

The social implications of COVID-19 on daily mobility in major cities in Africa. The case of Yaoundé and Douala (Cameroon)

Salifou Ndam^{1*}, Jérôme Chenal^{1,3}, Armel Kemajou¹, Abdou Kouomoun² and El Bachir Diop³

¹CEAT, ENAC, EPFL, Lausanne, Switzerland;

²University of Yaoundé 1, Yaoundé, Cameroon;

³Center of Urban Systems (CUS), Mohammed VI Polytechnic University (UM6P), Benguérir, Morocco.

Abstract. Mobility practices in Cameroon have changed considerably due to the rapid spread of COVID-19. Based on data collection in Yaoundé and Douala, the country's main cities, which combined 878 questionnaires, 11 interviews and direct observation, this research analysed the mobility practices of city dwellers in a crisis context. Its results reveal social coping mechanisms in the face of the fear of contracting COVID-19. The context was marked by a series of aggravating, structural and cultural factors that influenced the choice of modes of daily travel or the option to remain confined. Four types of modal habits were identified, each responding to individual modal logics during the pandemic: users sensitive to the cost of transport, phobic users, local or short-distance users and exclusive circumstantial motorists.

1. Introduction

When China discovered the first cases of the infectious viral disease known as coronavirus disease 2019 (COVID-19) in November 2019 in the city of Wuhan, many countries around the world were not concerned. Others thought they would be spared because of their geographical distance from China. Cameroon, for example, was far from imagining that it would respond immediately and violently. However, it experienced its first two cases of imported contamination on 6 March 2020. Despite numerous calls from Cameroonians and informed observers in the media for public decisions to be taken to limit the spread of this epidemic, which became a pandemic on 11 March 2020, it was not until 17 March 2020 that the government proposed a national response strategy through the Prime Minister. This strategy did nothing to curb the rapid spread of the disease, as official statistics show that the severity curve was exponential: for example, 142 cases of infection in total and 4 deaths on 30 March 2020, compared with 193 cases of infection in aggregate and 6 deaths on 31 March 2020. At this point, some people who had previously ignored or underestimated the disease began to realise its seriousness, given the speed at which it spread. As the disease spread across the country, it immediately became apparent that the main contamination centres were the major urban centres: Yaoundé, in the first instance, and Douala, in the second. The first observation is that popular attitudes in these cities underwent a slow but profound change disrupting social interactions. Daily movements and the relationship between individuals and public space required close observation, especially as living in society involves

constant mobility, whether on foot or by motorised transport. It very quickly became apparent that the spread and fear of COVID-19 were fuelled by the accumulation of a set of aggravating, structural and cultural factors that combined in the behaviour of individuals during their daily journeys, whether on foot or by vehicle (personal or public transport).

This observation prompted our curiosity about the 'new' ways of circulating and the social representations that ensued during the health crisis in major urban centres in Cameroon. From a methodological point of view, combining quantitative and qualitative surveys was vital to contextualise the facts. To this end, a quantitative survey arose from an ambition to obtain global data on the issue without distinction of site, and given the urgency and the practical need for in-depth analysis and rapid interpretation of the data in the short and long term, the online administration of the questionnaire was favoured.

2. Data collection and analysis

The data were collected for this research through several combined complementary methods. We began with direct observations. In its free version, we took note of people's mobility practices by comparing them with the situation before COVID-19, from February 2020. Therefore, it did not require a previously developed methodological tool, but it played a central role in formulating the research problem. In its structured version, i.e., methodical observation, we used a structured observation grid from March 2020 to analyse how the discourse and deaths linked to COVID-19 had

* Corresponding author: salifou.ndam@epfl.ch

led individuals to change their ways of getting around, as well as their practices and the differences in the ways they took account of the restrictive measures in force. Documentary research was then used to gather and select information on the spread of COVID-19. At the national level, we found that cities are the primary sources. Internationally, the hypothesis of cities as a vector for the rapid spread of epidemics/pandemic was also confirmed by the high human density [1-4]. With this in mind, we felt it necessary to collect empirical data on daily mobility in all Cameroonian cities.

