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By Daniel Oviedo and Julio D. Dávila

Focus On

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The lack of clear separation with motorised vehicles creates hazards for pedestrians in Accra Newtown District, Ghana. Photo credit: Stephen Leonard Mensah.

Curbing private motorisation and reducing transport-related inequalities, while keeping car dependency low, is an urgent challenge faced by cities across the world. International evidence has shown that, as per capita income rises and urban population grows, so does private car use in cities (Teoh et al., 2020). Recent research involving DPU scholars finds that, despite unequal and exclusionary spatial development patterns and transport practices, most cities in sub-Saharan Africa are potentially able to redefine their urban trajectories so they become more inclusive and accessible (Cavoli, 2021; Oviedo et al., 2022). In contexts of increasing economic growth and the localised risks associated with climate change, concerns about rising levels of motorization, growing social and spatial inequalities, and high levels of air and noise pollution ought to be powerful incentives to drive forward an urgent transition to a more sustainable and equitable mobility.

Walking offers an appropriate lens to grasp the contradictions arising from the juncture in which many cities in middle and low-income countries find themselves. It is also at once both an opportunity and a challenge. In Sub-Saharan Africa, the opportunity arises from the fact that cities are, in practice, 'walking cities', as over 50% of all trips are completed on foot. The prevalence of walking has less to do with the urban 'flaneur' aimlessly wandering around the urban fabric, and more to do with the 'captive walker' who has no choice

but to walk to reach their destination. Walking is also a challenge, as poorly lit streets, uneven or non-existent pavements, careless driving and crime pose additional risks. And yet, perhaps because it is mainly the poor who walk, the predominance of walking as a mode of transport has rarely been a priority for politicians.

Earlier urban and transport plans, often dating back to colonial times, locked-in an automobility, technological primacy that today is politically and financially costly to shift. This is compounded by recent rapid processes of unplanned urbanisation marked by rising socioeconomic disparities and the dispersal of informal settlements lacking access to basic infrastructure and reliable transport, where most of the urban poor live (Oviedo and Nieto Combariza, 2021; Dávila, 2023). Conventional criteria for planning transport infrastructure and services underpinned by principles of utility maximisation, combined with the spatial concentration of wealth and power in a few privileged city districts, have contributed to self-reinforcing cycles of hyperconnectivity in city centres and business districts, while bypassing the more peripheral locations of low-income and informal neighbourhoods (Oviedo and Dávila, 2017).

Against a backdrop of secular imbalances in urban transport planning and practices, serious institutional and multi-disciplinary efforts are needed in the search for greater social justice and long-term urban sustainability. The realities and daily experiences of the 'informal majority' and those who are likely to be disadvantaged by virtue of their location in the city, their income, skills, gender, ethnicity or age should be incorporated into long-term plans and daily operations of public transport systems, traffic management schemes and urban design guidelines. A key principle underpinning a renewed approach to transport planning would be to strive for 'equality of opportunity', allowing each actor to decide what is more valuable for them in specific circumstances. This is distinct from the conventional 'equality of outcomes' approach, which assumes that certain activities (e.g. a salaried job, shopping) are intrinsically more valuable than others (e.g. visiting a sick relative, community work), an approach normally used to justify large transport infrastructure investments benefitting some sectors of the population, such as private car drivers or male salaried workers over, for example, pedestrians or women who predominantly work from home (Schwanen, 2022; Dávila & Amoako-Sakyi, 2022).

From mobility to accessibility: a shift in focus

The transition to new paradigms of urban mobility requires a more subtle and profound understanding of current behaviours, expectations, and the socially imposed limitations of a diverse population. Without leaving aside local and regional nuances, such behaviours can be framed in terms of accessibility in its four core, interrelated components: land-use structure; individual and collective characteristics; time; and transport and communications infrastructure and services (Oviedo et al., 2022). Accessibility can be defined as "the ease of reaching desired destinations given a number of available opportunities and intrinsic impedance to the resources used to travel from the origin to the destination" (Bocarejo and Oviedo, 2012, p. 143). However, it is important to differentiate accessibility from access. The latter refers to realising a potential through diverse means such as travel, home deliveries, or via digital means such as the Internet. Accessibility is considered 'sustainable' when it takes place within the ecological carrying capacity of supporting urban systems.

Despite unequal and exclusionary spatial development patterns and transport practices, most cities in sub-Saharan Africa are potentially able to redefine their urban trajectories so they become more inclusive and accessible.

Unlike formal public transport, workers can carry large parcels on 'bicitaxis', an informal mode of transport in Soledad, Colombia. Photo credit: Julio D. Dávila.

