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Research Article

Motorized Two-Wheelers In The Construction Of The Margins Of The City Of Niamey (Niger)

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ABSTRACT

The process of urbanization in sub-Saharan cities has not been accompanied by a consistent supply of public transport. Against a backdrop of under-equipment of households with private cars, due in particular to low household incomes, small-scale public transport and motorized two-wheelers have emerged as an essential means of mobility for the poorest households. Motorized two-wheelers are used both individually and collectively. In the capital cities of the hinterland, they are used more as an individual means of transport than as a collective means of transport, in contrast to coastal cities such as Lomé and Cotonou, where the use of motorcycles as a collective means of transport has been highly developed for several decades. The aim of this article is to highlight the role of motorized two-wheelers in the mobility of households living on the bangs of the city of Niamey. Our study is based on the results of a household survey we carried out in 2023, and on data from the National Institute of Statistics (INS). We also carried out a count on a sample of 920 motorcycles to assess the proportion of unregistered motorcycles in circulation in the city. These data were analyzed using SPSS, Excel and Word. We hypothesize that motorized two-wheelers play an essential role in the mobility of households on the margins of the city of Niamey. Our study shows that the fleet of motorized two-wheelers grew at an average rate of +16.39% between 2008 and 2021, and that 52.83% of motorcycles in circulation in the city are unregistered. Motorcycles play a key role in the mobility of households living on the margins, accounting for 62.50% of individual means of transport.

Keywords: margins, city of Niamey, motorized two-wheelers, urban mobility, urbanization

Introduction

Regional dynamics are the result of a dual spatial and demographic movement. It is this dynamic that shapes cities and their expansion. African cities are facing extremely rapid demographic growth, which is fostering inequalities and leading to uncontrolled spatial expansion of urban areas beyond their institutional boundaries (World Bank. SSATP, Transnational, 2021). The cities of sub-Saharan Africa are recording demographic growth rates above the continental average. Indeed, the number of city-dwellers in this part of the continent is set to double over the next two decades, reaching around 870 million by 2040 (World Bank. SSATP, Transnational, 2021). This twofold growth has led to a major upheaval in population mobility. As a result, getting to work is a daily obstacle course (Ajay Kumar and Fanny Barrett, 2008). Against a backdrop of weak or even non-existent mass urban public transport provision, it's time to make do (Godard, 2002). Individual and small-scale means of transport are the main mobility solutions for people living in sub-Saharan cities. Among individual means of transport, motorized two-wheelers have become increasingly popular in recent years as a means of individual or collective urban transport (motorcycle cabs). The poverty of the population, combined with a very low-quality road infrastructure, has encouraged the development of motorized two-wheelers, which are gradually becoming an essential means of mobility in sub-Saharan cities. In the district of Bamako, 64% of vehicles on

the road are motorcycles (Sidibé, 2011); in Ho Chi Minh City, considered the scooter capital of the world, 83% of households own at least one motorcycle (Huê-Tâm, 2022). These motorized two-wheelers have developed mainly as motorcycle cabs in coastal towns and secondary Sahelian cities. Sahelian capitals such as Bamako, Ouagadougou and Niamey are still resisting the emergence of motorcycle cabs. In Niamey, despite a ban since the 2010s (Yayé & Motcho, 2020), motorcycle cabs are developing in certain outlying districts with very uneven terrain (Aéroport, Pays-bas) and low population density (Tchangarey). This is a marginal phenomenon, forbidden by municipal authorities, but one that is gaining ground given the low incomes of users. In Sahelian capitals such as Bamako and Ouagadougou, motorcycles are mainly used as individual means of transport. With an official fleet of 136,206 machines in 2021, motorcycles have left their mark on the capital's landscape. These machines, which numbered 19,625 in 2008, have undergone a meteoric rise. In thirteen years, their number has multiplied by a factor of 7.

Against this backdrop of explosive growth in the number of motorcycles, the city of Niamey expanded considerably, particularly between 2003 and 2023. Its spatial footprint, which was 11,100 ha in 2003, increased to 15,500 ha in 2014, reaching 33,100 ha in 2023 (Ilyassou, 2024). This spatial growth has taken place without the support of basic social and road infrastructures. Most of the roads are located in the central and pericentral areas of the city (Motcho, 2020). What is the link between this anarchic spatial dynamic and the explosion of motorized two-wheelers in Niamey? What role do these motorcycles play in the mobility of the population in outlying areas with poor road infrastructure?

