

Cities at the epicentre of the COVID-19 pandemic: Density matters

Urban density is an important consideration in the coronavirus pandemic, but knee-jerk reactions by the government, companies and citizens are damaging. The solution is not to reduce density, but to manage it in ways that minimise the risks of viral transmission – because density also has major benefits for human wellbeing and economic prosperity. Doing more to engage and empower citizens, communities and cities would improve the government's response to the pandemic. By *Ivan Turok*

Illustration of the density of urban areas, showing the concentration of people in small spaces. Photo: Shutterstock

The coronavirus pandemic has revealed more starkly than any scientific research both the vulnerability of cities to disasters and their economic significance. The disease has spread with devastating speed and severity through human contact in globally connected megacities like New York, London, Milan, Madrid and Paris. South Africa's epicentres — Johannesburg, Cape Town, Pretoria and Durban — are also relatively dense and open to international travel and trade.

Many observers have been quick to blame urban density for the speed of the spread, especially given evidence of high infection rates in townships and informal settlements. This has fuelled government actions to 'de-densify' certain places and evict households invading urban land. Concerns about crowded commercial precincts have prompted large companies to reconsider the need for centralised offices and disperse staff to smaller suburban nodes, or to allow indefinite working from home.

There is a danger that ill-conceived ideas take hold and unthinking reactions to dense urban living and working get entrenched. There are many uncertainties about the virus and why its impact has been so uneven across different regions and groups. Holding density responsible ignores other environmental factors and underlying human conditions, including poverty, vulnerability and inadequate access to basic infrastructure and health care.

Benefits of density

Focusing on the negative aspects of urban density neglects its many benefits. Clustering people in metropolitan centres is the oxygen that fuels economic success and enriches human lives. Density improves labour market matching, raises productivity and lowers the cost of public services. On the work front, face-to-face contact is energising and fosters learning and creativity. Despite the fanfare around the digital revolution, lockdowns have shown how quickly economies come to a standstill when everyday human interaction is halted and the oxygen of contact is sucked out of the system.

The density of buildings is quite different from the density of people. An area's population density varies widely if measured at the scale of the plot, the block, the neighbourhood or the city. Surprisingly little attention has been given to the appropriate geographic scale of analysis and response to the virus because almost everything — decision making, regulations, communication and research — has converged at the national level. The limitations of this centralised approach have become apparent.

Human encounters

The micro scale of human encounter is central to transmission, so the settings in which people interact matter more than density at other scales. The amount of internal living space occupied by households is a different matter from the space between people on the street or in other public places. Both differ from the density of people within workplaces, schools, shops or public transport. The virus can spread by airborne transmission of tiny particles and not just droplets falling onto surfaces. This heightens the risk in crowded, closed and poorly ventilated settings such as hospitals, open-plan offices, churches, nightclubs and restaurants.

Densities in different places and at varying scales are not completely separate because of some common factors. Low-income groups live in smaller dwellings and travel on more congested transport networks. They attend schools, which are more crowded, face longer queues at clinics, and have less personal space at work. They also live in denser neighbourhoods with narrower streets, and fewer parks and open spaces. The poorest communities have higher prevalences of diabetes and HIV and lack access to clean water and sanitation, providing fertile grounds for infection. The pandemic has exposed the country's inequalities and injustices starkly.

There is also interdependence between homes, workplaces, shops and transport systems because people have to travel and will carry the virus with them if infected.

Official efforts to understand the disease have neglected two important geographical units or entities: the neighbourhood (where most people live their daily lives) and the local labour market (covering the city's commuting zone or travel-to-work area). These functional areas encompass the most intense flows of people and are vital to the way the pandemic evolves, yet have received little attention in terms of dedicated analysis or targeted response.

There is no information to monitor disease spread and no authority to make decisions at these levels. Data have been provided at provincial level, but provinces cover administrative territories that generally don't correspond to daily population movements. So they don't help to track the dynamics of the disease. This must make it harder to anticipate hospital requirements, test communities strategically and encourage vulnerable groups to quarantine. If the basic units of analysis are inappropriate, modelling the pandemic will prove difficult and the uneven burden on local health facilities hard to predict.

Human behaviour also influences the rate of transmission and can flatten the curve. Because the virus is so efficient at spreading, it really matters whether people are careful and avoid crowded spaces, wash their hands, practise social distancing and wear masks. There has been insufficient education and engagement through trusted local networks and other channels within communities to encourage people to cooperate with the rules and act responsibly, even when it is inconvenient.

The government's response

The initial response was unprecedented, with one of the earliest and most stringent national lockdowns in the world. Widespread fear and scientific advice lent credibility to indiscriminate actions to curtail personal freedoms and halt economic activity. The aim was to give the health service time to prepare for the approaching storm. Other countries introduced a more precise and targeted approach, with

high-risk activities and localities subject to stricter measures than safer activities and places.

After more than two months of economic duress and hardship, and with growing doubts about the arbitrary and irrational nature of many of the regulations, the blunt controls were lifted and most parts of the economy were allowed to open up. The paternalistic, even authoritarian, approach was replaced overnight by a light touch, essentially leaving people and firms to fend for themselves. Material assistance for poor communities and struggling businesses was slow to emerge, leading to growing discontent and disillusionment.

A need for balance

Widespread disregard for the rules has accelerated the pandemic and intensified the storm. As the peak approaches, a response more finely honed between blanket restrictions and laissez-faire would arguably have been better at safeguarding lives and livelihoods. It is not too late for more effort to be made to engage the collective agency of citizens, civil society and local authorities in order to strengthen trust, improve traction within communities and encourage socially responsible behaviour. Mobilising local institutions would also help with the task of recovery.

Looking ahead, consideration of the local scale is vital to improve understanding of the pandemic dynamics and to adjust essential rules and conditions as it progresses. It is also important for coordinating the responses of government entities, employers, transport operators and community-based organisations, given their shared interest in keeping workers, commuters and consumers safe. Building stronger partnerships at neighbourhood and city levels is a priority for the period ahead.

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