Innovations from the top and the bottom

Local authorities can help mitigate some of the more deleterious outcomes of rapid unplanned urbanisation through local policies guided by equity principles. One important step is to recognise the benefits of 'multi-modality', the diversity of means by which people travel in the city, from walking to high-speed trains. Instead of one-size-fits all solutions, diverse transport modes can suit a wide range of urban features, socio-economic realities, population densities, locations and topography. To be effective in helping reduce inequalities, transport systems must be adapted to local conditions, as the case of Medellin's Metrocables has amply shown (Dávila, 2021). Medellín (Colombia's second largest city) boasts five aerial cable-car lines in peripheral neighbourhoods that started life as informal settlements. All are integrated with the mass transit system through various public transport modes such as the overground, the bus rapid transit system (BRT) and its feeder routes, and a tramway. In densely and haphazardly built areas, the small footprint of aerial cable-cars avoids the large land expropriations and demolitions that would be needed to make space for a road or railway line. This not only saves time and money, but also leads to smaller carbon footprints. Preserving the existing urban form and avoiding evictions or relocations is key to helping safeguard the social fabric of the community.

Despite the visibility and prestige of metro systems, BRTs and aerial cable-cars, the state typically supplies a small share of public transport, especially in low-income countries. Much less glamorous, low-tech, 'informal' transport can account for up to about 90 per cent of transport supply in Sub-Saharan African cities and represents an important source of jobs. For example, an estimated 15,000-20,000 people run Nairobi's matatu (minibus) system, while Mumbai is served by 150,000 rickshaws. These services are essential for low- and middle-income users, as in the case of Dhaka where they offer close to eight million trips per day and are extensively used by women (Hasan & Dávila, 2018). And yet such services are often ignored, discouraged and even banned by local authorities, who often see them as a nuisance. Although they can be polluting and occasionally unsafe, they offer greater accessibility, flexibility and adaptability for the diverse needs and financial realities of their users than most formal transport systems. Outright bans might be popular with some middle-class voters but can be very harmful not only to their users but to the thousands of families for whom this is a main source of income.

Our research in the UCL-Osaka University Walking Cities Lab (WCL, 2022) points at the ingenuity and adaptability of communities across informal neighbourhoods in Sub-Saharan African cities in adapting to unwalkable environments. The community of Moyiba in Freetown, Sierra Leone, have created facilities

for accessibility such as bridges, pathways and staircases that can be three or four times the length of officially recorded formal infrastructure. Similarly, the communities address issues of security and safety through interventions that reduce the risks associated with drainages, blockages and other hazards linked with the walkable environments, and also those linked with fear of crime and insecurity, through co-produced infrastructure and self-organisation.

Accessibility and digital connectivity

In many parts of the world the restrictions arising from the Covid-19 pandemic drastically reduced our ability to interact face-to-face with others. It showed that regular contact with others is central to human wellbeing, as well as to the welfare and prosperity of cities and urban regions. It also suggested that connectivity should not be understood merely as a physical process involving the movement of people over space. It can also involve interactions mediated by a telephone or an electronic device such as a smartphone or personal computer. Today, digital interactions are good substitutes for physical ones and indeed can often be rewarding, saving energy, time, money, and carbon emissions. Apart from enabling direct person-to-person or business-to-business communication, they can significantly contribute to making information, education and health services, political representation, and commercial

transactions faster and more targeted for a much larger proportion of the population than older technologies. By making these available to individuals, businesses and organisations that would otherwise find physical travel inconvenient, expensive or time consuming, digital connectivity can significantly contribute to reduce inequalities.

The concept of accessibility mentioned earlier can help measure the extent to which people are able to access a range of opportunities. As discussed in recent DPU work (Dávila and Amoako-Sakyi, 2022), the success of a digital technology can be gauged in terms of how effective it is in securing such opportunities. However, as with transport, insofar as there are differences in the way people gain access to, and effectively make use of, digital technologies, not all policy decisions are likely to benefit everyone equally. During the government-imposed pandemic lockdowns, digital technology made it possible for only a relatively small proportion of the labour force to continue working almost uninterruptedly, while a vast number of manual workers and children of families with no access to the internet were completely cut off from income-earning and education opportunities. Despite their rapidly increasing availability and undoubted attractiveness for most people, however, digital technologies have the potential to exclude some members of society by virtue of their lack of skills, financial resources or inadequate basic underlying infrastructure.

'Bicicarros' are an important mode of transport for low-income residents in the municipality of Soledad, Colombia. Photo credit: Julio D. Dávila.