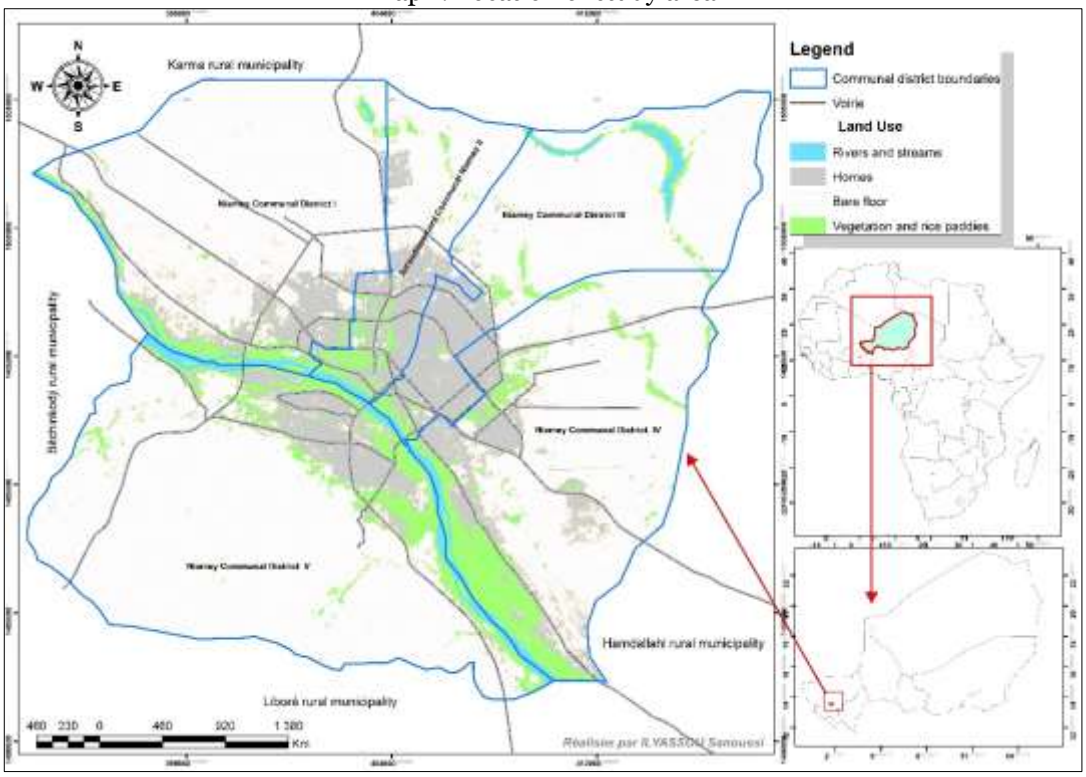
The aim of this article is to highlight the role of motorized two-wheelers in the construction of the margins of the city of Niamey and their importance in the mobility of their inhabitants.

We hypothesize that motorized two-wheelers play an essential role in the mobility of the population of Niamey's outlying districts.

- Presentation of the study area: Niamey, a city straddling the river

The city of Niamey lies between 13°28' and 13°35' north latitude and 2°03' and 2°10' east longitude. It straddles the River Niger. Its largest part is located on the left bank of the river, on a plateau with an average altitude of 220 m, overlooking the alluvial plain on the right bank, at an altitude of between 180 and 250 m (Motcho, 2020). The left bank plateau encompasses four of the city's five communal districts (AC). It is characterized by a relatively flat topography, ideal for human settlement. The right bank of the river, comprising the Niamey V communal district alone, has also seen renewed interest since the construction of the Kennedy Bridge in 1970 and the completion of the second and third bridges in 2010 and 2021, respectively.

Map 1: Location of study area



I. Materials and methods

The present study is the result of a statistical analysis of data from the National Institute of Statistics (INS), field observations and primary data collected through a household survey conducted as part of our thesis. This survey focused on the mobility habits of 400 households living on the outskirts of the city of Niamey. It is also

based on a demo-spatial analysis of the city of Niamey to situate these margins and analyze the city's degree of sprawl. Quantitative analyses are carried out using SPSS and Excel software, and Word for word processing. Spatial analysis was carried out using Raster data from the USGS site and ArcGIS software. The aim of this spatial analysis was to characterize and delimit the margins.
In this study, the terms "motorized two-wheelers" and "motorcycles" will be used interchangeably. The terms "automobile", "car" and "four-wheeled motorized vehicle" will also be used interchangeably.

