all diktat was imposed despite high variations across states in resources, healthcare capacity, and incidence of COVID-19 cases. We argue that India's dysfunctional federalism is the reason for the centralized lockdown, preventing state and local governments from tailoring a policy response to suit local needs. Using mobility data, we demonstrate the high variation in curtailing mobility in different states through the centralized lockdown. We find that India's centralized lockdown was at best a partial success in a handful of states, while imposing enormous economic costs even in areas where few were affected by the pandemic.

## KEYWORDS

centripetal federalism, COVID-19, decentralization, fiscal federalism, India, lockdown, mobility

## JEL CLASSIFICATION

H11; H12; H70; H77

## 1 | INTRODUCTION

The first case of the novel coronavirus disease (COVID-19) was detected in India in the southern state of Kerala on January 30, 2020. Over the next few weeks, the disease spread through the country. The case count rose to over 100 by mid-March and reached 1635 by the end of the month. By March 25, two-thirds of all the states and union territories reported at least one confirmed case. The first death from the disease, a 76-year-old male patient in the state of Karnataka, was also reported in March.

As India experienced the beginning of the pandemic, it was clear that India's healthcare capacity, which usually operates at full capacity even in non-pandemic times, would be insufficient to cope with the pandemic (Rajagopalan & Choutagunta, 2020). To flatten the curve, therefore, on March 24, 2020, the Indian Prime Minister Narendra Modi imposed a sweeping, nationwide lockdown. This lockdown was highly restrictive and severe and was the broadest of the many lockdowns imposed around the world over the course of the pandemic, affecting the largest number of people.

At the time, the number of confirmed COVID-19 cases in India was doubling every 3 days. The general view in India was that, given the exponential growth of infections evidenced by the spread of the pandemic in China and Europe, and the fatality rate, some kind of government intervention was necessary. However, India's countrywide severe lockdown, which lasted for more than 2 months, is seen by most experts and commentators as excessive. What started as a 21-day lockdown to ramp up testing and healthcare capacity turned into a 40-day lockdown. This was followed by a continuation of the lockdown for 3 weeks but with relaxation for certain activities, especially in zones with a low rate of growth in COVID-19 cases.

When the lockdown was imposed on March 24, 2020, there was enormous inter-state variation within India along three pertinent margins. First, states had vastly different historical resource constraints for battling the pandemic and could therefore implement different policy options. Second, there was a lot of variation in healthcare capacity across the different states of the country. And third, and most importantly, the incidence of COVID-19 infection and the spread as well as the growth of infection rates was not prevalent uniformly across the country but was restricted to a few dense pockets.

Given the significant variation among states on COVID-19 infection rates, and given their vastly different healthcare capacities, it was an odd choice to impose a severe and highly centralized countrywide lockdown; especially in a country as large as India, which has a federal structure, with the administrative option to let states and even local governments determine their own local COVID-19 policies. In fact, in imposing a one-size-fits-all policy of a countrywide lockdown, India received little benefit, while imposing high costs on the economy. The burden of the lockdown was disproportionately borne by the poor, particularly the low-income urban migrants and those working in the informal sector.

The benefits never quite materialized, as the transmission of the virus continued, with no major effort to increase healthcare capacity during the lockdown. Moreover, any slowdown in the spread of the infection in some affected areas went back up as soon as the lockdown measures were relaxed. So, the lockdown in India just postponed the problem of an increase in the spread of COVID-19. This bears out in seroprevalence surveys, which show that India, especially in the urban areas, is moving toward herd immunity. Approximately one in 15 individuals aged 10 years or older in India had COVID-19 by August 18, 2020, and the adult seroprevalence increased approximately tenfold between May and August 2020 (Murhekar *et al.*, 2021).

This raises an important question—why did India impose such a centralized lockdown for a federation with such high variation? In this paper, we argue that the reason for India's one-size-fits-all countrywide lockdown is its highly centripetal federalism, which has become dysfunctional. Due to India's centripetalism, state and local governments have not developed sufficient capacity, especially to deal with public health problems. As a result, all governments look to the highest level, even to solve local problems, leading to a situation like a countrywide lockdown.

Our paper contributes to three important literatures. First, it contributes to the new but growing literature on the policy approaches to the COVID-19 pandemic in federal systems (Boettke & Powell, 2021; Coyne *et al.*, 2021); the effectiveness of India's countrywide lockdown in containing the pandemic (Beyer *et al.*, 2020; Goswami *et al.*, 2021); and the literature on lockdown measures in other countries (Bylund & Packard, 2021; McCannon & Hall, 2021; and Storr *et al.*, 2021). Second, it adds to the literature on Indian federalism, in particular the literature that focuses on the centripetal and dysfunctional policies that are imposed on the states by the central government (Parikh & Weingast, 1997; Rajagopalan, 2017; Tripathi, 1974). And third, it contributes to the literature that makes use of aggregated mobility data in analyzing policy effectiveness (Praharaj & Han, 2020; Singh *et al.*, 2020).

In Section 2 we detail the variation between states along four margins—state resources, state healthcare, testing capacity, and COVID-19 rates before the lockdown. This variation makes it very clear that a one-size-fits-all COVID-19 response was neither necessary, nor appropriate for India. In Section 3, we explain how India's constitutional design is fundamentally centripetal, because of its constitutional structure and its lack of fiscal federalism. This prevents India from having genuine federalism and forces policymakers to resort to ad hoc decentralization of centralized policies. Because India deviates from standard models of federalism with its centripetal constitutional design and the lack of fiscal federalism, it is not unusual or atypical of its Union government to institute a one-size-fits-all policy in response to a crisis. In Section 4, we discuss the consequences of India's countrywide lockdown. We use mobility data to measure whether the central lockdown policy implemented at the local level was (a) successful in reducing mobility, and therefore (b) successful in containing COVID-19. We find very high variation across states and find evidence showing that lockdowns were, at best, partially successful in curbing the spread of COVID-19 in a handful of states. In the remaining states, either the lockdown policies were not successful in containing the transmission, or the lockdown was completely unnecessary given that there was no increase in COVID transmission despite increase in mobility. In Section 5, we conclude.

## 2 | VARIATION IN HEALTHCARE CAPACITY ACROSS INDIA

India is a Union with 28 states and 8 union territories. Not surprisingly, there are significant differences between states in almost every aspect of development and governance. India's largest state, Uttar Pradesh, has the population of Brazil, while its smallest state, Sikkim, is closer in population to Bhutan. India's richest states, such as Goa, have a state GDP per capita comparable to that of Jordan, while the state GDP per capita of its poorest state, Bihar, is similar to that of Haiti. It would be surprising if there wasn't high variation between Indian states across various margins.

Indian states are divided on a linguistic basis, and therefore, in addition to geographical variations, there are also strong cultural differences that may affect health outcomes. States also vary in their resources as well as in the priority afforded to the healthcare sector. Even within states, there

is a lot of variation between urban and rural healthcare capacity, partly driven by the fact that much of private-sector healthcare is in the larger urban areas. The private healthcare sector in India is four times bigger in overall capacity than the public sector, and it has 55% of the total hospital bed capacity, 90% of doctors, and 80% of ventilators (Rajagopalan & Choutagunta, 2020).

## 2.1 | Pre-COVID-19 variation in states' resources

Even before the COVID-19 pandemic, the variation in both the resources and the priority for healthcare across the different states becomes clear by studying the trends in three variables—GDP per capita, healthcare spending per capita by the Union and state governments, and expenditures on healthcare as a percentage of the overall state budget.

There is a strong relationship between GDP per capita and development outcomes, such as infant mortality and neonatal mortality rates. The Government of India's NITI Aayog (2019, p. 3) states that “the health outcomes of some States are comparable to that of some upper-middle-income countries and high-income countries (for example, Neonatal Mortality Rate (NMR) in Kerala is similar to that of Brazil or Argentina), while some other States have health outcomes similar to those in the poorest countries in the world (for example, NMR in Odisha is close to that of Sierra Leone).”

Figure 1 shows the GDP per capita of the states in 2018-2019. Some of India's poorest states, such as Bihar, Uttar Pradesh, and Madhya Pradesh, are also its most populous states—a matter of concern in the context of a global pandemic. Their healthcare capacity, ability to quickly scale-up such capacity, ability to socially distance and ensure that consumption levels do not drop during a pandemic and economic slowdown are all directly related to GDP per capita. One

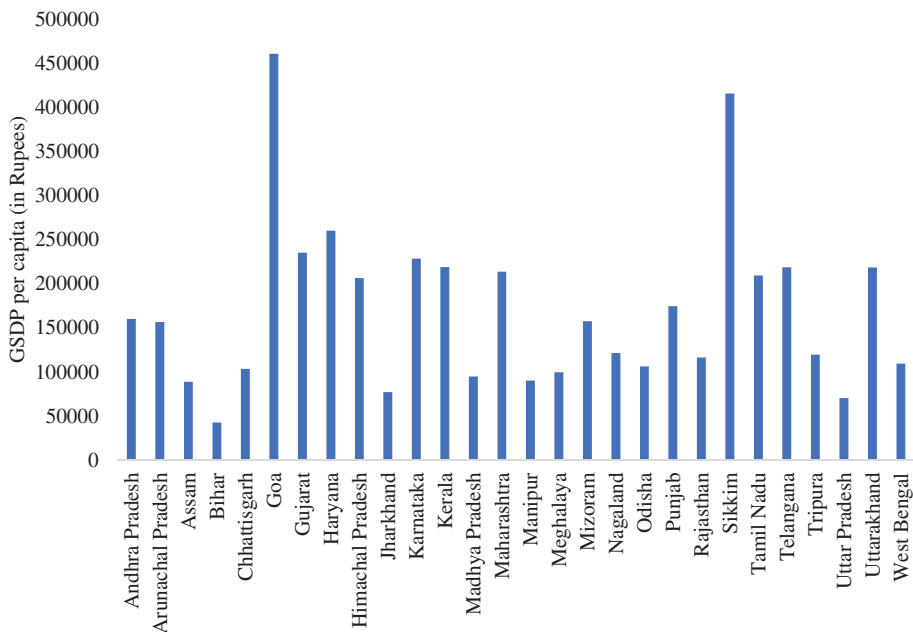


FIGURE 1 Per capita GSDP (Gross State Domestic Product) of Indian states in 2018-19 (in Current Indian Rupees, Base: 2011-12).

Source: Handbook of Statistics on Indian States, Reserve Bank of India (2020) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

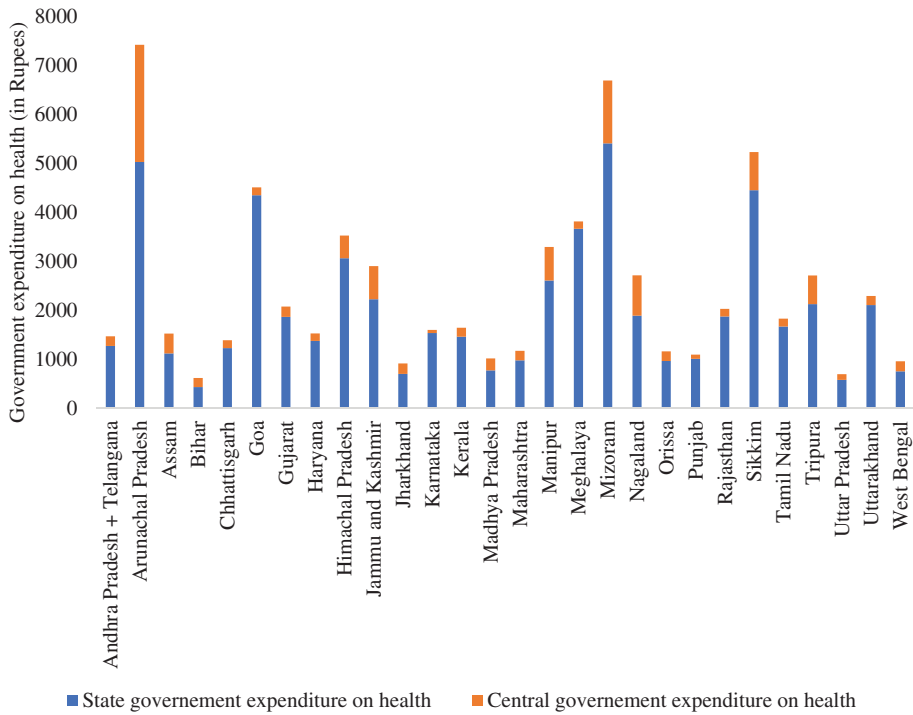


FIGURE 2 State-wise per capita expenditure by state and union governments on healthcare for 2014–15 (in Current Indian Rupees, Base: 2011-12).

