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How COVID-19 Has Redistributed Human Mobility

BIAO XIANG

The COVID-19 pandemic has turned the world into a natural laboratory for mobility regulation. Governments across the world, whether democratic or authoritarian, in rich or poor countries, adopted mobility restriction as the most common pandemic response. The specific measures they adopted have been similar too, including border closures, lockdowns, and rules requiring vaccination certificates as a prerequisite for mobility. But the outcomes varied widely. In some cases, governments' actions to minimize mobility slowed down the spread of the virus; in other cases, restrictions not only failed to reduce mobility, but also created chaos.

After nearly three years of trial and error on a historically unprecedented scale, two general observations can be made. First, mobility restriction will be more consequential than migration control. Migrants comprise only about 3 percent of the world's population, but almost every human being relies on daily mobility. Whereas migration is managed through visa and border controls, mobility restriction requires sophisticated technologies and widespread, complex, and meticulously detailed arrangements. During the pandemic, governments turned human mobility into both a subject and a tool of regulation—that is, they regulated mobility as a means of leverage to control other behaviors, such as by enforcing compulsory reporting of personal data as a precondition of mobility. Migration has already been resuming as the pandemic eases, but mobility restriction measures may have long-term impacts on social life, far beyond mobility itself.

Second, policymakers must consider the distributive dimension of mobility in order to regulate mobility effectively. Mobility is distributive in the sense that the mobility of different people, the mobility of the same person at different moments (for example, in outmigration and return migration), and different aspects of mobility (such as the intention and the means to move) are all closely related. Change in one element will change another. Mobility is thus an assemblage. If policies fail to recognize the distributive dimension of mobility, limiting movement of one type (say, the daily commuting of street vendors) would only increase mobility of another type (clandestine movements); banning the mobility of one group could force another to move more.

Thus, regulating mobility is redistributing mobility. In China, on which this essay focuses, pandemic policies concentrated specific types of mobility with certain groups (such as government officials or delivery workers), and assigned the responsibilities for overseeing different aspects of mobility to different agencies. The distributive mode of mobility regulation worked remarkably well. But it also raised new questions. This redistribution gave rise to new power relations and new profit-seeking activities, which are themselves poorly regulated. Furthermore, the redistribution of mobility impeded democratic participation. Mobility regulation during the pandemic indicates how relations are changing between government and citizens, not only in China, but across the world.

In contrast with India's disorganized 2020 lockdown, China restricted mobility through the organized redistribution of mobility. Two organized ways through which mobility is redistributed have emerged: by commercial means, with the rise of the "mobility business," and by

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administrative-technological means that delegate responsibilities for various facets of mobility (such as data collection and quarantine arrangements) to different actors. The danger is that this mode of governance may displace humans from their positions as autonomous social actors.

GETTING ORGANIZED

Since mobility is inherently distributive, policies aimed at regulating mobility always redistribute mobility in one way or another. The difference is between coordinated redistribution, which is more likely to achieve policy goals, and disorganized redistribution, which can be counterproductive.

The 2020 lockdown in India is a case of mobility control that led to disorganized redistribution. The Indian government announced a nationwide lockdown on March 24, 2020. This announcement, with just a few hours' forewarning, triggered massive disorderly mobility. About 7.5 million internal migrants flocked home from major cities across the country by May 23. Thousands rushed to train and bus terminals to catch the last departures. Many more had to walk for days to make it home because of the lack of public transport. Some died on the road due to traffic accidents, heat, hunger, and physical exhaustion. The situation was so dire that the Indian Supreme Court ordered all local governments to provide free food and transport to migrants, and to bring all migrants home within 15 days. A policy aimed at preventing movement had to be replaced by measures to facilitate movement.

The redistribution of mobility was also a redistribution of power.