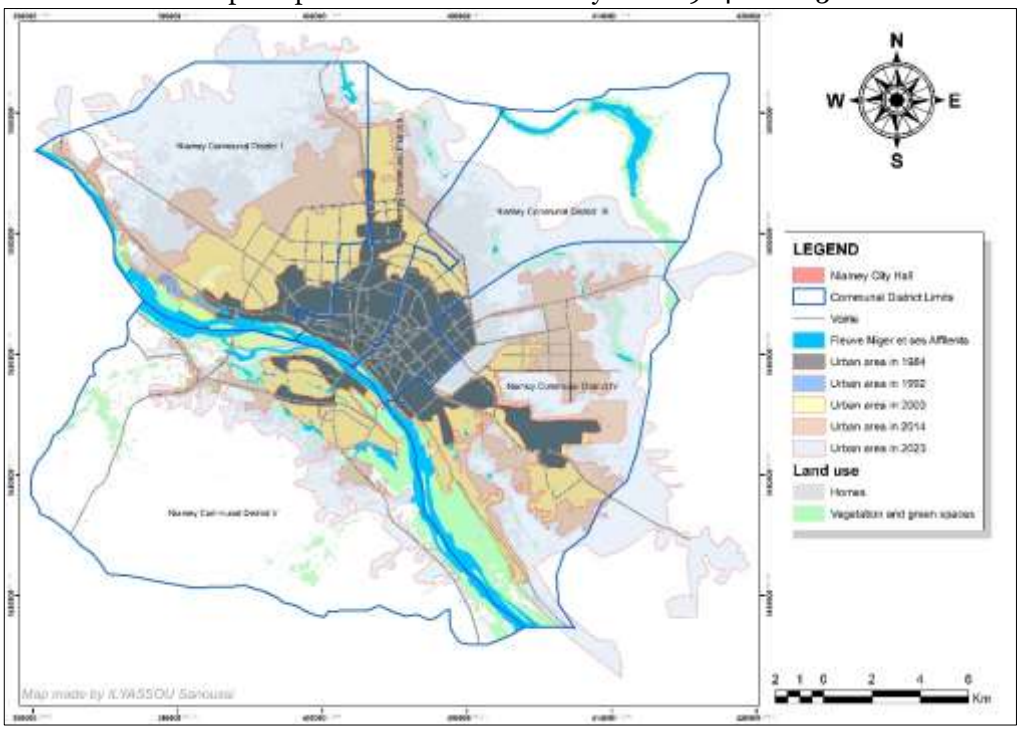
II. Results

The analysis of the share of motorized two-wheelers in the construction of Niamey's margins presents a variety of results, ranging from the evolution of their fleet to the place they occupy as a means of household transport. These elements are directly linked to the demo-spatial dynamics of the city of Niamey.

2.1. Demo-spatial dynamics

The city of Niamey is experiencing extremely strong demo-spatial growth. This double growth is the essence of the construction of the city's margins. From the 2000s onwards, a very strong spatial expansion began to emerge. In 2003, the city's spatial footprint was 11,100 ha, rising to 15,500 ha in 2014, an increase of 50%. Between 2014 and 2023, this spatial footprint will double to 33,100 ha. From 1984 to 2023, the city of Niamey grew at a staggering rate of 728.46 ha/year (ILYASSOU 2023). This extraordinary spatial growth is due to a number of factors, including demographic growth and, above all, land speculation, which has become the rule since the liberalization of the subdivision sector through Decree N°97-306/PRN/MI/I of August 08, 1997, setting out the conditions for establishing, approving and enforcing subdivision plans, created the loophole that enabled extraordinary land overproduction and subsequent land speculation (ILYASSOU, 2024).

Map 2: Spatial evolution of Niamey from 1984 to 2023



At the same time, its population is growing at an equally rapid pace. From 709,869 hbts at the time of the 2001 general population and housing census (RGP/H), it reached 1,026,848 hbts at the time of the 2012 RGP/H. The National Institute of Statistics (INS) estimates that the population will reach 1,449,801 in 2023, an increase of 41.19% in 11 years. Much of this demographic dynamic is absorbed by the city's margins, at a rate of 38,450 souls per year. These peri-urban areas are also fed by the gentrification of the city center (Abdoulaye, 2012). This gentrification is helping to reinforce the construction of the city's margins.

