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Viewpoint

Urban mobility after COVID-19: a developing-country perspective

The coronavirus disease (COVID-19) has had a major impact on our living conditions, and health concerns as well as imposed requirements have altered urban mobility and travel behaviour in significant ways. While there is reason to expect some improvement, there is also a common understanding that the prevailing cautions regarding hygiene and personal safe space may continue to shape our lives, with possible long-lasting consequences.

This Viewpoint focuses particularly on the issues of urban mobility and accessibility in developing countries. While the conditions mentioned above affect all cities worldwide, there are some particularly acute issues in the cities of developing countries, which require awareness, caution and quick action by local authorities.

Mobility and travel behaviour differ from country to country and city to city, and hence one needs to be careful in making generalisations about urban and transport issues for all developing countries; however, it would not be misleading to suggest that a majority of such cities are characterised by relatively lower automobile ownership and use; higher usage of, and dependency on, public transport; the presence of (sometimes informal) paratransit modes to meet the high mobility demand that regular public transport cannot accommodate; higher percentage of walking trips; in certain localities, higher percentage of bicycle and motorbike use; poor management of traffic; premature congestion conditions in spite of lower levels of car use; consequent pollution problems; severe traffic safety issues; and problematic distributional effects of transport developments resulting in the exclusion and marginalisation of certain vulnerable groups (see, for example, Gwilliam (2003), Dimitriou and Gakenheimer (2011), and for a more recent review Pojani and Stead (2017)). In addition, car ownership and use are on the increase in most developing-country cities, bringing with them rapid spatial growth, often in the form of low-density sprawl, coexisting with the traditionally higher-density urban fabric.

In the days of the COVID-19 outbreak, public transport has proved to be the most vulnerable transport mode. Crowded vehicles, stations and stops are to be avoided to keep personal safe space and distance. This is the case currently for cities throughout the world, and it may continue to be so for some time. In response to this concern for safe distancing, change in travel behaviour is likely to favour personal transport modes, including both motorised and non-motorised.

For non-motorised modes of transport, this could mean more walking and biking. The move towards these modes in current times is not only due to their personalised mobility character, but also because they are active modes of transport, presenting an opportunity for exercise in the face of health concerns associated with staying indoors (see, for example, the study by Rundle et al. (2020) on the pandemic's possible longer-term effect on children's health and obesity risks due to school closures). Being confined indoors, with long periods of no exercise, coupled with concerns regarding hygiene in gym centres (not to mention that they have been shut down in most countries), there is now an increased interest in these active modes of transport.

Walking is typically suitable for journeys that are shorter than 1.5 kilometres (Pritchard and Frøyen, 2019), corresponding to a 15-minute walk; however, due to the above-mentioned need for regular exercise as well as the perception that personal safe space can be controlled in the mode of walking, we are becoming more prepared now to take longer walks to reach our destinations. However, this is only true if uncrowded and safe walking paths are available. This can be an easier task in cities that have good-quality, continuous and barrier-free sidewalks; however, in many developing-country cities sidewalks are below-standard in terms of width and quality, with broken, damaged, littered pavements that are often blocked by parked cars. This requires intervention by local authorities, as an issue that was already existent, but is becoming more urgent.

With regard to bike usage, personal bikes are likely to be preferred over shared systems since the concerns for hygiene – i.e. concerns for the health of the previous user – are likely to affect all shared systems. Increased bike ownership and usage might be expected, and this too would require quick action by local authorities in cities that lack safe and continuous bike paths or lanes, which is the case in many developing-country cities.

However, neither walking nor biking can meet all mobility needs. There are certain citizens who cannot take long walks due to health reasons as well as age; similarly, certain citizens may not be able to use bikes due to familiarity, age, etc. Therefore, relying on non-motorised transport to solve most mobility needs would result in deteriorated accessibility conditions for some vulnerable groups, and hence their exclusion. In addition, for long journeys – longer than ten kilometres by bike, for example – and for trips that require the carrying of some parcels, bags, etc., non-motorised modes cannot be viable options and hence motorised alternatives need to be considered.

Regarding motorised transport, the COVID-19 crisis is very likely to motivate the purchase and increased use of personal vehicles worldwide. Motorbikes are one option, and their increased usage has implications for traffic safety, including especially safe pedestrian access, as is already being witnessed in some developing-country cities,

for example in Vietnam (Huynh and Gomez-Ibanez, 2017). There has also been an increased interest in electric-scooter systems (before the pandemic), and these may continue to be favoured, although the shared nature of the system could be seen as a hygiene risk. It should be noted that there are already concerns worldwide regarding the traffic safety impacts of these e-scooters, and an increased uptake could exacerbate this problem.

In addition to motorbikes and scooters, those who did not use their cars for every journey may be expected to do so under current conditions, and this seems to have been the experience so far.

Baker et al. (2020) argue that public transport usage during the COVID-19 pandemic decreased not only because fewer people travelled, but also because they chose to use their cars.

In the developing-country context, this means a shift to cars not only from regular public transport systems but also from company and school services. The latter is a phenomenon in some developing-country cities, for example in Turkey, where government offices, large industry and technology companies, as well as schools and universities, operate free bus services between their location and a variety of neighbourhoods in the city during commuting hours. Concerns regarding the hygiene of these service vehicles, as well as concerns over keeping personal space, made users decide to use their own cars.