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On the way to school: New challenges, priorities, and methods

The DPU was recently awarded funding (administered by the UK's Medical Research Council) for a three-year implementation research project examining active mobility among secondary-school adolescents, aged 11 to 16 years. This seeks to measure the extent to which young people find walking and cycling to school acceptable, while measuring their effect on promoting healthier lifestyles and improving mental wellbeing. Led by Daniel Oviedo as principal investigator, with Julio D. Dávila as one of the co-investigators, the project will adopt a life course approach to implementation research underpinned by principles of diversity, inclusive stakeholder participation, and health equity.

The project involves researchers based in four countries and focuses on two contrasting case studies, Maputo in Mozambique and Bogotá in Colombia, to shed light on the complexities and opportunities of the implementation, adaptation, and scalability of active mobility interventions, and the applicability of such interventions in different social, cultural, economic, and governance contexts. It will, firstly, evaluate two recent novel interventions

designed and run by Bogotá's city authority in low-income areas: Al Colegio en Bici (promoting cycling to school) and Ciempiés Caminos Seguros (promoting walking to school). Secondly, drawing on innovative citizen science methods, the team will assess the impact of cycling and walking interventions on physical activity and mental wellbeing outcomes.

Thirdly, we will implement a similar active mobility intervention among adolescents in low-income communities in Maputo where, although a large share of children and adolescents walk to school, there are no explicit policies or programmes to support such practices. Fourthly, building on a range of research and implementation partnerships, the project will seek to establish equitable collaborations across sectors for capacity building and facilitating an international dialogue and knowledge exchange around implementation research, policy adaptation and effectiveness, and the reduction of non-communicable disease risks through the promotion of physical activity and mental wellbeing through active mobility interventions.

Why focus on secondary-school adolescents?

Research shows that adolescence is a critical period of psychological, biological, and social development marked by adjustment and skill acquisition; a period when young people develop independent relationships, adopt habits, and assume responsibilities (Christie and Viner, 2005; Erikson, 1968; Patel et al., 2007). A sense of identity and autonomy are key mental health aspects that flourish during this life period (Erikson, 1968). Adolescence is also a critical point for the diagnosis and mitigation of non-communicable disease risk factors such as cardiovascular risk, as well as mental health difficulties and disorders (Burns, Durkin and Nicholas, 2009).

Evidence shows that adolescents who are physically active have higher levels of self-esteem and lower levels of anxiety and depression. Various bio-psychosocial influences contribute to this relationship, including changes to brain function, opportunities for social interaction, and development of competence and self-efficacy. Similarly, active mobility among adolescents contributes to higher levels of physical activity and better cardiovascular fitness. Although less substantial, some studies shed light on the way this influences adolescents' cognitive development and psychological health through playing a role in increased emotional self-confidence, and the development of independence and emotional bonds with their environment.

Evidence also shows that physical activity rates decline through adolescence. As such, interventions that promote healthy lifestyle practices and mental wellbeing at this important life stage can be critical for public health. This has become especially acute in the aftermath of the COVID-19 pandemic, where the effects on health and mental wellbeing are only beginning to be understood (Loades et al., 2020; Rider et al., 2021).

Why a transdisciplinary and intersectional approach to health equity?

Physical activity and mental wellbeing are at the centre of global development agendas, embodied in, for example, the UN Sustainable Development Goals (SDGs). As a core developmental aim and a global public health concern, reducing the burden of non-communicable diseases requires approaches from disciplines beyond the medical sciences. We believe that, within the right multi-disciplinary framework, social science and built environment professionals like us can make a substantial contribution to public health aims.

In contemporary cities, the type of structural factors highlighted above, such as income disparities, inadequate infrastructure provision, and diverse social identities, influence health impacts across the life course (Bödeker, 2018; Lucumí et al., 2015). These factors also influence rates of active mobility among adolescents.

While lower-income children and adolescents tend to have higher rates of active mobility than their richer counterparts, they also face higher risks due to the absence of pedestrian access routes, smooth pavements, street crossings, and traffic control devices. Advancing a transdisciplinary understanding of health impacts and equity with a focus on critical life stages can help refine targets and improve delivery mechanisms for interventions.

This proposal builds on ample experience and a variety of insights that we have gained as DPU scholars over the past decade or so, from engaging with our students, involvement in research and consultancy, and from learning from our colleagues both in academia and outside of it. It draws on the strengths of a highly multi-disciplinary university like UCL, with a world-class track record of scholarship and collaboration in key subjects such as cities, medical sciences and public health. It also builds on the significant vantage point offered by our location in London, a highly cosmopolitan city which offers an unrivalled overview of all continents. And finally, it builds on DPU's long-standing commitment to social justice and environmental sustainability, not only in the research we do, but also in our post-graduate teaching programmes and our engagement with professionals, activists, scholars, and government officials on the ground.

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