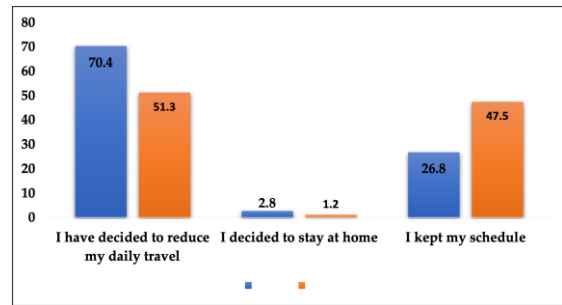
To this end, a questionnaire set up on Google Forms was circulated on WhatsApp and Facebook social networks on 2 April 2020. Aimed at people living in Cameroon during the crisis, it received 1,235 responses by 5 May 2020. The results showed that Yaoundé and Douala had 491 (39.76%) and 387 (31.34%) responses, respectively, with an average respondent age of 34. SPSS data processing enabled us to focus on Yaoundé and Douala. With around 46.8% of Cameroon's urban population, Yaoundé and Douala are the political and economic capitals, respectively, with almost 4 million inhabitants ([World population review](#), 2023). Finally, the interviews conducted using a service provided by Google meet, which enables data to be collected and organised free of charge, regardless of volume.

3. Results

3.1. Limiting commuting

Being able to move about as they please, without control or hindrance, is the only way for individuals to feel that they are alive, that there is hope and the possibility of serving as a driving force in the economy. And when the economy of a society, country or city largely depends on the informal sector, the high frequency of travel becomes synonymous with good social conditions. Restricting travel then becomes the expression of malaise, of a crisis in social structures. This is the case in Cameroon and its major cities, where COVID-19 has forced many people to limit travel. Behind what appears to be a denial of reality lies an apparent fearlessness on the part of individuals, revealed by the low levels of travel observed during and after the measures reducing the number of passengers on public transport. The figure below shows how people's movements were limited during COVID-19.

Graph 1. During (D) and after (A), the official measures to reduce the number of passengers on public transport.



Even though all individuals who limited their travel were aware of the spread of COVID-19, they had different levels of consideration and knowledge about how dangerous it is. This is at the root of the diversity of reasons for limiting daily travel. There were two main reasons. First, there was the fear of contamination by the pandemic, which resulted from awareness of the risks of contamination in the public space. People in this category represented around 40.7% of all those surveyed. They travelled to work and ran necessary errands or helped relatives (because they live in a highly communitarian society). In leading this circumstantial lifestyle, most considered themselves in "self-confinement" or "voluntary confinement". When using public transport or walking, they protected themselves by regularly wearing masks, even if these masks were of unconventional "consumer" models, and by avoiding other users as much as possible. This way of getting around requires conditioning the psychic apparatus, insofar as those who want to protect themselves "must demonstrate unflinching discipline, a highly differentiated self-regulation of their behaviour to make their way through the jostle..." [1]. In this sense, a pedestrian exclaimed: "Sorry, back off! At least look where you're walking! Let's protect ourselves alive. Corona kills, really kills!"

Others limited their travel, mainly because of the increase in public transport fares¹ and the financial insecurity caused by the slowdown in economic activity during the pandemic. The pandemic has had a lasting impact on the flow of foreign currency and other resources needed to maintain or improve the living conditions of economically vulnerable people. In addition, the ban on overcharging has led almost all public transport operators to tacitly revise their fares upwards, even though there has been no change in the standard service quality. As a result, some of those affected by this situation deliberately limited their travel to save the little money they have. They represent around 58.1% of all those surveyed. They experienced what is known as 'failure confinement' (due to the absence or significant reduction in necessary resources) or 'disgrace confinement' (due to the loss of customary favours and considerations). In practice, many people were less afraid of the pandemic and distinguished themselves when travelling by not wearing a mask or not complying with barrier measures (and above all, by not maintaining social distancing).