Migrants in India were pushed into desperation because their original mobility assemblage was overturned. They are typically circular migrants, moving back and forth between cities and home villages seasonally or annually. In the cities, they are constantly on the move as street vendors, delivery workers, domestic servants, rickshaw pullers, construction workers, or garbage pickers. The moment they stop moving is the moment they lose their jobs. As daily wage earners, few have savings to pay the rent or buy food in the event that they cannot work. Nor are they able to stockpile the food supplies needed for quarantine.

Furthermore, their jobs rely on others' movement. If urban residents cannot move, many migrants instantly lose their customers. Thus, their livelihoods depend on a particular mobility assemblage—interconnected circulations of different populations, money, and goods. The lockdown disrupted the relations among these elements, leading to a chaotic redistribution of mobility: the desperate rush to get home replaced self-coordinated circulation.

Disorganized mobility redistribution has not been unique to India during the pandemic. By late May 2020, over 68,000 Venezuelans had returned to their crisis-ridden country, from which they had previously fled, after losing jobs in neighboring countries during the pandemic. Since all seven official border crossings between Venezuela and Colombia had been closed, criminal groups reportedly smuggled migrants back into Venezuela. Brazilian cities, meanwhile, witnessed the rapid growth of clandestine transport services, often run by individuals without licenses and in unsafe ways, to meet the needs of those who had to move to make a living.

In contrast to such examples, China organized the redistribution of mobility. One of the most important measures taken by local governments across China during the lockdowns was to send down—the term used was "sink" (*xiacheng*)—government officers to residents' committees. The 650,000 residents' committees are grassroots self-governance organizations, and technically are not part of the government.

In late February 2020, the city of Wuhan, then the epicenter of the pandemic, decided to send down "as many officers as possible, to communities that are close and familiar to them," according to *Hubei Daily*. Within weeks, nearly 40,000 officers were dispatched. In Beijing, as of February 27, 2020, more than 70,000 officers had been sent down from district government departments to all of the 7,120 communities in the city, according to the China Knowledge Centre for International Development.

The sent-down officers assumed the roles of mobile carers and delivery workers. They went door to door to take the body temperature of every resident, collected orders for medicine and other necessities, purchased the goods and delivered them, distributed protective equipment such as masks and gloves, and visited older adults living alone. The officers' mobility—both their "sinking down" and daily mobile work—enabled the immobilization of the general population.

Why did local governments send down officers? The Ministry of Civil Affairs offered two explanations at the State Council's press conference on February 10, 2020. First, there was a shortage of personnel at the grassroots to enforce immobility, with an average of 350 residents for every residents' committee staff member. Second, government officers are better educated and more experienced than staff at residents' committees. Officers are "more familiar with the up-and-down communications chain [in the bureaucratic machinery], and with the latest policies in the government system," according to the China Knowledge Centre for International Development. They can therefore play a "guiding and supervisory role" in relation to the grassroots staff. As government employees, the officers are able to "deploy resources and raise funds to make up for shortcomings at the community level" and to "ensure stability." The practice of sending down officers to the community level continued up to late August 2022, as this article was being finalized.

In this case, the redistribution of mobility was also a redistribution of power. Officers' sinking down represents further penetration of the community by state power. But sending down government officers was a temporary emergency measure. In comparison, the mobility business and the reassignment of responsibilities represent more widespread and sustainable ways of redistributing mobility.

THE MOBILITY BUSINESS

Platform-based technology companies that provide delivery and logistics services have been among the biggest beneficiaries of the COVID-19 pandemic. Delivery orders in Wuhan jumped five-fold during the lockdown that lasted from January 23 to April 8, 2020; for delivery workers riding motorbikes, the average distance of daily travel more than tripled, according to the Ali Research Institute. Across the nation, the market size of the online food delivery business expanded from 578 billion renminbi (roughly $85 billion) in 2019 to 812 billion renminbi in 2021, and an expected 942 billion renminbi in 2022, according to Statista. Such rapid growth is remarkable, considering the concurrent slowdown in China's economy.

The mobility business has redistributed mobility: these companies sell customers the service of having someone else move on their behalf. An Alibaba report estimated that a single rider enables 24 residents to stay at home. Many residents are outsourcing their everyday errands to a new army of specialist mobility labor. In this way, outsourced mobility has become a type of commodity.