Source: Srinath et al. (2018) [Color figure can be viewed at wileyonlinelibrary.com]

consequence, however, of being poorer states and farther behind on the development curve is that in these states high birth rates persisted for a longer time. Consequently they are also states with the lowest median age of the population in India.

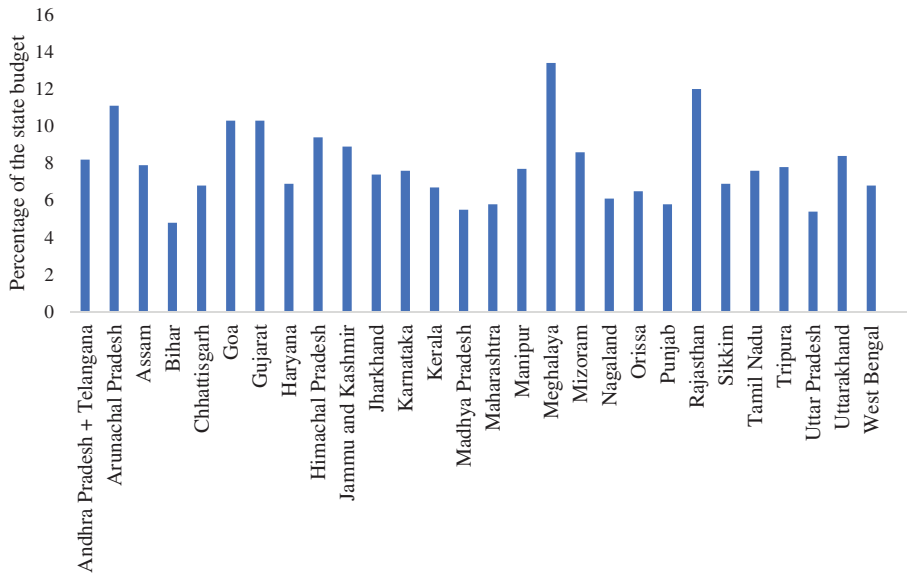
Variation in healthcare spending by states is caused by two factors: how each state prioritizes healthcare within its budget, and how the Union government prioritizes spending in different states through its intergovernmental transfers for healthcare schemes.

Not only is there variation across states on how much is spent on healthcare per capita, the amount each state receives from the Union government for healthcare expenditures also varies. Figure 2 shows the per capita healthcare expenditure by the state government and the Union government in each state in 2014–2015. Union government funds are not distributed equally or proportionally across states. Richer states, with more developed healthcare infrastructure and higher spending on healthcare, also receive more healthcare funding from the Union government.

Another reason for the large variation in per capita spending is that poorer states also tend to prioritize healthcare less in their budget spending. Bihar and Uttar Pradesh, two of India's highly populous and poor states, have historically not prioritized healthcare, with only 5% of these states' budgets allocated for healthcare. Figure 3 shows healthcare as a percentage of the state budget.

## 2.2 | Pre-COVID-19 variation in healthcare infrastructure across states

Because of these three factors—the state GDP per capita, states' healthcare spending per capita, and the Union government funding to states for healthcare—there is much variation in



**FIGURE 3** Public expenditure on healthcare as a percentage of the state budget for 2014–15.

Source: Srinath et al. (2018) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

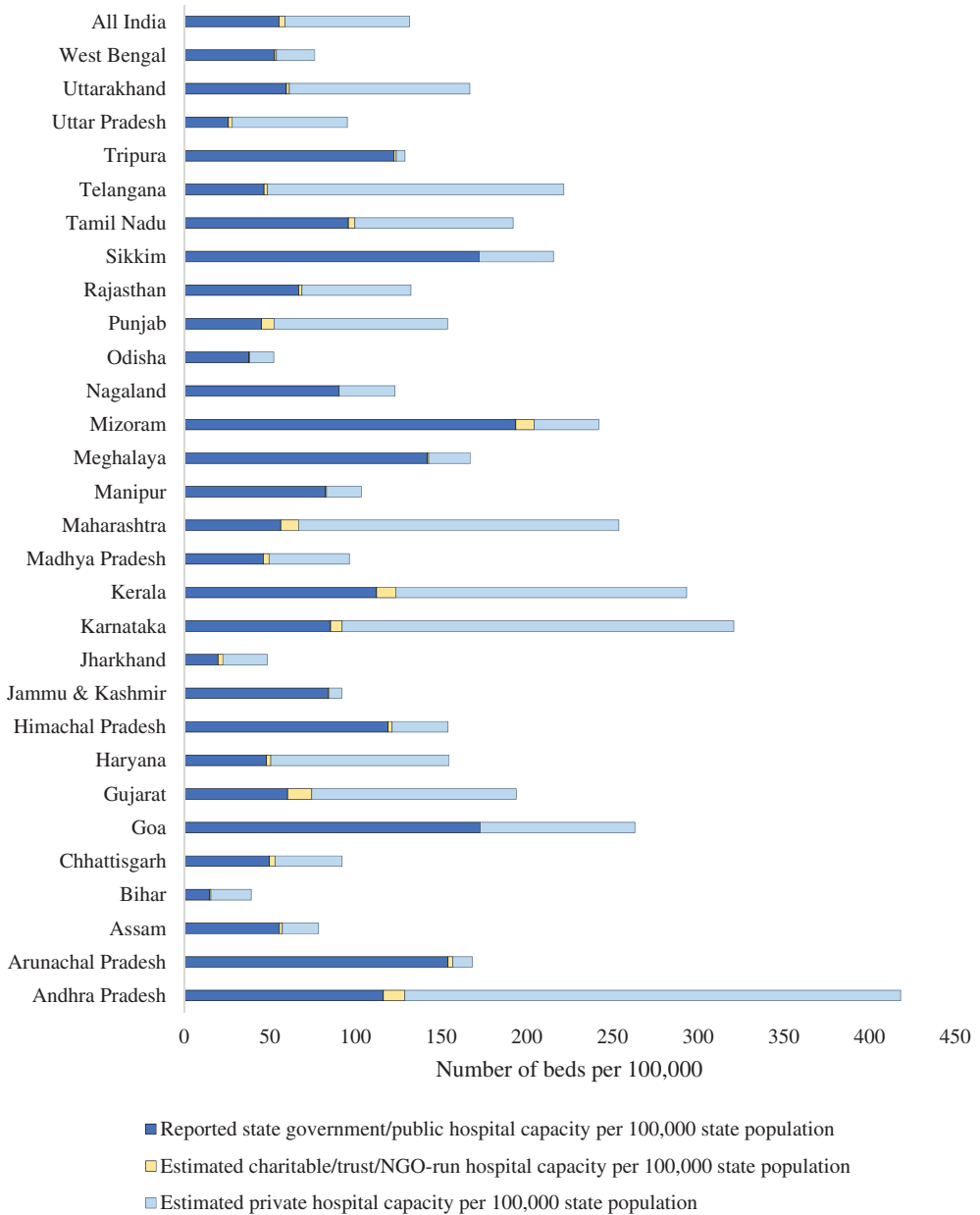
healthcare infrastructure across states. Poorer Indian states tend to have lower healthcare capacity on all margins: doctors, nurses, hospital beds, and testing centers.

Starting with hospital beds, which became a major constraint during the pandemic, Rajagopalan and Choutagunta (2020) estimate<sup>1</sup> about 131 beds per 100,000 persons in India, with high variation across states in India, in Figure 4. In fact, government hospitals routinely report close to 100% use of the critical care units (Krishnan, 2020; Thacker, 2020). Once again, poorer states have fewer hospital beds across public, private, and charitable hospitals. A rich state like Maharashtra has six times the capacity as Bihar. There is also a lot of intra-state variation, since larger urban and metropolitan areas have more and larger hospital facilities. Although Maharashtra has the highest absolute hospital bed capacity, a lot of it is in the Greater Mumbai metropolitan area.

Rajagopalan and Choutagunta (2020) estimate that India has an overall capacity of about 1.75 million hospital beds across India. And using other surveys suggesting Intensive Care Unit (ICU) beds at about 5% of the total number of beds in India, Rajagopalan and Choutagunta (2020) estimate total ICU capacity at 87,979 beds (p. 11). But ICUs are concentrated in larger metropolitan areas and typically operate at full or close to full capacity because of high costs, and only a fraction of the existing ICU beds would have been available for COVID-19 patients.

Second, hospital personnel, especially doctors and nurses (who cannot be increased in number quickly for the pandemic) also widely vary across states. Figure 5 shows the total number of registered doctors per 100,000 in each state, and Figure 6 shows the total number of registered

<sup>1</sup>Rajagopalan and Choutagunta (2020) use Union government data for total government hospital beds in each state. Using the National Sample Survey (2019) 75th round, which reports hospitalization (excluding childbirth) in government, private, and charitable hospitals in each state, they determine the proportional size of the government, private, and charitable sectors in hospital beds. Combining the two measures, they calculate the private hospital and charitable hospital bed capacity for each state.



**FIGURE 4** Beds per 100,000 state population in state government hospitals and estimated private-sector and non-governmental organization capacity across Indian states, 2018.

Source: Rajagopalan and Choutagunta (2020) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

nurses per 100,000; once again, there is a lot of variation. The poorest states like Bihar, Jharkhand, and Uttar Pradesh are the least served.

Doctors and nurses naturally gravitate to areas with good healthcare infrastructure. Seventy-five percent of the healthcare infrastructure is in the private sector, which tends to serve denser urban and peri-urban areas. The other reason some states like Andhra Pradesh, Kerala, and Goa have a lot of doctors and nurses is that Goa and Andhra Pradesh are known

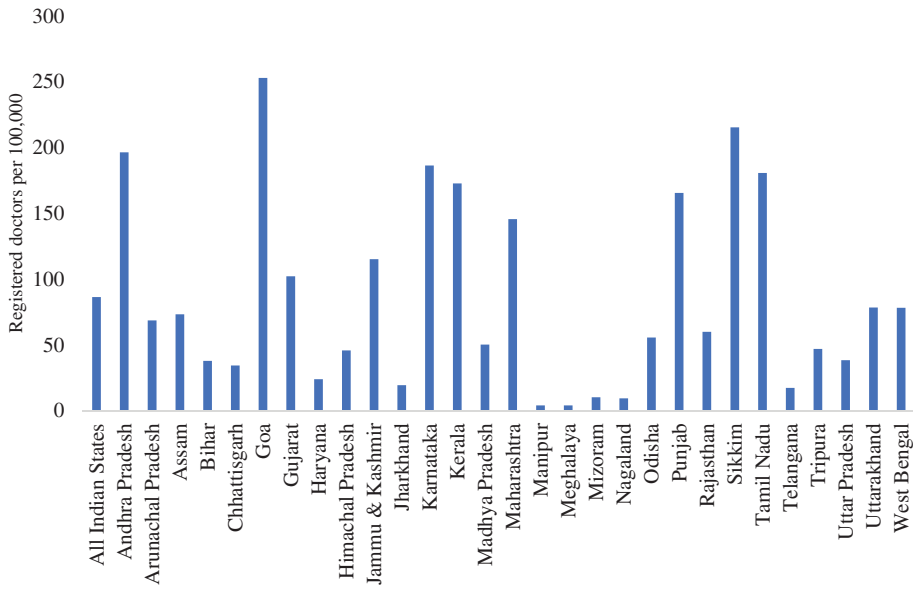


FIGURE 5 Registered doctors per 100,000 state population, 2018. Source: Central Bureau of Health Intelligence (2019) [Color figure can be viewed at wileyonlinelibrary.com]

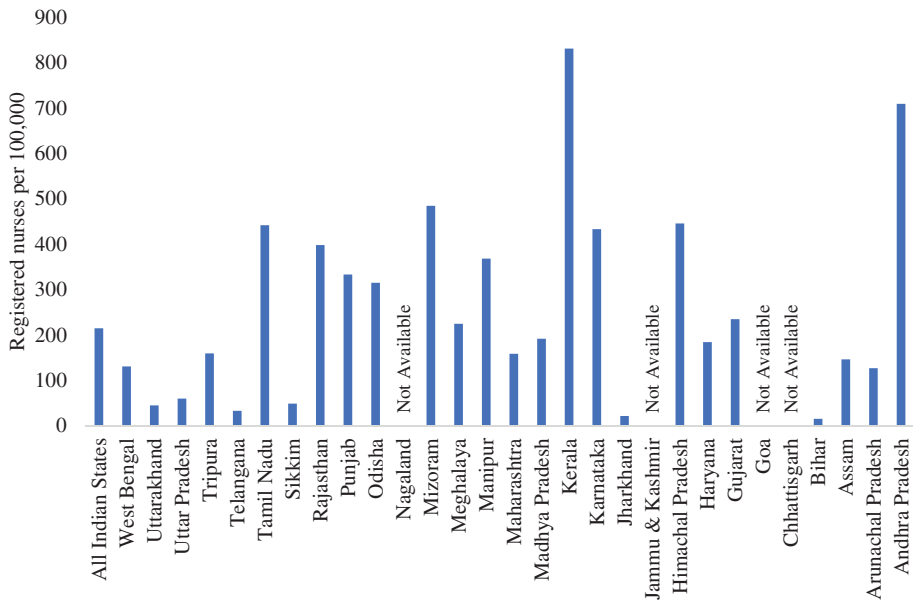


FIGURE 6 Registered nurses per 100,000 state population, 2018. Source: Central Bureau of Health Intelligence (2019) [Color figure can be viewed at wileyonlinelibrary.com]

for large healthcare clusters, and patients tend to visit those hospitals for domestic and international medical tourism. They serve a demand beyond the patients within their states.