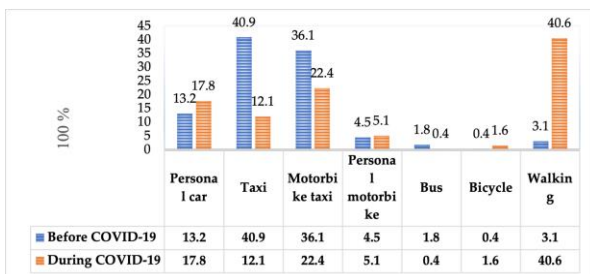
At the height of these restrictions on movement, the streets of Yaoundé and Douala were calm day and night

due to the absence of the usual atmosphere of incessant horns from vehicles vying for priority in traffic space and the reduction in verbal and physical violence between different users [6]. Less congested than usual, they gave the impression that every city is in a period of social dormancy. On the other hand, without exception, everyone has been fearful of the pandemic since it reached the community contamination phase. It has gone in the public's consciousness from being "a disease that doesn't kill black people" and "a disease of the elderly" to "a disease that kills everyone".

3.2 Significant changes in modal travel practices

During COVID-19, a major change took place in modal habits. While the pandemic's long-term implications can only be better appreciated from subsequent research, reconsidering modal choices makes it possible to account for mobility dynamics. To protect themselves when travelling, the population in question has defined the opportunities in time and space for each means of travel. To this end, there is a particular attraction to travel on foot, by motorbike, taxi and private car, because of these transport modes' abilities to limit risky physical contact. The figure below shows the differences in modal choices before and during COVID-19.

Graph 2. Means of locomotion before and during the COVID-19.



The differences between these modal choices are mainly based on the socio-professional status of the people surveyed and the "new budgets" allocated to transportation during the pandemic. For example, most people who travel on foot do not have their vehicles or have limited budgets. Then there are the taxi dropsⁱⁱ for people prepared to pay at least six times the "normal fare" for a conventional taxi. Then there are personal bicycles for people on average incomes, given that the cost of acquiring a second-hand model for a teenager/adult is twice the Interprofessional Guaranteed Minimum Wage (IGMW). Given the danger they expose themselves to on the road, those who use them are the object of admiration and curiosity [7]. Finally, busesⁱⁱⁱ are used by people who are potentially penniless, given the uncertainty about their availability and low cost (XAF 100 or 200), which seems justified by the promiscuity that reigns there and the many successive material breakdowns during passenger transport. Drawing on Vincent Kaufmann Champ's work [8], we

considered four types of modal habits, each corresponding to individual modal logic during the pandemic in Yaoundé and Douala.

The first type, known as "**cost-sensitive users**", is made up of people who base their modal logic on the low financial cost or the fact that it is free, in addition to the level of protection offered. These people are found in all social categories. Among the arguments used to group them are: "fewer contacts", "safety first" and "the cheapest". The need to travel is not prioritized over protection but is somewhat over the financial costs involved. If there is any hesitation, the preferred option is to walk until one decides or "wait and see" (a commonly used local expression).

The second type, known as "**phobic users**", is made up of people who are convinced that the Cameroonian medical system is failing and lack the financial resources (personal or from relatives) to seek treatment if they become infected with COVID-19, because it turns out that the cure for the illness, although officially free, is more expensive for the "networked" while being entirely paid for by the "nothing" (i.e., people with no social capital). Most of this group are young people, with an average age of around 33, and others with precarious socio-professional status (underemployed, unemployed, etc.). The idea of moving comes up against "the culture of death [8]" regularly relayed by the families of victims of the pandemic and on social networks (the primary source of information on the pandemic^{iv}). As a result, they travel little, preferring to walk, use their cars or take motorbike taxis (as a last resort).

The third type, known as "**local or short-distance users**", comprises people who mainly travel short distances, except for so-called imperative reasons (work and family needs). As a result, they favour so-called local activities, prioritising essential services (markets, pharmacies, etc.) located nearby. For example, a person living in Dakar-d'en-bas (Yaoundé) takes an average of 16 minutes to get to the Mvog-Mbi (Atangana Mballa) market, 1.3 km from their home via the Olezoa pharmacy (240 m away^v). Similarly, a woman living in Trois Boutiques-Deido (Douala) takes an average of 11 minutes to walk the 900 m from her home to the Sandaga market, or 15 minutes to get to the New-Déido market, 1.2 km away^{vi}. The money spent on public transport is considered "a waste" by these people, who now take "pleasure in doing sport by getting around on foot or by bike" [9]. Daily journeys are made based on a sectoral mapping of spatial proximity. Montulet showed that limited space is the structuring framework for mobility [10].