Table 1: Demographic trends by RGP/H municipal district from 2012 to 2023

Year	ACNI	ACNII	ACNIII	ACNIV	ACNV	TOTAL
2012	210 020	246 898	163 175	274 484	132 271	1 026 848
2021	279 371	328 427	217 058	365 122	175 949	1 365 927
2023	296 526	348 594	230 386	387 542	186 753	1 449 801
Number of households 2023	49 421	58 099	38 398	64 590	31 126	241 634
Number of households 2021	46 562	54 738	36 176	60 854	29 325	227 655

Source: Projections for 2021 and 2023 by Communal Arrondissements based on 2012 RGP/H.

2.2 Niamey's car and motorcycle fleets and motorization rates

Statistics are available for the period 2008-2021. During this thirteen (13) year period, the Niamey region's car fleet has grown considerably. Four-wheelers and motorized two-wheelers have experienced very strong growth. The vehicle fleet (four-wheeled motorized vehicles) rose from 78,559 in 2008 to 284,932 in 2021, a 3.63-fold increase. The number of motorized two-wheelers has increased from 19,625 in 2008 to 136,206 in 2021, i.e. by a factor of almost 7, almost twice as high as the number of motorized four-wheelers. This strong growth means that two-wheeled motorized vehicles play a central role in the mobility of Niamey's population. Table 1 shows the evolution of the car and motorcycle fleet from 2008 to 2021.

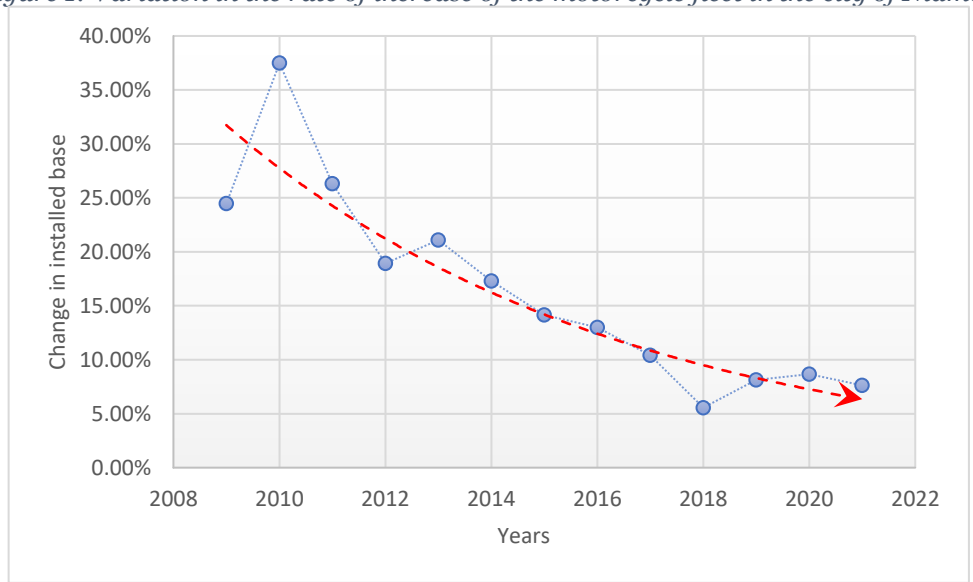
Table 1: Change in the number of motorized two- and four-wheelers in Niamey from 2008 to 2021

Year	Motorized 2-wheeler fleet		4-wheel motorized cars	
	Workforce	% change	Workforce	% change
2008	19 625		78 559	12,30
2009	24 430	24,48	87 265	11,08
2010	33 587	37,48	101 414	16,21
2011	42 428	26,32	117 962	16,32
2012	50 453	18,91	133 985	13,58
2013	61 094	21,09	147 328	9,96
2014	71 652	17,28	168 641	14,47
2015	81 783	14,14	186 148	10,38
2016	92 422	13,01	201 826	8,42
2017	102 047	10,41	219 676	8,84
2018	107 723	5,56	229 719	4,57
2019	116 477	8,13	243 182	5,86
2020	126 563	8,66	261 737	7,63
2021	136 206	7,62	284 932	8,86
Average rate		**16,39**		**10,61**