And third, testing centers before the lockdown also showed a lot of inter-state variation. Unsurprisingly, most of the testing centers were in the richer states and concentrated in the



urban areas within each state. As of March 6, there were only 52 testing centers in the country called Virus Research and Diagnostic Labs (VRDL) approved by the Indian Council of Medical Research (ICMR) that had the capacity to test for COVID-19; these labs were owned and operated by the government. As of March 31, 2020, just after the government announced the lockdown, testing capacity increased but was still very low because the government had only approved 132 labs (public and private). Assuming equal capacity among all the 132 COVID-19 testing facilities in India listed by the ICMR as using the RT-PCR (real-time reverse transcription–polymerase chain reaction) method, then in terms of access, there was approximately one testing facility per 10 million in the population (0.0992 centers per million), with a maximum capacity of testing of 10,000 samples a day (Sheriff, 2020). And once again, this testing capacity was not spread evenly across the country. This number increased to 201 government approved testing centers by April 21, and included 86 private testing facilities (ICMR, 2020).

Before the pandemic hit India, almost all the states were underserved in their testing capacity by ICMR-approved government testing centers. Once again richer states like Maharashtra and Tamil Nadu had 4–5 times the number of approved labs compared with most other states soon after the onset of the pandemic. Poorer states, and geographically remote border states in the northeastern part of India were particularly underserved. Some of this might have been a matter of urgency in approving testing facilities, as Mumbai had the highest number of cases with testing centers getting overwhelmed by mid to end March. Nevertheless, the difference in testing capacity across states was significant. As shown in Table 1, the testing capacity has increased in India, in every single state, as ICMR has approved more facilities, both public and private, and also approved antigen testing.

### 2.3 | COVID-19 in Indian states before March 24, 2020

As the number of COVID-19 cases was growing exponentially across the world, Indians witnessed an increase in COVID-19 cases starting in February, and by March 24, when the lockdown was announced, India had a total of 571 confirmed cases across the country.

Figure 7 shows the total number of confirmed COVID-19 cases in India from February 1 to March 24. The initial cases were almost entirely due to international travelers, and India imposed restrictions on international travel by early March. However, because of the high density of population, and some super spreader events, the number of COVID-19 cases started steadily rising, especially in the states of Delhi, Kerala, and Maharashtra. In parts of Kerala and in Maharashtra (mainly Mumbai), the numbers were doubling roughly every 3–4 days. The most concerning was Mumbai, with one of the highest densities of population, in particular Dharavi, the world's largest slum with 30–40 times the population density of New York City.

While this was alarming, especially given India's fragile healthcare capacity and high-density cities, India's cases per million at the end of March was far lower than the rest of the world. And no other country had imposed such a severe or such a widespread lockdown with these per capita numbers.

Most interior states, and poorer states without major international airports, had virtually no reported cases when the lockdown was imposed.

Figure 8 shows the total number of reported COVID-19 cases in each state before March 24, 2020. At the time the lockdown was announced, 8 of the 28 states and 4 of the 8 Union Territories had zero COVID-19 cases. Of these only Arunachal Pradesh, Nagaland, and Sikkim did not have an ICMR testing facility. It is important to note that this was the total number of cases in each state (not per million) when the lockdown was announced countrywide. While some

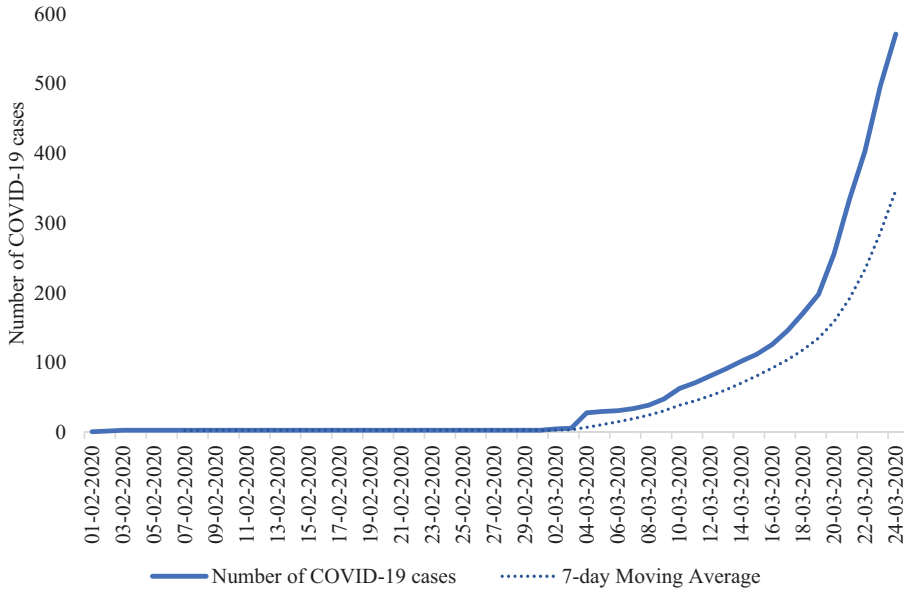
**TABLE 1** Cumulative number of testing centers approved by the Indian Council of Medical Research across all Indian states as on March 6, April 20, and July 6, 2020.

State	March 6	April 20	July 6
Andhra Pradesh	3	7	60
Arunachal Pradesh	0	0	4
Assam	2	6	13
Bihar	1	6	44
Chhattisgarh	1	3	7
Goa	0	1	5
Gujarat	2	10	53
Haryana	2	6	23
Himachal Pradesh	2	3	11
Jharkhand	1	4	31
Karnataka	5	13	79
Kerala	3	13	42
Madhya Pradesh	2	10	79
Maharashtra	2	22	113
Manipur	1	2	5
Meghalaya	1	1	7
Mizoram	0	1	2
Nagaland	0	0	12
Odisha	1	6	22
Punjab	2	3	27
Rajasthan	4	9	29
Sikkim	0	0	2
Tamil Nadu	2	22	91
Telangana	1	8	34
Tripura	1	1	1
Uttar Pradesh	3	15	129
Uttarakhand	1	2	13
West Bengal	2	9	53

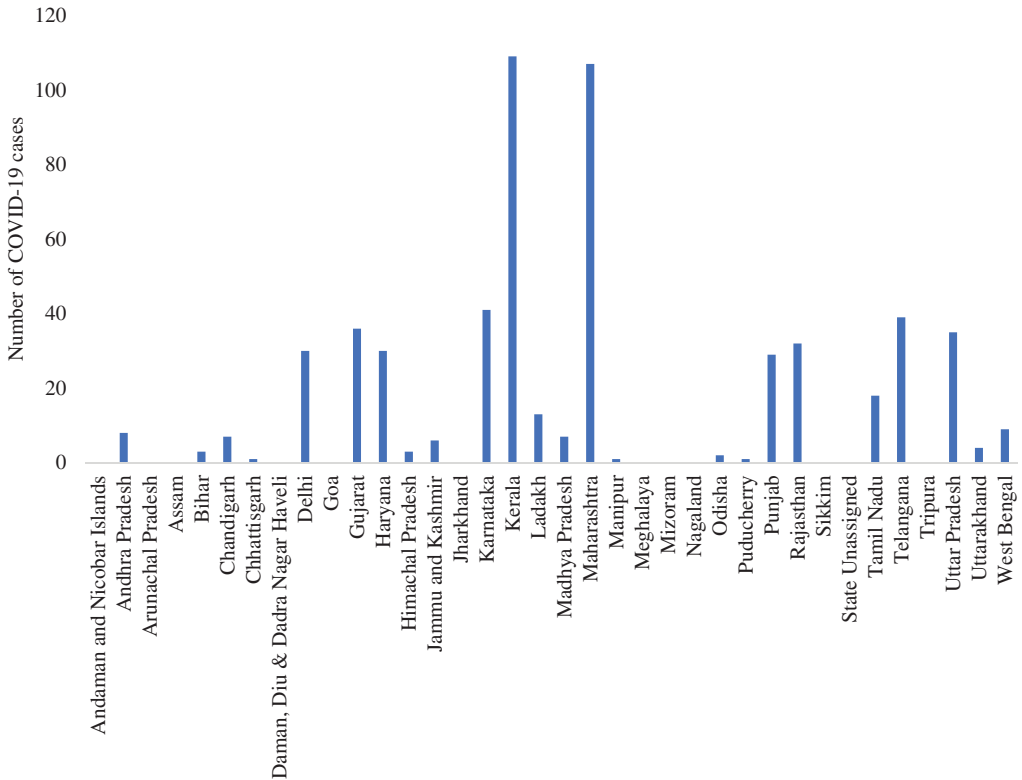
Source: ICMR (2020).

states like Maharashtra had testing centers overwhelmed by requests, other highly populous and dense states like Bihar and West Bengal had known cases in the single digits. Furthermore, there was a lot of variation within each state. The worst affected, unsurprisingly, were larger cities, like Mumbai (101 cases), Kasargod (45 cases), Delhi (30 cases), and Chennai (12 cases).

India allows for the freedom of movement between its states. An important aspect of the lockdown was closing state borders and preventing mass travel from areas that were relatively more affected by the pandemic. But, aside from concerns over the inter-state movement of people spreading the infection, there was no other reason, supported by the facts on the ground, to



**FIGURE 7** Total number of confirmed COVID-19 cases between February 1 and March 24, 2020. *Source:* COVID19INDIA (2020) [Color figure can be viewed at wileyonlinelibrary.com]



**FIGURE 8** Total number of confirmed COVID-19 cases in Indian states and Union Territories on 24 March 2020. *Source:* COVID19INDIA (2020) [Color figure can be viewed at wileyonlinelibrary.com]

impose a one-size-fits-all, countrywide lockdown, or to restrict intra-state mobility in most of the states. In fact, only a few dense urban areas merited such severe restrictions. No other country in the world imposed such severe measures on its entire populace.

### 3 | WHY DID INDIA IMPOSE SUCH A CENTRIPETAL LOCKDOWN?

India is the world's largest federation, and the Constitution of India (1950) establishes dual centers of government (the Union and the States), each assigned with powers to be exercised within its jurisdiction. It outlines various provisions for both vertical and horizontal power-sharing. Vertical power-sharing is the allocation of areas in decision-making to be handled by the various levels of government: union, state, and local. Horizontal power-sharing is the sharing of authority between the branches of government—legislature, executive, and judiciary—at the Union and subnational levels.

However, as the constitutional scholar Tripathi (1974) noted, India is a quasi-federal republic and is therefore not a truly federal polity. Instead, it can be argued that India represents a case of centripetal federalism, displaying the characteristics of a decentralized polity without genuine autonomy at subnational levels. There are two main reasons for why India is highly centripetal in its federalism. First, the constitutional design of India has given enormous powers to the Union government to the detriment of the state governments. Second, the fiscal structure of the country means that India is not fiscally federal, but merely decentralized with the purse strings heavily controlled by the Union government.

#### 3.1 | Constitutional centripetalism

The Indian Constitution divides legislative power between the Union and state legislatures; these powers are assigned in three lists in Schedule VII of the Constitution. The Union List details the subjects on which Parliament may make laws (Schedule VII, List I); the State List details those under the purview of state legislatures (Schedule VII, List II); and the Concurrent List has subjects in which both Parliament and state legislatures have jurisdiction (Schedule VII, List III). Despite this separation of legislative power between the Union and states through the lists in Schedule VII, there are many clauses that enable the Union to overrule or undermine the legislative competence and authority of the states. The following constitutional provisions reveal India's centripetal nature.