On the other hand, not everyone has the choice of using a car. In developing countries, there is still a high percentage of the population that is dependent on public transport, i.e. captive riders who do not own a car. For them, the current situation acts as a major motivation to purchase one. Consequently, a sharp increase in car ownership rates can be expected in developing countries, where these rates have generally remained lower. However, this is a debatable issue because of the link between car ownership and income. On the one hand, health concerns favour the ownership of a personal car and hence make households prioritise a car purchase, whereas they might have postponed it in the past. On the other hand, the COVID-19 outbreak has forced businesses to shut down, affecting the livelihoods of many people, who permanently or temporarily lost employment and regular income. Consequently, a car or motorbike purchase would not be an option for them, and hence such an increase in motorised vehicle ownership rates may not materialise immediately, but might be expected in the medium and long run.

The combination of the above issues, i.e. shortcomings inherent in non-motorised transport as well as their limited use by certain vulnerable groups, traffic safety risks associated with increased use of motorbikes and e-scooters, congestion effects in the case of increased car use, and limited opportunities in the short run for many to purchase their own private vehicles as an alternative to public transport, highlights the urgency of addressing vulnerabilities and risks associated with public transport,

with a view to continuing its effective operation as a viable option for mobility in developing-country cities.

One set of obvious actions by governments is to ensure hygiene and reduce the number of passengers per vehicle. These steps are already being taken in many cities, as well as being proposed in policy documents, such as a recent one by the European Commission (2020). The consequence of reduced passenger density, however, is that the vehicles are being used under capacity, decreasing the financial performance of the systems and resulting in higher operating costs per passenger.

This is the case for both city-run public transport systems and privately operated paratransit systems. Subsidies will be required if an acceptable level of service is to be provided. However, in most developing-country cities, local authority funds are limited, and increasing financial support for already subsidised public transport systems may be a severe challenge.

Considering this challenge, another possible area of action is the uptake of demand-responsive public transport services. These flexible services could help meet some of the demand for public transport; however, such systems are now increasingly being developed with digital technologies for booking, tracking and payment, and hence may again result in the exclusion of certain citizens, including, but not limited to, the elderly, who may not be familiar with using digital technologies (Groth, 2019). Digital divides may exist in our cities for a variety of reasons, ranging from peoples' personal choice to such factors as income and education, as well as age.

With these possible changes in travel behaviour and mobility, how are our cities and urban life likely to be affected?

Increased ownership and usage of motorised vehicles in the medium and long run can further boost the already present trend of urban sprawl in developing-country cities, which have been traditionally more compact and higher-density due to their dependence on slower modes of transport. Sprawl may be fostered not only by mobility-related concerns but also by fears of future outbreaks that may once again require citizens to stay indoors – in which case, out-of-town residential areas with private gardens may once again become the dream, making inner city-life less favoured. Such a 'dream', however, would again not be attainable by all, but by those who can afford to do so, affordance here being related to the cost of the housing in question and access to private cars.

An exactly reverse trend could also be working in parallel. As long as the distances are reasonable, walking is being rediscovered as the mode that eliminates dependence on any mobility system, as well as providing health and exercise. It is possible that this could further support such planning ideas as compactness, intensification of development to reduce travel distances, and self-sufficient neighbourhoods with a mix of land uses that reduces demand for motorised transport. This could be a more

ideal outcome, although if this trend is coupled with travel behaviours that favour the use of cars over public transport, intensity and compactness may bring concentrated congestion and noise pollution, acting against a safe and healthy walking experience. Those who lose in that scenario would again be those who do not own a personal car.

As a final thought, I would like to underline the risk of imagining a future and guessing possible outcomes in the midst of a crisis for which the information we have is constantly changing. This Viewpoint, therefore, is a mere exercise of scenario development under uncertain conditions, which could change with every new experience and information, and hopefully, with new positive developments, could change for a better future. Nevertheless, this mere exercise proves one thing: there are those who are being very negatively affected in terms of accessibility by current and possible future conditions. Certain vulnerable groups, among them the elderly, the mobility-impaired, the low-income, and particularly anyone with limited access to cars in general, are likely to be exposed not only to health risks associated with COVID-19 but also to extremely reduced options for mobility and deteriorating conditions for accessibility. It should be noted that current conditions for the elderly are a completely different issue, considering requirements for them to stay indoors, but the above arguments address possible near-future scenarios with these bans being lifted, and even then severe difficulties are likely to be present for them.

Many of these discussions may not be specific to developing countries, but relevant to all cities worldwide. However, most of them present more acute problems for developing-country cities. A possible increase in walking, although a desirable and healthy outcome, comes with many problems of infrastructure quality, capacity, continuity and safety in developing-country cities. Traffic safety is already a very severe issue, and increased motorbike use as well as e-scooter use could have detrimental effects. A decrease in public transport service levels has severe consequences for captive riders, who constitute a significant percentage of passengers in developing-country cities. These consequences could include loss of jobs and livelihood as well as exclusion from urban life. Furthermore, deterioration of public transport can act as a motive for increased car ownership (at least in the medium and long run, as discussed above). In developing-country cities, relatively lower levels of car ownership present important opportunities not only for transport, but also for urban growth management. These are likely to become missed opportunities. More importantly, it is well known that this trend of increased ownership creates extensive use of cars in the city, which is generally quiet difficult to reverse, especially considering the already poor management of traffic and travel demand in developing-country cities, and hence further aggravating their problems of congestion, air pollution, noise pollution, traffic safety and traffic conditions that marginalise non-car-users, particularly pedestrians and cyclists.

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