Though the sector is booming across the world, what makes the mobility business in China special is its rapid penetration into smaller cities and the countryside. Widespread Internet connectivity is the main reason for the high penetration rate, and the pandemic was an important boost. According to data from the China Internet Information Center, 40 percent of Internet users in third-tier cities had used online food delivery services by March 2020. The number of customers over 40 years old has increased sharply—up 237 percent between January 23 and February 23, 2020, in the case of MissFresh, a Beijing-based delivery start-up, the *South China Morning Post* reported. This trend has continued since.

Companies also capitalized on the demand for mobility services during the pandemic to accelerate expansion of the scope of their services. In April 2020, Didi China began to run all kinds of errands for consumers that involve physical movements. This was dubbed "running leg" service, now a generic term in the industry. The consultancy iiMedia Research predicts that the "'running leg' will grow fast," with services ranging from standing in lines to taking care of pets.

Platforms have invested heavily in infrastructure to facilitate as well as monitor mobility. To address customers' concerns about health risks during the pandemic, platforms modified their apps to collect riders' health data in real time and monitor workers' movements ever more closely, including how they interact with suppliers, pack food and seal boxes, and sanitize their uniforms. The companies also invested in setting up "smart lockers" across major cities, which enabled contactless service: the rider can drop parcels for the customer to pick up in a precisely coordinated manner without any personal encounter, saving time and reducing the risk of infection.

Such mobility infrastructure can also be used for data collection and behavioral monitoring for broader purposes. This makes platform companies potential partners of the government in restricting mobility and, more generally, in social control. Mobility platforms have been not only making more money, but also gaining more power.

Leveraging their access to larger numbers of customers, delivery service platforms gained commanding heights in the market. Before the

pandemic, many food companies and restaurants resented the high fees charged by the platforms, but during the lockdowns they depended on these delivery services to survive. A survey in China reported in April 2020 by iiMedia found that 70 percent of restaurants planned to increase their spending on third-party delivery services after the pandemic.

There is tension between the increasingly powerful mobility business and the established system of governance in China. In sharp contrast to what happened in 2020 in Wuhan, when the government called on delivery and taxi companies to provide special mobility services after public transport was suspended, the Shanghai government did not allow major delivery companies to operate during that city's lockdown in the spring of 2022. Jingdong (JD), a leading logistics and delivery company with 417 million users as of 2020 and annual revenue of $149 billion in 2021, could not function in Shanghai, despite repeated pleas, because the company was not listed as a specially permitted service provider. Acute shortages of delivery capacity created chaos and frustration among locked-down residents.

It is unclear why the Shanghai government blocked JD. But there is widespread suspicion that officials, especially at the central government level, are worried that major platform companies, including those in the mobility business, may have gained too much power to affect public order. Didi, a leading mobility service provider that is China's equivalent to Uber, had its apps removed from app stores and its new sign-up function disabled by the government in 2021 due to security and privacy concerns. The government at the same time imposed financial penalties on other major platform companies, most notably Alibaba and Tencent, and subjected them to much stricter regulations than before.

REDISTRIBUTING RESPONSIBILITIES

It is not sustainable to divide the population into a small group that specializes in movement and a majority that stays put. The entire population has to resume mobility sooner or later. As early as February 2020, the Chinese central government urged employers and local governments to bring the country's 170 million rural-urban migrants, the majority of whom had gone home

Mobility restriction measures may have long-term impacts on social life.

for the Chinese New Year in January and were subsequently confined in the countryside, back to work.

How did the government allow mobility to resume during the pandemic without increasing the infection risks? It tracked each individual's mobility as closely as possible by taking mobility apart, and then assigning the responsibility for monitoring the various elements to different actors. Local residents' committees were responsible for reviewing individuals' applications to leave their homes and for issuing permits; employers were obliged to provide quarantine facilities on employees' arrival. These different parties were then connected to each other via digital apps. Mobility was dissected, redistributed, and reassembled.