If there is any repugnancy or conflict between legislation by Parliament and legislation by a state on a topic in the Concurrent list, then the Parliament will prevail (Article 254[1]), though the state law will prevail over the Parliamentary law if the President saves the repugnant provision (Article 254[2]). The legislative powers of the Union are further strengthened because the Union has the residuary power for legislation. The lists in Schedule VII, which document the areas of legislative competence for the different levels of government, are not exhaustive. Thus, Parliament has exclusive power to make any law with respect to any matter not enumerated in the Concurrent List or State List (Article 248 and Schedule VII, List I, Entry 97).

Moreover, the State List is not completely off-limits to the Union government. If the Council of States (Upper House of the Parliament) passes a motion that it is in the national interest that Parliament should make laws with respect to any matter enumerated in the State List, then Parliament may

legislate on that subject (Article 249). This power is further expanded if a state of emergency has been declared, which enables Parliament to legislate on any matter in the State List (Article 250). Parliament can also make laws on any subject in any jurisdiction if such laws are enacted as part of implementing any treaty, agreement, or convention with any other country or countries or any decision made at any international conference, association, or other body (Article 253). Finally, most of the provisions in the Constitution can be unilaterally amended by Parliament, without the requirement of ratification by the states. Of the 395 Articles and 12 schedules in the Constitution of India, only 30 Articles and one schedule require state ratification for amendment.

The emergency powers given to the Union can also undermine legislative and executive authority at the state level. Article 356 of the Constitution allows the Union government to take over the governance of a state when the government of the state is not “in accordance with the provisions of this Constitution.” Under this emergency provision, also known as President’s Rule, the Union can remove the Chief Minister and the Cabinet of that state and also dissolve or suspend the Legislative Assembly of the state. Each proclamation in this regard has to be confirmed by both Houses of the Union’s Parliament. Proclamations of President’s Rule have been imposed for the flimsiest of reasons, and over the years, the provision has been invoked over a 100 times, mainly to penalize state governments formed by opposition parties (Tummala, 2002).

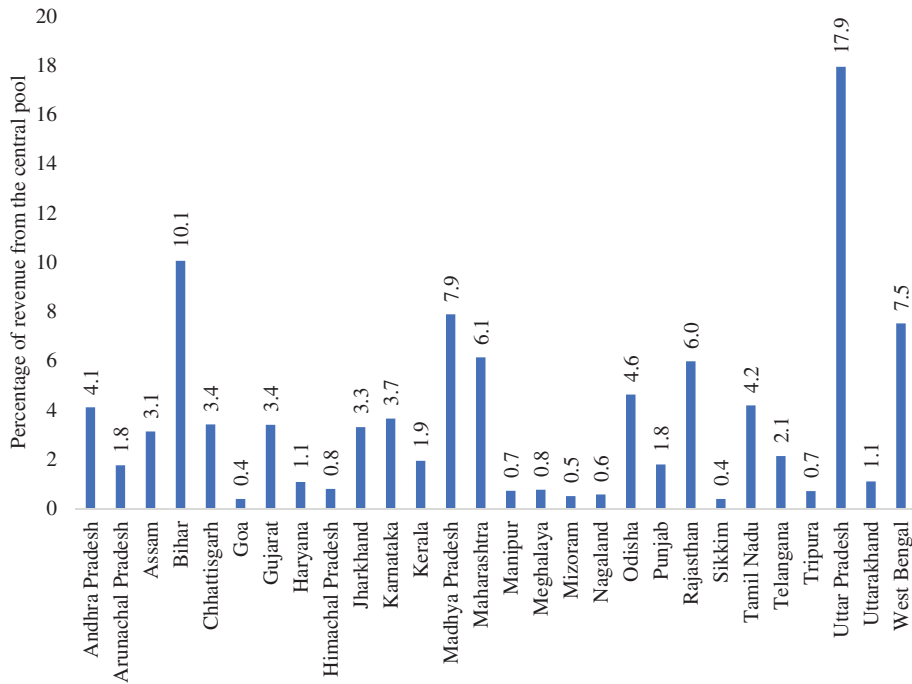
This kind of constitutional structure has enabled the Union government to legislate widely in areas originally reserved for the states. In the fifties and sixties this was to enable socialist planning, which was partly done in tandem with the states, but also in a highly centralized manner through Parliamentary legislation (Rajagopalan, 2015, 2017). In recent times, any reforms or other measures are typically forced through the central government to ensure state compliance and prevent deadlocks (Hari, 2018). Emergencies like the COVID-19 pandemic, that do not have precedent, require a large amount of resources; and the need for swift action given low state capacity of states and local governments is the excuse for this kind of centripetal response.

### 3.2 | Fiscal centripetalism

The fiscal autonomy of subnational governments is the worst casualty of the centripetal nature of Indian federalism. There are multiple aspects that undermine the fiscal autonomy of the Indian states and urban and rural local bodies; and without fiscal autonomy, it is very difficult to have political autonomy at subnational levels of government.

According to the principle of separation, the Constitution of India assigns certain taxes exclusively to either the Union government or to the states. While the Constitution has assigned several broad-based taxes to the Union government, the nature of the tax categories assigned to the states has meant that their revenue base is much smaller, with most of the revenue raised from the sale of goods and property. New reforms like the centralized Goods and Services Tax have placed states’ revenues in an even more precarious position despite the constitutionally mandated compensation from the Union to the states (Chakraborty, 2020). Rao and Singh (2006b) find that the ability of the states to finance their current expenditures from their own sources of revenue has seen a long-run decline.

This growing inability to finance their own expenditures has led to the creation of significant vertical fiscal imbalances between the Union government and the states, with over a third of state expenditures being covered by intergovernmental transfers (Rao & Singh, 2006a). These



**FIGURE 9** Share of revenue from the Central Pool as recommended by the Fifteenth Finance Commission (in percentage).

Source: PRS Legislative (2020) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

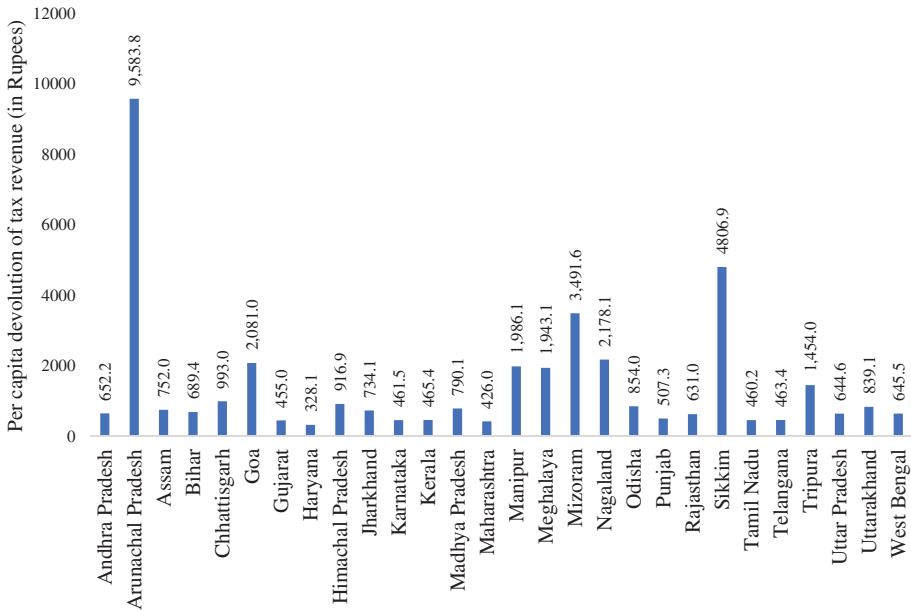
intergovernmental transfers are “nonformulaic,” that is, they are discretionarily disbursed upon need and are generally subject to a lot of political interference.<sup>2</sup> Khemani (2007) finds that these transfers are also distortionary and contrary to their welfare objectives since the ruling Union governments favor states that are politically strategic to their interests.

Intergovernmental transfers, though, are a secondary role of the Finance Commission. Its primary role is to devolve tax revenues to states based on a devolutionary formula that the Commission sets<sup>3</sup>; this formula, while updated and calibrated to partially reflect the changing statuses and needs of states, has remained largely unchanged (Chakraborty, 2020). The share of revenue devolved to each state from the central pool varies, as shown in Figure 9.

With this revenue sharing system, there is a lot of variation in the amount of taxes devolved per capita from the Union to the states, as shown in Figure 10. Richer states with high human development indices like Goa and Kerala have far lower amounts of tax revenue devolved per capita than poorer and densely populated states like Bihar and Uttar Pradesh. The greater the devolution from the Union government, the less long-term control of the states over their own finances. In these states, the administrations’ incentives are better aligned “above” to the Union government than with their citizens and taxpayers.

<sup>2</sup>Rao and Singh (2007) demonstrate that an important variable determining the allocation of these funds to the various states is the political alignment of the party in power at the Union and the party in power at the state level.

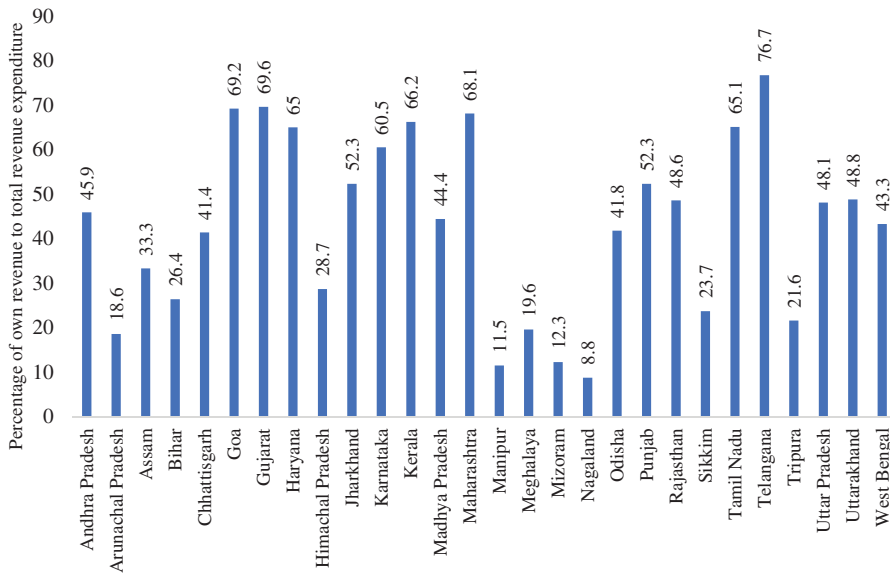
<sup>3</sup>The current, i.e., the Fifteenth Finance Commission, used the following criteria/weights while determining the share of states for devolution from the central pool or the divisible pool of taxes appropriated at the central level that can be devolved to the states: (a) 45% for the income distance, (b) 15% for the population in 2011, (c) 15% for the area, (d) 10% for forest and ecology, (e) 12.5% for demographic performance, and (f) 2.5% for tax effort.



**FIGURE 10** Per capita devolution of tax revenue to Indian states in 2019-20 (in Current Indian Rupees).  
 Source: PRS Legislative (2020) [Color figure can be viewed at wileyonlinelibrary.com]

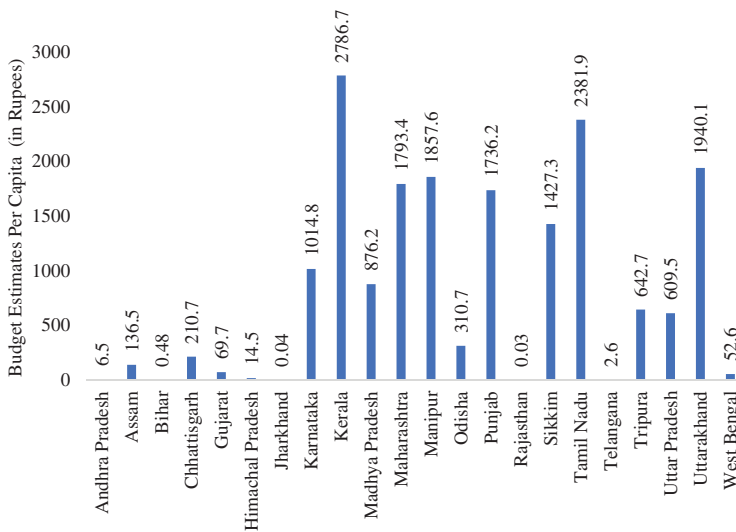
This variance in the amount of devolution per capita also has an impact on the ability of states to finance their expenditures from their own revenues. In the case of the poorer states like Bihar, as well as in the case of the geographically remote northeastern states like Mizoram and Manipur, for example, the percentage of own revenue as a share of the expenditure is in the low teens. Some of these states rely on intergovernmental transfers for more than 80% of their expenditures. Richer states, especially the southern states, on the other hand, raise more than two-thirds of their expenditures through their own revenue. Once again, there is an enormous amount of variation between states, as seen in Figure 11. This impacts the ability of poorer states to plan their expenditures in a fiscally sound way. It also aligns their incentives to cater to centrally chosen programs instead of designing and implementing locally suited policies.