The last type, known as "**occasional exclusive motorists**", comprises people who do not necessarily own a car but have access to cars owned by their nearest and dearest to get around because of the crisis. The services provided are the result of an "increase" in solidarity between vehicle owners (cars and motorbikes), between vehicle owners and private

individuals who do not own a vehicle but who can drive the vehicle requested, and between vehicle owners and relatives who are not able to drive a vehicle. The solidarity in question is material insofar as it results from a desire for social protection for individuals who share the same interests and seek to protect each other. Its purpose is to consolidate social relationships or preserve interests within social categories. It can be identified in statements such as: "This thing is for a friend. It's to avoid the death that's lurking in taxis now", "I'm using this other vehicle belonging to a relative while I wait for the Corona to come", "could you take me shopping/drop me off at my place of work?" Nevertheless, socially disadvantaged renters know they are accumulating a social debt disguised as material assistance. Cameroonians who hold driving licences but do not own a vehicle justify their situation by saying, "It's better to have your licence first because you never know. [...] In difficult times, you can have access to a vehicle..." [11].

Then, the crisis led to a more significant increase in the personal car budget, particularly in fuel consumption and subsequent maintenance costs. Given the usefulness of the private car and the unfavourable social image of public transport, "the logic of anchoring motoring in lifestyles is stronger" [12]. A total of 78.9% of respondents who did not own at least one motorised vehicle (with four or two wheels) wanted or planned to acquire one shortly (months/years). For these people, the car allows them to get around daily in what Vincent Kaufmann calls "a private space that is totally under control" [12]. If these individual plans come to fruition, or if there is a rush toward car ownership, the immediate consequence will be an increase in daily traffic on existing dangerous roads. The government should take these facts seriously to limit future urban violence, which is already taking on disproportionate proportions between the various social players on the streets [13].

4. Conclusions and discussion

In conclusion, health is an element of urban intelligence. It enables us to gauge a city's resilience level and the human and technical resources in place. Regarding its capacity to expose society as it is, the street deserves to be seen as a social thermometer, a tool for measuring and assessing society's interactive and organisational atmosphere. Our observations show how COVID-19 has profoundly reconfigured the modes and modal logics of movement of individuals living in Yaoundé and Douala. They show how people dealt with this crisis, especially when forced to travel. They sought to adopt or maintain their usual way of getting around, or envisaged travel and social interaction after the problem. Initial findings from the field show that individuals face a thorny dilemma: protect themselves as much as possible by remaining confined to their homes or move in search of a means of subsistence in a context dominated by the informal economy, unemployment, underemployment and poverty. Despite the precarious social situation, daily movements represent a risk of contamination and

pandemic spread due to the lack of social control, social assistance and discipline.

Based on objective reality, moving around daily and 'exposing' oneself to biological death in this way is the sine qua non for avoiding social death for many individuals. There is a considerable gap between public policy choices based on the actual pandemic and those that take account of the prevailing social precariousness. Effective and sustainable control of COVID-19 in towns and cities, and Cameroonian society as a whole, depends on three essential and complementary factors: discipline, active collaboration and the sustainability of the economy. Discipline means that the public authorities must be prepared to issue rules appropriate to the emergency, to comply with these rules themselves and to be able to impose them on the population—even through the massive and constant use of law enforcement agencies—and to be aware of the real danger of the pandemic and concerned about its spread among the largely impoverished population. When public authorities cannot anticipate and coordinate, acting in a brazen and distant manner from the masses, they expose the people's health to the slightest illness. As for collaboration, this is the joint work of the public and public authorities. It becomes active when it goes beyond partisan divisions (ethnic, political, and identity-based) to focus on the objective reality of the nation. It can be effective and fruitful if the entities involved have confidence in each other; in other words, if the people give credit to the public authorities for their operational capacity to manage the crisis transparently and professionally, and if, in return, the public authorities devote their full attention to the people's requests. Finally, the sustainability of the economy depends on supporting the social costs of vulnerable households (water, electricity and nutrition, for example) and businesses affected by the crisis (rent, wage costs and investment, for example). Considering all of this, it can be argued that the spread of a pandemic, whether urban or not, puts society to the test, all the more so when movement is a prerequisite for the survival and development of individuals.