The redistribution of responsibility was first tried out in 2020 by tasking the local government in the place of origin and the employer in the destination to organize cross-regional labor mobility. This was done on a "point-to-point" basis: migrants were transported directly from home to the workplace in groups, led by designated personnel, on designated vehicles, following designated routes, to the designated enterprise. Each bus was to be no more than half full to allow for social distancing, and the last two rows were reserved as an isolation area in case any passengers developed a fever. Each migrant had to go through health checks before departure, and have their temperature checked throughout the journey. All the migrants' information, compiled and updated by the designated organizer along the journey, had to be handed over to the employer on arrival.

This method was widely adopted again following the 2021 Chinese New Year in order to resume mobility after the holiday in an orderly and safe manner. More than 5 million migrants were transported point to point on 200,000 chartered coaches and 367 chartered trains between mid-February and the end of March 2021.

A more elaborate system was soon developed. Responsibilities were distributed much more widely, including among local governments, residents' committees, employers, commercial intermediaries, and landlords. Labor agencies that place migrants in temporary jobs and landlords who rent housing to migrants were obliged to

make quarantine arrangements for them and monitor their travel histories and health conditions. Landlords and labor agencies were also obliged to help migrants if needed. Those that failed to do so could be delicensed. Migrant workers' short-term contractual relations with landlords and labor agencies were turned into social relations of control and assistance.

The following case, provided by Chaoguo Xing, a sociologist at Beijing Technological University, offers an example of how an individual moved in a thick web of distributed responsibility. Ms. Ye, a 51-year-old native of Hubei province, had worked as a domestic helper in Beijing for two decades, with a specialty in caring for newborns. She returned to Hubei during the Chinese New Year in 2020, just before the outbreak of COVID-19 was officially acknowledged. Starting in late February 2020, Ye repeatedly contacted her landlord in Beijing, asking whether she could return to look for jobs. The landlord advised against it until mid-April 2020, when Beijing allowed Hubei residents to enter the city.

The landlord reported Ye's plan to return to his residents' committee. A committee staff member inspected the premises and was satisfied that it met the quarantine requirements. The staffer called Ye to double-check her details, orally approved her rental contract and travel plan, and told her that she must follow the instructions of the Beijing Heart to Heart app throughout her journey.

Beijing Heart to Heart, free to download to smartphones, was developed by the Beijing municipal government with technological support from the Chinese tech giant Tencent during the pandemic. After registering on the app, Ye followed the instructions and filled in her expected date of arrival, her address in Beijing, and her current health condition. For the next 14 days, Ye had to report her body temperature and whether she had any COVID-like symptoms on the app. She then received a green health code—indicating that she was allowed to leave home—as well as a reminder that, since Hubei was listed as a high-risk place, she had to submit a PCR test result via the app before she could receive final approval.

All the information submitted to the app was reviewed by the Beijing Center for Disease Control and Prevention (CDC). Apparently satisfied with Ye's data, the CDC issued an approval and notified the street office (the lowest level of urban government) in the neighborhood where Ye would stay that it should list her as an "approved visitor." Only after this was she able to buy train tickets, which she did through the same app. The ticket information was automatically transferred to the landlord and the residents' committee. A committee staff member immediately phoned her to confirm her travel plans.

On Ye's arrival at the Beijing railway station, a station official checked her information on the app before she was allowed to proceed. Following the landlord's instruction, she took a taxi to the residential compound to minimize social contact. The landlord met her at the gate, where the community's epidemiology staff reviewed her information again. After that, Ye was taken to her room and started the 14-day quarantine. The residents' committee staff checked her daily activities, and after 14 days they issued her a certificate for the completion of quarantine. Ye was finally allowed to start working.

But not everyone was as lucky as Ye. Sometimes one's health code suddenly turned from green to yellow—for instance, if one unwittingly walked past an infected person. A yellow code meant that one had to stop in the middle of one's journey and immediately go to quarantine.