This kind of variation is seen not just in the devolution of taxes from the Union government to the state governments, but also seen in the devolution from state to local (village and municipal) governments. Richer states, especially the southern states of Kerala and Tamil Nadu, devolve higher amounts per capita to their local governments. This is also true for the northeastern states. Poorer states like Assam and Chhattisgarh, meanwhile, devolve a few 100 rupees per capita to local governments, severely impeding the capacity of local governments to take on projects and function. Figure 12 shows the estimates (not actual spending) of the budget amounts allocated by the states to the functioning of rural and urban local governments for 2019–2020. The variation in this devolution is a direct indicator of variation in state capacity. This is because, in poorer states, local governments raise very little (to none) of their own revenue and therefore are unable to build their own capacity. India also has an underdeveloped infrastructure as well as the market for municipal bonds, or debt instruments used by the municipal government, which is another roadblock in raising funds for long-term projects and developing state capacity in public health and sanitation.



**FIGURE 11** Share of own revenue to total revenue expenditure (in percentages, budget estimates of 2019-20).

Source: Reserve Bank of India (2020) [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]



**FIGURE 12** Per capita budget estimates of Compensations and Grants in-aid to Local Bodies and Panchayati Raj Institutions for 2019-20 (in Current Indian Rupees) for reported states (as on March 15, 2021).

Source: Reserve Bank of India (2019) [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

India seems to be caught in a vicious circle in its system of fiscal federalism. Without an increase in fiscal federalism, states and local governments cannot build long-term capacity and spend on resources that are actually relevant to the local population. Because local governments in these states are underdeveloped, it disincentivizes state governments from devolving funds.



And given the weak and resource-starved state governments and local governments, the tendency in a crisis is to be more centripetal and to opt for the one-size-fits-all solution directed by the Union government.

### 3.3 | Federal or decentralized?

In an important strand of the literature on federalism, scholars have differentiated between federalism and decentralization (Bish & Ostrom, 1973; Eusepi & Wagner, 2010; Hayek, 1939 [1948]; Oates, 1972). This is an important distinction in the context of Indian federalism (Rajagopalan, 2017). The main conclusion of this literature is that while all federal systems involve decentralized political authority, not all forms of decentralization constitute federal autonomy (Eusepi & Wagner, 2010).

Thus, Parikh and Weingast (1997) argue that the defining characteristic of any federal system is that a hierarchy of governments with a delineated scope of authority (between the national and subnational governments) exists such that each government is *autonomous* within its own sphere of authority. Decentralization, on the other hand, means that while there is a hierarchy of governments, with delineated functions and scope, the lower levels of government do not have any autonomous spheres of authority.

Eusepi and Wagner (2010) also make a distinction between genuine or spurious federalism. They argue that genuine federalism entails competition among governments, which can create a framework wherein governmental power at one level restrains government at the other level. This form of federalism operates on polycentric principles of open competition where the pattern of activities among governments is an emergent product of that competitive process (Tiebout, 1956). A system of competitive federalism requires independent, competitive action among governments for votes and revenues from the citizens. Spurious federalism, on the other hand, merely involves the decentralization of power; it does not entail genuine autonomy for the authorities at the lower levels of government. Furthermore, decentralization implies that the power devolved by the higher-level government may be taken away, whereas genuine federalism requires that that power cannot be “given” to subnational government by another higher level.

Decentralization without federal autonomy also has other effects on the overall polity. The first is that the Union government can never possess enough information to tailor policies to specific local circumstances. This argument is essentially an extension of Hayek's scholarship on the knowledge problems associated with central planning (Hayek, 1939 [1948]). Greater centralization in the provision of public goods goes hand-in-hand with a larger, more intricate, and more unwieldy bureaucratic structure (Boettke *et al.*, 2010; Coyne & Lemke, 2011).

Considering the various constitutional and fiscal factors that promote centripetalism within the federalist system of India, we can apply the above arguments and the insights of Parikh and Weingast (1997) and Eusepi and Wagner (2010) to federalism in India. Rajagopalan (2017) argues that while the structure of government in India bears the appearance of one that is federal, it is in fact so centripetal that there is no genuine power-sharing or much competition between Union and subnational and local jurisdictions. Thus, while India looks federal on paper and might also be federal per the narrow literature of decentralization, the inherent centripetal tendencies within the system imply that state and local governments are unable to develop significant capacity and do not have the ability to develop spheres of authority that are truly autonomous. As a consequence, many states, especially during a national emergency like the outbreak of the pandemic, look for centralized policy solutions.

## 4 | THE COSTS AND BENEFITS OF THE ALL-INDIA LOCKDOWN

In response to the rising COVID-19 case count in March 2020, governments at both the state and Union level soon began taking steps to try and curb the spread of the disease. Given the nature of Indian federalism, all local and state governments, while taking some action, looked to the Union government, specifically the Prime Minister's Office, for direction.

### 4.1 | The all-India lockdown (March to June 2020)

The first step was taken by the Union government, when it banned the entry of foreigners into the country for a month, starting March 13 (Kumar, 2020). Some state governments also acted in response to the virus: on March 13 the Government of Odisha declared COVID-19 a disaster and proceeded to order educational institutions, cinema halls, public swimming pools, and gyms to shut down immediately (Kumar, 2020). Similarly, on March 16, the local government of Delhi ordered all gymnasiums, spas, nightclubs, and theaters to close till the end of the month (Kumar, 2020).

The next step was taken by the Union government, when it enforced a 14 hour long “Janata (People’s) Curfew” on March 22. During this daylong curfew imposed on a Sunday, most businesses and educational and recreational institutions were closed, with only individuals delivering certain essential services allowed out of their homes.

Next, in an address to the nation on March 24, 2020, and with no advance warning, the Prime Minister of India, Narendra Modi, announced the start of a nationwide lockdown for a period of 3 weeks, set to start from midnight of that day. The order was sweeping and broad in scope, touching literally every aspect of life in the country. All transportation services, whether by air, rail, or road, were immediately suspended, with exceptions made only for some essential goods and emergency services (MHA, 2020, p. 3). All educational institutions in the country, along with all places of worship, were ordered to close immediately; and all social gatherings, whether for political, recreational, sporting, or academic purposes were banned with immediate effect (MHA, 2020, p. 3). With a few exceptions made for essential goods and services, all commercial and industrial firms, as well as the entire hospitality sector, were forced to close (MHA, 2020, p. 2–3). The only sector of the economy that escaped a broad lockdown was the agricultural sector, with the order of the Union government explicitly allowing “farming operations by farmers and farm workers in the field” (MHA, 2020, p. 2), and also making special exemptions allowing for the continued production and movement of agricultural inputs (MHA, 2020, p. 2–3).

This nationwide lockdown in India imposed restrictions that were far more stringent than those that were imposed by most countries in the world over the course of the COVID-19 pandemic. Once the lockdown went into effect on March 25, India's score on the Government Response Stringency Index, constructed by Hale *et al.*, (2020), which was rising through the month of March, hit the maximum level of 100. This meant that, at the height of its lockdown, India's score on the Stringency Index was higher than the corresponding figures for other countries such as Italy, Belgium, and Peru that also imposed very severe lockdowns. Thus, at its height, Italy's score on the Stringency Index was 93.5 (on April 12), whereas those for Belgium and Peru were 81.48 (on March 22) and 96.30 (on May 1), respectively.

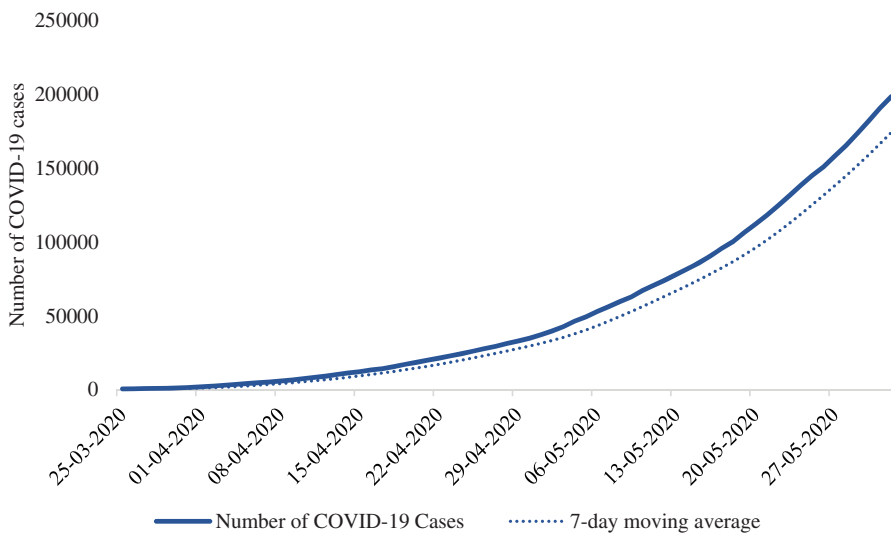
While the initial lockdown was set to expire on April 14, it was extended first to May 3, and then through a set of orders to June 1. While these orders of extension also introduced some minor relaxations of the restrictions set in place in the initial order and India's score on the Stringency Index fell to 82 in early May, it remained close to that level throughout the rest of the month. For all intents and purposes, most businesses, as well as educational, religious, and recreational institutions, remained closed through most parts of the country for more than 2 months, from March 25 to June 1.

Starting in early June, the Union government commenced a more widespread relaxation of the various restrictions and introduced an “Unlock 1.0.” This process of unlocking the economy was conducted in phases, and while each phase of this process eased a few more restrictions, the reopening process was sporadic at best in most parts of the country. Due to unlocking in fits and starts, and at a different pace in different parts of the country, India's score on the Stringency Index barely fell during the first few months of this reopening process. Thus, as late as September 20, India's score on the Stringency Index remained as high as 80. It was only in the month of October that this score declined significantly for India, to 64.3 on October 23.

**4.2 | Variation in lockdown measures across states**

The overarching goal of the sweeping, one-size-fits-all lockdown introduced by the Indian government was to try and reduce mobility and contain the spread of COVID-19. Despite the nationwide lockdown, transmission could not be contained. As seen in Figure 13, the number of new cases detected steadily increased over the months of April and May, with the 7-day rolling average of total active/confirmed cases climbing from 1255 on April 1 to 29,624 on April 30, and to 166,468 active/confirmed cases by the end of May.

Moreover, this rising case count was not simply a reflection of higher levels of testing. Even though testing capacity steadily increased across India with ICMR approving more labs, the



**FIGURE 13** Total confirmed COVID-19 Cases between March 25 and June 1, 2020. Source: COVID19INDIA (2020) [Color figure can be viewed at wileyonlinelibrary.com]

case positivity rate hovered around the 4% mark through most of April and rose to 5% by the end of May (Mukopadhyay, 2020). Furthermore, every single state saw an increase in testing capacity as ICMR approved more government and private testing facilities, as shown in Table 1. However, not every state saw an increase in the number of confirmed COVID-19 cases.

The trend in the weekly growth rate of new cases during the months of April and May also points to the fact that the lockdown was only partially successful in curbing the spread of COVID-19. While it saw a significant decline in the second half of April, falling from 87% on April 14 to 23.5% on April 30, the weekly growth rate reversed course and rose sharply in the beginning of May, to a figure as high as 78% on May 8, then declining to the 50% mark through most of the last week of the month.