References

1. Keil, S.H.A. & C.C. & R. Quinze ans de recherches sur les villes et les pandémies. *Métropolitiques* **2020**.
2. Shava, E.; Vyas-Doorgapersad, S. Exploring the Unintended Consequences of COVID-19 Pandemic on Achieving Smart Cities in Africa. In *COVID-19 in the African Continent*; Osabuohien, E., Odularu, G., Ufua, D., Osabohien, R., Eds.; Emerald Publishing Limited, 2022; pp. 279–292 ISBN 978-1-80117-687-3.
3. Bwire, G.; Ario, A.R.; Eyu, P.; Ocom, F.; Wamala, J.F.; Kusi, K.A.; Ndeketa, L.; Jambo, K.C.; Wanyenze, R.K.; Talisuna, A.O. The COVID-19 Pandemic in the African Continent. *BMC Med.* **2022**, *20*, 167, doi:10.1186/s12916-022-02367-4.
4. Peltier, C. Peste, choléra, tuberculose... les épidémies ont modelé nos villes. *Le Monde.fr* 2020.
5. Chadoin, O. *La Ville Des Individus*; L'Harmattan:

Paris, 2004;

6. Ndam, S.; Abega, H.J. Understanding the City through Its Street Posters: The Meanings of Plural Urbanism in Yaounde. *Sociétés Plurielles* **2020**, *Varia*, 6231, doi:10.46298/societes-plurielles.2020.6231.

7. Ndam, S. Circuler et Stationner à Yaoundé : Parkings Publics et Régulation de La Mobilité Urbaine. In *Vivre en ville aujourd'hui. Métropolisation et changements sociaux au Cameroun*; Connaissances et savoirs: Saint-Denis, 2018; pp. 67–87.

8. Ela, J.-M. *L'Afrique, L'irruption Des Pauvres. Société Contre Ingérence, Pouvoir et Argent*; L'Harmattan: Paris, 1994;

9. Diba, S. Diplômée sans Emploi Résident à Douala. 2020.

10. Montulet, B. Au-delà de la mobilité : des formes de mobilités. *Cah. Int. Sociol.* **2005**, *118*, 137–159, doi:10.3917/cis.118.0137.

11. Eboko, M. Diplômé sans Emploi Résident à Yaoundé 2020.

12. Kaufmann, V. Pratiques modales des déplacements de personnes en milieu urbain : des rationalités d'usage à la cohérence de l'action publique. *Rev. D'Économie Régionale Urbaine* **2003**, février, 39–58, doi:10.3917/reru.031.0039.

13. Ndam, S. Mobilities and Urban Violence in Cameroon. Analysis of Forms of Sociability in the Streets of Yaoundé and Douala. PhD in urban sociology, University of Yaounde 1: Yaounde, 2020.

ⁱ Costs had doubled or even tripled during the implementation of measures to reduce the number of public transport passengers. For example, customers had to pay around XAF 600 (EUR 0.91) for the same distances that cost XAF 250 (EUR 0.38) before the health crisis. These costs are very high for a country where the official Interprofessional Guaranteed Minimum Wage is XAF 41,875 (EUR 63.84).

ⁱⁱ This is an à la carte service that allows passengers to have the taxi of their choice by paying a higher fare, by day or night from XAF 1,500 (EUR 2.29), to be transported to their destination without detours. This

is an element of social distinction, unlike the "pick-up" taxi system where several passengers share the same vehicle depending on the proximity of their respective destinations, paying the so-called standard fare: XAF 250 (EUR 0.38) or a little higher depending on the urgency.

ⁱⁱⁱ "SOCATUR in Douala and STECY in Yaoundé.

^{iv} That is 66.6% of those questioned.

^v Distance and time adjusted according to Google Maps data.

^{vi} Distance and time adjusted according to Google Maps data.