Mobility was dissected, redistributed, and reassembled.

In other instances, staff at bus or train stations turned passengers away because the regulations regarding who was allowed to enter had been tightened in the previous hour. Stranded citizens became temporarily homeless. Barred from leaving the city or checking into hotels, they had to move between parks and sleep in railway stations, public toilets, telephone booths, or cars. Such homeless populations had not been seen in Chinese cities for decades.

The redistribution of responsibility could create stress for citizens in other ways as well. The responsible parties might abuse their newly acquired power, or impose excessive control out of fear that they would be punished by the government for negligence. By assuming the function of social control, labor agencies and landlords strengthened their positions in relation to migrants. It became harder for migrants to find jobs without labor agencies, because the migrants needed the agencies' help with negotiating travel and quarantine requirements. As a result, agencies'

fees for migrant domestic helpers in Beijing went up significantly in 2020 and 2021. Similarly, since migrants needed landlords' permission for travel and their help with quarantine arrangements, they had no leverage in negotiating rents.

Local governments, meanwhile, were worried about being accused of negligence in pandemic control. Each level of government tended to introduce new restrictive measures in addition to what had already been imposed by the higher levels. If a municipal government decided that a 5-day quarantine was sufficient for certain cases, the district administration might extend it to 7 days or more. An employer in the district might require all employees to live on the premises of the enterprise, forbidding them from going home—in some cases for weeks. This inconsistency in policies and the excessive constraints ultimately disrupted citizens' lives much more severely than the virus itself, especially in 2022.

THE HUMAN DISPLACED?

Mobility restriction in China during the pandemic has proved to be highly effective. The measures worked well partly because the government redistributed different types of mobility, as well as different aspects of mobility, to different populations and agencies. By doing so, the government was able to manipulate mobility behavior to an unprecedented extent. But this came with high costs.

The organized redistribution of mobility was carried out in a top-down, authoritarian manner, empowered by the latest communication technologies. For ordinary citizens, the processes were complex, opaque, and often absurd. Citizens did not understand what was happening to them, and could not predict how they would live their lives the next day. Yet residents' efforts to organize themselves for basic purposes such as securing food supplies were discouraged and even prohibited. This was particularly evident in Shanghai between March and June 2022, when the city's 26 million residents were put under a draconian lockdown. Popular discontent reached a level unseen in China since 1989.

The situation in China remains fluid as the state continues to apply its strict "zero-COVID" policies despite the evident economic and social costs. Will the government reinforce its control even further by refining the methods of behavioral manipulation? If the state perfects the technology, improves coordination across agencies, and bridges gaps between different provinces that manage data seperately, it can be even more ruthless in making decisions without public consultation.

Or will the disgruntlement displayed by Shanghai residents trigger popular demands for greater public participation in policymaking? Citizens may refuse to be controlled and cared for by multiple delegated agents of the state, and demand the right to make decisions about their daily lives and take full responsibility for their actions as autonomous persons.

These questions could shape China's political future in decades to come, but they are not specific to China. Governments all over the world are actively adopting big data, algorithms, and tracing technologies, and outsourcing social control to private parties. These measures are attractive to states because they are efficient and can be easily shielded from public scrutiny. But they reduce persons to carriers of behaviors that are traced, disassembled, and reconnected to meet policy goals.

You may consider yourself a rights-bearing individual, but you are broken down into fragments. At one moment you are a customer purchasing mobility services from an online platform, at another moment an applicant waiting for permission to move, at yet another moment a client who is served—and monitored and controlled—by a commercial intermediary. Your fragmented needs may be satisfied promptly, but as a human with opinions and feelings you no longer matter. Your right to survival is protected, but your right to know is compromised. Your capabilities are augmented when you order food, buy clothes, check in for a flight, or monitor your health conditions online, but they are disabled when you try to assess reality and make decisions for yourself.

How can the human be defended as a social and political subject with the basic right to move, and not merely be protected as a form of biological life? This is a question that the post-COVID world has to face. ∎