Now, while the *de jure* rule, that is, a countrywide lockdown, was common to all the states, the ground reality in the various states was quite different. As detailed in Section 2, there is an enormous amount of variation in resources and capacity across the different states of India. As a result, there was also significant variation in the ability of the different states to enforce the various rules and measures that were part of the all-India lockdown. Moreover, since it was impossible for the Union government to tailor the countrywide mandate to local circumstances, the state and local governments used a lot of discretion to enforce the Union government's lockdown mandate. So, in effect, local-level officials were left to interpret and enforce the lockdown mandate given their resource constraints and local circumstances.<sup>4</sup>

As a result, there was variation in how stringently the lockdown was enforced by state and local level officials, especially over the 70-day period between March 24 and June 1. In some states and districts, especially in the rural areas, anecdotal evidence suggests that the countrywide mandate did not impact daily life too much, while in other states it appears that it was hard to even buy groceries or get permission to travel to a hospital.

It is not easy to get an exact image of how the lockdown was enforced in different states and within each state. Moreover, it is also difficult to measure the exact impact the lockdown measures had on the extent of social distancing and on the number of new cases in the different states. To solve this problem, we use data from the Google Mobility Report.<sup>5</sup> These data show how the frequency of visits to places, such as grocery stores and parks, changed in each geographic region over the course of the all-India lockdown. Moreover, the mobility trends show how the frequency of visits and the length of stay at different places changed as compared with a baseline.

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<sup>4</sup>While the *de facto* and the *de jure* rules of the lockdown were necessarily different in a country with the size and variation of India, this does not mean that that *de facto* rules were appropriately tailored for local needs. It only means that there was some discretion in the implementation of the rules. In fact, it goes to the root of our critique, that in a country like India, given that there is such high variation across states, that the Union government should not create one-size-fits-all policies, because (a) there is variation across states, and (b) the variation across states will mean that at the local level administrators who cannot possibly implement the rule will use discretion. But this does not mean that the original one-size-fits-all rule has no bearing on the *de facto* implementation.

<sup>5</sup>Google has developed these Community Mobility Datasets with aggregated, anonymized sets of data from users who have turned *on* the Location setting, which is *off* by default. These data are anonymized and aggregated and cannot be used to track individuals, since no personally identifiable information, like an individual's location, contacts or movement, is made available at any point. So, this only tracks the mobility of a community within a region, using a baseline for the same region from an earlier date. For details on the dataset see Aktay *et al.* (2020). India has very high mobile phone penetration and has one of the highest 4G data network penetration and usage for a country at its income level. These mobility data are quite representative of movement during the lockdown, though it will fail to capture the poorest groups, below the poverty line, who do not have widespread access to cell phones.

In our analysis of trends in mobility measures, we use the median value of a given measure for a given day of the week during the 5-week period between January 3 and February 6, 2020, as our baseline. Moreover, we compare the trend in mobility of one measure, that is, grocery shop and pharmacy visits, during the entire period of the lockdown from March 25 to June 1 in all 28 states and in Delhi, with the number of daily new cases per million in each state. In the 29 panels of Figure 14, we show the variation in the two trends across the 28 states and the National Capital Territory of Delhi.

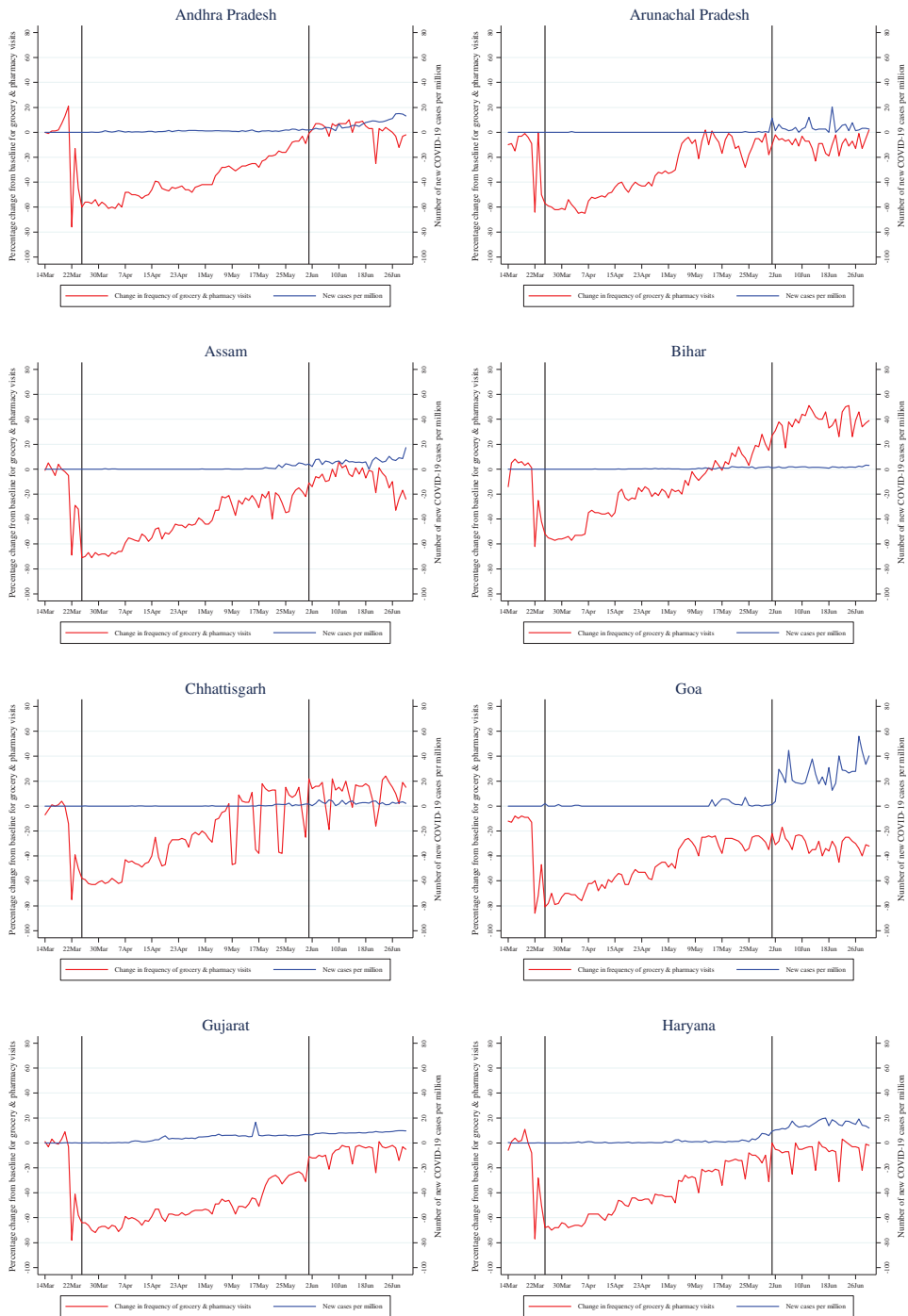
The mobility data for visits to grocery stores and to pharmacies, given how essential they are, is a good measure to understand the de facto restrictions imposed by the lockdown in each state. Furthermore, unlike locations like parks, or sites for seasonal recreational activities, grocery and pharmacy visits are not sensitive to seasonal or weather changes. And while different kinds of mobility data (e.g., grocery store visits vs. park visits) have different implications for the transmission of infection, we believe curtailing mobility to access even the most essential services like grocery and pharmacy establishments is a good measure to compare against new cases, which measures the extent of transmission of COVID-19. Using daily new cases per million is a good measure of transmission of the infection. This, of course, only measures known or confirmed cases, which are constrained by testing capacity. Overall testing capacity increases as ICMR approves more labs and more private sector labs also get approved. Though all Indian states increase the number of testing facilities (Table 1), the number of known cases does not increase in every single state. Furthermore, overall test positivity rate remains stable (Mukopadhyay, 2020).

This side-by-side comparison of mobility and new COVID-19 cases per million helps us understand two important policy considerations. First, it helps us understand whether the lockdown successfully reduced mobility in a given region, since all the Union government mandates targeted mobility outside the residence. And second, in regions where the lockdown measures did successfully reduce mobility and congestion, it helps us understand whether the lockdown measures were successful in containing the transmission of infection as reflected in the daily new cases per million.

Unsurprisingly, there is a lot of variation across states in the level of mobility during the period of the all-India lockdown as compared with the baseline measure. But there is also a lot of variation in whether an increase in new COVID-19 cases goes hand-in-hand with changes in mobility. In each state, the changes in mobility and in COVID-19 transmission plays out in a different way, as seen in the mobility panel in Figure 14.

In Delhi and in states like Maharashtra, Tamil Nadu, Telangana, and Goa, all of which are (except for Goa) large and populous regions with densely populated urban areas, with the announcement of the lockdown on March 24, mobility plummeted to 60%–80% below the baseline. In the following days and weeks during the lockdown, mobility slowly improved, though it was still below the baseline. With this gradual increase in mobility, these states also experienced a slow increase in the number of COVID-19 cases during the lockdown. The increase in daily COVID-19 cases suggests that either the lockdown was not sufficiently enforced, or even with a well-enforced lockdown, in extremely dense pockets like urban slums, mobility lockdowns and curfews could not contain transmission. However, once the lockdown ended, both the mobility trend and the number of cases per million rose sharply. Therefore, the lockdown was at least partially successful in these cases in terms of staggering and postponing the increase in cases per million.

In a second group of states including Gujarat, Andhra Pradesh, Karnataka, Odisha, and West Bengal there is a similar trend in mobility levels and in the levels of transmission. But the extent of the increase in the levels of transmission of COVID-19 during the lockdown was lower



**FIGURE 14** A Panel of 28 states and Delhi: Number of new COVID-19 cases per million state population and change in mobility (i.e. frequency of grocery and pharmacy visits) between March 24 and June 30, 2020. Black vertical lines on the graph for March 25 and June 1 indicate the start of Phase I, and the end of Phase II of the lockdown respectively.

Sources: COVID19INDIA (2020) and Google (2020) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

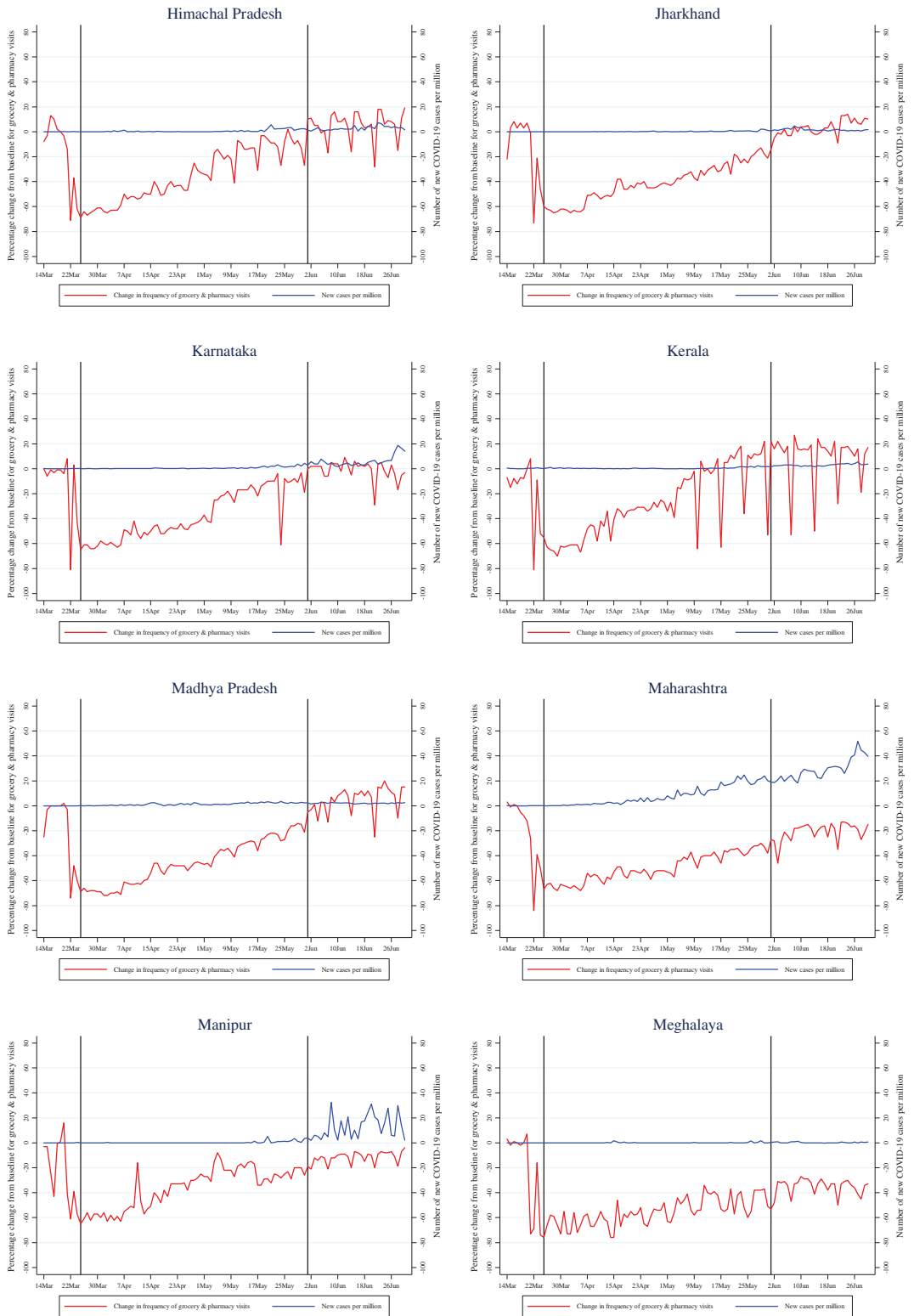


FIGURE 14 (Continued)

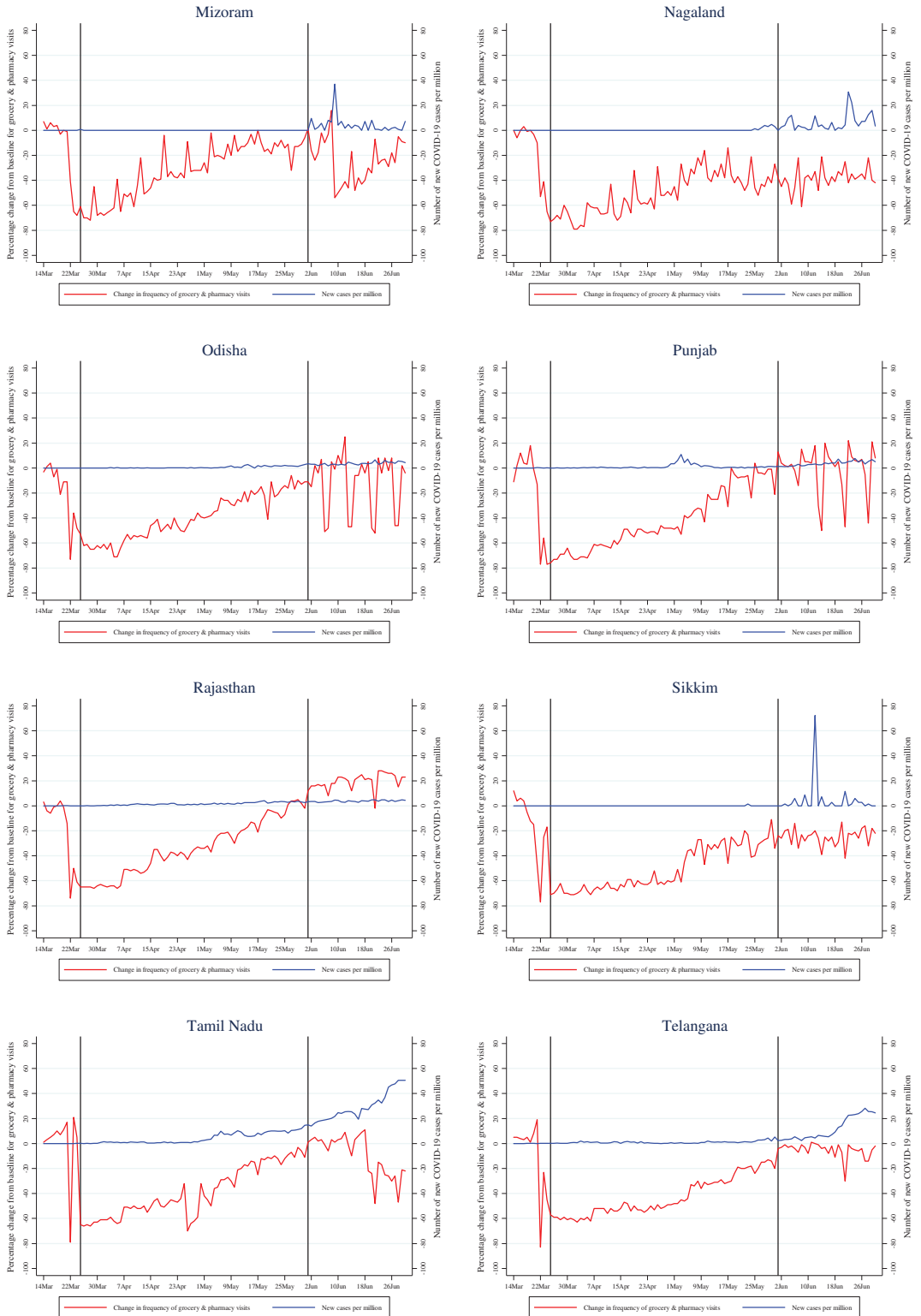


FIGURE 14 (Continued)



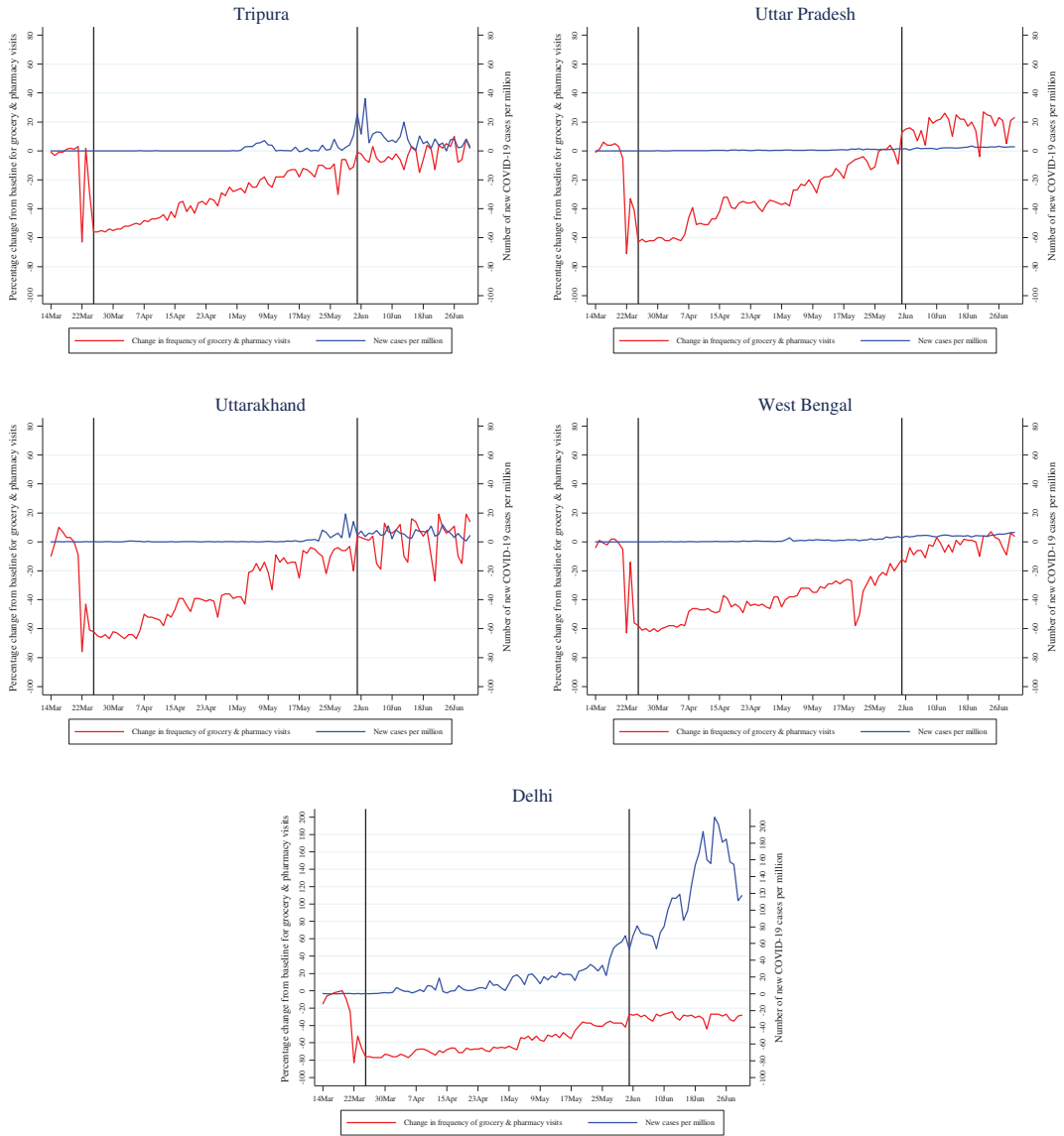


FIGURE 14 (Continued)

than the increase witnessed in the first group of states. Thus, these states saw small spikes in cases per million during the lockdown. Thereafter, there was an increase in both mobility and COVID-19 cases per million once the lockdown was relaxed. But the number of cases, post-lockdown, did not rise as sharply as it did in some of the states in the first group like Maharashtra.

However, the lockdown in these states did not contain the transmission of the virus as demonstrated by the high rates of seroprevalence in some of these states. Malani et al. (2020) find that seroprevalence is extremely high in the densely populated urban slums (54.1%) compared with non-slum areas (16.1%) in Mumbai. Mohanan et al. (2021) estimate that in Karnataka, “31.5 million residents were infected, far greater than the 327 076 cases”, in other words, the

number of infected residents could be around 95 times greater than the actual reported number. In Tamil Nadu, Malani et al. (2021) estimate that “at least 22.6 million persons were infected by the end of November, roughly 36 times the number of confirmed cases.”<sup>6</sup>

In a third group of states including Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh, the severe lockdown could have been completely avoided and replaced by less severe policies, perhaps, inter-state border controls but allowing intra-state movement. These states had few cases when the lockdown was announced. These are also some of the most populous and dense states in India, but with far less access to international flights, and therefore avoided the initial rise in cases witnessed in Maharashtra and Kerala, which are more internationally connected. In these states, immediately after the announcement of the lockdown, mobility dropped 60%–80% below baseline. However, from early April to May 3 (which marked the end of the first two phases of the lockdown), mobility slowly increased and returned to the baseline, with no effect on new COVID-19 cases per million, which was close to zero in the first few weeks of the lockdown and stayed in low single digits per million new cases throughout this period.

An even more interesting aspect of these states is that after the first two phases of the lockdown, the next two phases see a massive increase in mobility to grocery and pharmacy sites. For instance, in Bihar it is almost 40%–50% above the baseline from May 3 to June 1 and in Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh the mobility is about 15-20% above the baseline after the lockdown ended on June 1. Despite this increase in mobility, the number of new cases per million remains stable in the low to mid-single digits. These are states where such a severe lockdown could have been completely avoided because restrictions on mobility had no clear benefit on transmission levels of COVID-19. And these states also have low state GDP per capita and the economic costs were disproportionately borne by poor Indians in these states.

In a fourth group of states including Haryana, Himachal Pradesh, and Punjab, there was a 60%–80% decline in mobility immediately after the announcement of the lockdown. This measure then slowly goes back to pre-lockdown levels by June 1. However, other than a small spike in Punjab around May 3 (at the end of phase two of the lockdown), the number of new cases per million is in the low-single digits in all three states. Once again, preventing people from going about their basic everyday activities, like visiting the grocery shops, did not have any discernible impact on new cases. All three states are rich, agricultural states with a high state GDP per capita, and likely had the resources to adapt and enforce the lockdown to local circumstances, and in that sense, the adapted lockdown was successful. On the question of whether it was necessary, it is unclear, because even with an increase in mobility in June, above the baseline, there is not a very big spike in cases per million.

A fifth group of states including Chhattisgarh, Kerala, and Uttarakhand are excellent examples of how an adaptive lockdown approach was effective in the later stages of the lockdown. In all three states, immediately after the announcement of the lockdown the level of mobility drops 60%–80% below the baseline. After the first two phases, around May 3, when the centralized lockdown restrictions were relaxed, these state governments adapted the rules to their local conditions. To avoid crowding at densely packed market sites, they announced rules to keep

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<sup>6</sup>Through these seroprevalence studies (Malani et al., 2020; Malani et al., 2021; Mohanan et al., 2020; Cai et al. 2021) estimate the infection fatality rates in India. They find that India has a lower infection fatality rate compared with seroprevalence studies from other higher-income countries. However, they do not discuss the possible reasons as to why the fatality rates are lower compared with other countries.

certain establishments open only on certain days of the week. The mobility data are highly volatile on a daily basis, reflecting this adaptive strategy. In all three states, there was no sharp increase in daily COVID-19 cases per million during the lockdown, so the lockdown was well enforced and worked. After the four phases of the lockdown, there is a spike in the new cases before going back to the trend. During this time period, Kerala performed well, because it was the first state to be hit by the pandemic and one of the worst affected states initially. But in addition to the adaptive strategies during the lockdown, the transmission was contained through contact tracing and quarantine.

Finally, in the northeastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura the circumstances were different for three reasons: their remoteness, the hilly terrain, and very few international airports. For these reasons, these states were not initially affected when the pandemic broke out. Seven of the eight states had zero known COVID-19 cases before the lockdown and Manipur had only one known case before the lockdown. Although, it is important to note here that Arunachal Pradesh, Nagaland, and Sikkim were the only states to not have an ICMR-approved testing facility before the lockdown, and testing capacity increased subsequently, as seen in Table 1. As soon as the lockdown was announced the level of mobility in all the eight states dropped about 60%–80% relative to the baseline.

Through the entire period of the lockdown, Mizoram experienced zero new COVID-19 cases per million, and Sikkim reported 1.4 cases per million even though during the lockdown both had approved testing facilities. But in Sikkim, mobility never returned to baseline and was 20% below baseline even after the end of the lockdown. Mizoram, on the other hand, was able to implement an adaptive approach after the first two phases of the lockdown and mobility returned to the baseline, without a single confirmed COVID-19 case. Both states saw an increase in the number of cases after the lockdown ended, likely from migrants entering from other states. In both these states, simple border closure would have been sufficient a measure, while allowing intra-state mobility. Meghalaya had a sharp drop in mobility initially that did not return to baseline even after the end of the lockdown. But Meghalaya also had very few cases during the lockdown and no spike or increase in cases after the lockdown despite increased mobility. Thus, Meghalaya is another example of a state with low intra-state transmission, making the lockdown unnecessary.

On the other hand, Tripura experienced a big spike during the lockdown in the last two phases, as mobility slowly increased in the state. After the lockdown, there was a big spike, but the adaptive approach post lockdown in the Unlock phase saw a reduction in daily COVID-19 cases per million.

In Assam, Arunachal Pradesh, Manipur, and Nagaland, there were very few cases during the lockdown. But in each of these states, as mobility returned to baseline toward the end of the lockdown, there was a spike in COVID-19 cases immediately after the end of the lockdown in early June. In all these states an adaptive approach with slowly phased out border controls and other measures like contact tracing would have been better suited than a sweeping lockdown.

The difference in mobility patterns as well as in the number of new cases per million in each of these states shows the massive variation across the states of India during and immediately after the lockdown. In places like Mumbai, Maharashtra, that have one of the highest densities of population in the world, even visiting grocery stores would lead to some transmission of infection. On the other hand, in Bihar, especially in the rural areas, there was little risk of transmission with allowing the most essential activity. And that states like Sikkim and Mizoram even had a lockdown imposing such great costs on its residents for no reason is astounding.

### 4.3 | Economic impact of the all-India lockdown

While the lockdown only had limited success in curbing the spread of COVID-19, and disproportionately punished residents of states with few to no COVID-19 cases, its impact on the Indian economy was nothing short of devastating. During the second quarter of 2020, India's GDP fell by 23.9% as compared with the same quarter from the previous year (Beniwal & Nag, 2020). This was the biggest slump in output recorded among the major economies during this time period, and also the sharpest decline recorded since 1996, when India began publishing quarterly GDP figures (Beniwal & Nag, 2020). The decline in output over the 3 months leading up to June hit nearly every sector of the economy: manufacturing output fell by 39.3%, construction output by 50%, the output of the mining sector by 23.3%, and that of the trade, hotels, transport, and communications sectors fell collectively by 47%. Meanwhile, the output of the financial services sector, which comprises the biggest component of the Indian services sector, declined by 5%. Only the agricultural sector managed to escape this general malaise, with the output of this sector increasing by 3.4% compared with a year before over the course of the second quarter of 2020 (Beniwal & Nag, 2020).

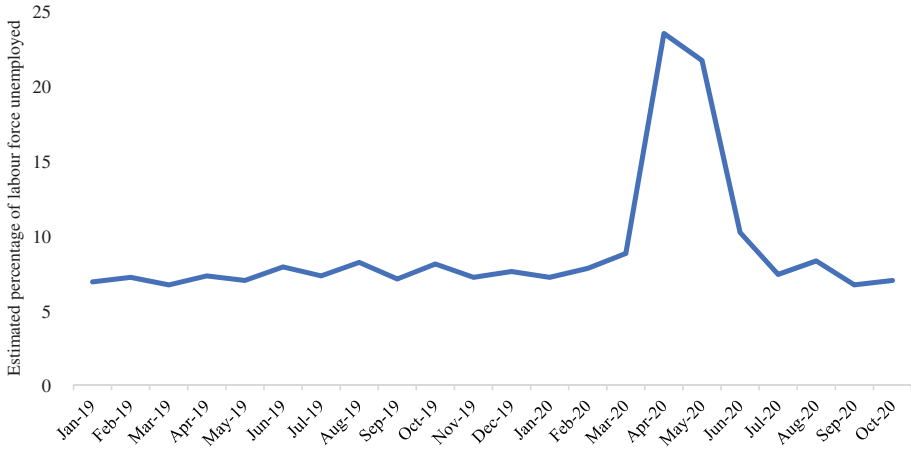
The heavy impact of the lockdown was also picked up by other measures of output. The Index of Industrial Production (IIP), which tracks the output of the industrial sector in India, also fell by 36% during the 3-month period between April and June of 2020 compared with the same period from the previous year (Vyas, 2020b). The index fell sharply in April, soon after the imposition of the lockdown, declining by 54.3% during this month. Although it turned course and started rising in May and June, it was still 20% lower at the end of June as compared with where it was in the month of February (Vyas, 2020b).<sup>7</sup>

The sharp decline in output in most sectors in the economy led to a decline in the level of employment across the country. Based on data collected by the Center for Monitoring Indian Economy (CMIE) as part of its Consumer Pyramids Household Survey (CPHS), the Indian economy, during the month of April 2020, lost as many as 121.5 million jobs, or roughly 30% of all employment (Vyas, 2020a). According to the same survey, the unemployment rate for the Indian economy rose from 8.8% in March 2020 to 23.5% in the month of April, as shown in Figure 15 (Vyas, 2020a, p. S75). This sharp rise in the unemployment rate was accompanied by a significant decline in the labor force participation rate, from 41.9% in March 2020 to 35.6% in April 2020 (Vyas, 2020a, p. S75). This combined rise of unemployment and decline in the size of the labor force meant that the employment rate for the Indian economy, which measures the ratio of the adult population (15 years or older) that is used, fell from 38.2% in March 2020 to 27.2% in April 2020 (Vyas, 2020a: S75).

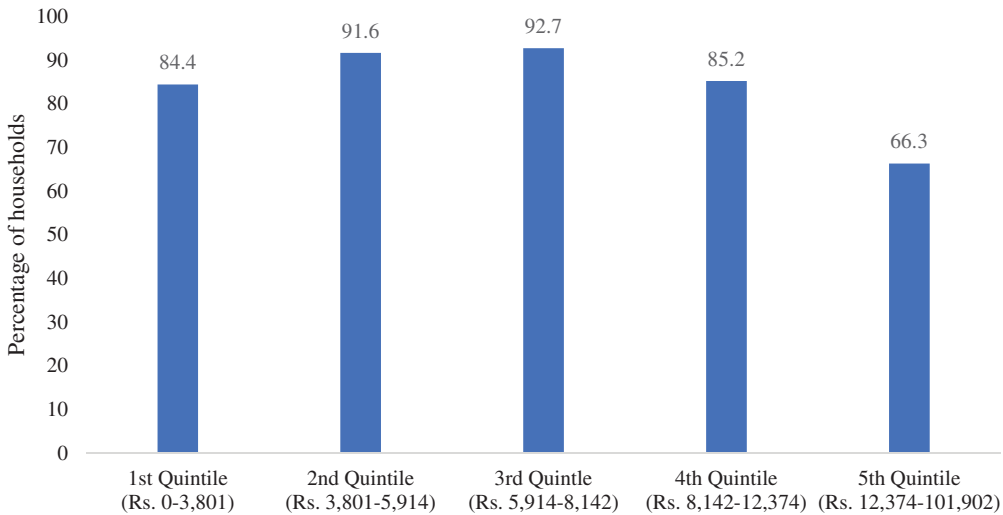
This sharp decline in employment was reflected in the loss of income suffered by households across the income distribution during the month of April. Using data from the CPHS, Bertrand *et al.* (2020) found that 84% of households in India reported a fall in income during the period between April 18 and April 30, 2020. However, there was a regressive pattern to this decline in household income. As Figure 16 below shows, based on pre-lockdown monthly per-capita household income, households in the top quintile of the income distribution reported the smallest decline in income, with 66.3% of households in this quintile witnessing a loss of income during this period in the second half of April. This was lower for urban areas of the

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<sup>7</sup>Using energy consumption and night lights data Beyer *et al.* (2020) also find a sharp decrease in consumption and overall economic activity during the lockdown.



**FIGURE 15** Unemployment rate in India between January 2019 and October 2020. Source: Consumer Pyramids Household Survey (2020) [Color figure can be viewed at wileyonlinelibrary.com]



**FIGURE 16** Percentage of households reporting income loss (by quintiles of household monthly per capita income in April 2020). Source: Bertrand et al. (2020) [Color figure can be viewed at wileyonlinelibrary.com]

country, with only 54.7% of households reporting a loss in income. In stark contrast, more than 84% of households reported a loss in income in quintiles one through four.

As Bertrand *et al.* (2020) argue, the regressive pattern of the losses in household income reflects the pattern of job losses inflicted by the lockdown. Thus, the lower figures for the upper quintile, especially in the urban areas, reflects the fact that many individuals in households in this income bracket held stable, salaried jobs, and were able to work from home during the lockdown. The higher incidence of income losses in the other quintiles, especially on households in the bottom three quintiles, meanwhile, reflects the harsh impact of the lockdown on

small traders, hawkers and daily wage laborers. As Vyas (2020a: S76) notes, despite accounting for only 32% of all employment, workers in these sectors of the economy accounted for 75% of all jobs lost in the aftermath of the lockdown. Thus, of the 121.5 million jobs lost during the month of April 2020, as many as 91.2 million jobs were lost by small traders, hawkers and daily wage laborers.

## 5 | CONCLUSION

In this paper, we demonstrate the enormous variation across Indian states across many margins. First, states have vastly different resource constraints. Second, states show a lot of variation in healthcare capacity. And third, and most importantly, the incidence of COVID-19 infection and the spread as well as growth of infection rates was not prevalent across the country but initially restricted to a few dense pockets.

Given this information, it was an odd choice to impose a severe and highly centralized countrywide lockdown, especially in a country as large as India, which has a federal structure. Why, then, did India choose this kind of draconian one-size-fits-all policy? The answer lies in the fact that India is not a genuinely federal state, but highly centripetal in its federalism, giving its Union government an enormous amount of power to dictate centralized policies to Indian states.

There are two main reasons for India's historical centripetalism, which has led to dysfunctional federalism in present day India. The first is that as part of its constitution design, at the founding of the republic, the Union government was given much more power, especially residual power, relative to the states. Second, because of the constitutional structure, India is not very fiscally federal, with the Union government controlling most of the revenues. This trend has continued even in the relationship between state and local governments. Consequently, India's centripetalism has led to stunted state capacity for Indian states and local governments.

Because of its historical legacy of centripetalism, India imposed the most stringent countrywide lockdown for almost 70 days, devastating its economy, pushing hundreds of million into unemployment and poverty, and burdening its most vulnerable citizens—economic migrants working in the informal sector. The benefits were small, and limited to a few states. As shown by the mobility analysis, we find evidence showing that lockdowns were successful in curbing mobility and therefore the spread of COVID-19 only in a handful of states. In the remaining states, either the lockdown policies were unsuccessful in containing the transmission, or the lockdown was completely unnecessary given that there was no increase in COVID transmission despite increase in mobility.

In the future to prevent one-size-fits-all policies like the countrywide lockdown, and have more locally suited policies, India must not only formulate better policies at the top, but also recognize the need for structural change and reform required to make India a genuinely federal union, as opposed to practicing centripetal or spurious federalism.

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