Source: Ministry of Transport

The year 2010 marks the greatest variation in motorcycle registrations with 37.48%, while the lowest variation is recorded in 2018 with just 5.56%. For four-wheelers, the peak is reached in 2011 with a variation of 16.32%, while the lowest level is recorded in 2018 with 4.57%, the same year as for motorcycles.
Although the trend for both fleets is strictly upward, there are wide variations and an overall downward trend in the rate of change. Figures N°1 and N°2 show the overall trends in fleet variations. Figure N°1 confirms the peak in motorized two-wheeler fleet variation in 2010. From that year onwards, the variation plummets, reaching a slight peak in 2013 with a variation rate of 21.09%, before falling back to its lowest level in 2018. From this year onwards, the variation has been rising slightly. The overall trend is downwards from 2008 to 2021, as shown by the exponential trend curve.

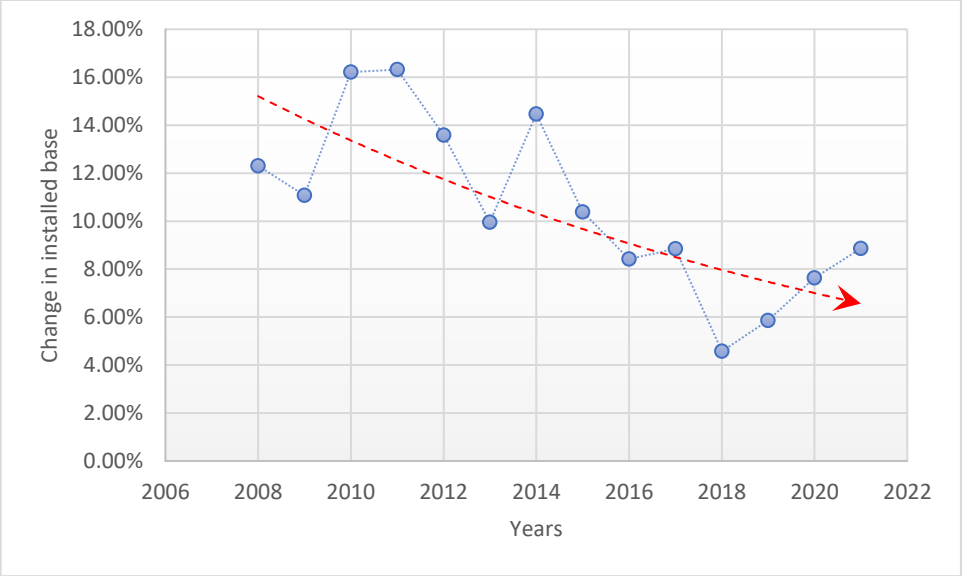
Figure 1: Variation in the rate of increase of the motorcycle fleet in the city of Niamey



Source: Ministry of Transport

The rate of change in the car fleet also shows very marked variations from 2008 to 2021, with periods of sharp falls and an overall downward trend, as shown in figure N°2. Variations are more pronounced for the motorcycle fleet, with two major peaks in the 2010-2011 period and in 2014, with 2014 recording the lowest variation.

Figure 2: Variation in the rate of increase in the number of vehicles in Niamey



Source: Ministry of Transport

2.3. A highly undervalued motorcycle fleet?

The low level of road controls and their availability make motorized two-wheelers widely available in Niger in general, and in Niamey in particular. These facts encourage the clandestine use of motorcycles without going through the registration process. In order to make an approximate assessment of the actual number of motorcycles in circulation in Niamey, we carried out a roadside count of motorcycles in circulation in the city of Niamey, after participant observation on three main arterial roads in the city of Niamey during the morning rush hour. A sample of 920 motorcycles was counted. The count took place during the morning rush hour (7:30am-8:30am) on three of the city's main arterial roads. Analysis of the data revealed that only 47.17% of motorcycles were registered, i.e. less than half. Extrapolating from this, the actual number of motorcycles circulating in Niamey can be estimated at 288,756 in 2021. Extrapolating from previous years, we obtain Table 2 below:

Table 2: Registered motorcycles versus actual fleet

Year	Registered motorcycles	Actual fleet (extrapolation)	Difference
2008	19 625	41 605	21 980
2009	24 430	51 791	27 361
2010	33 587	71 204	37 617
2011	42 428	89 947	47 519
2012	50 453	106 960	56 507
2013	61 094	129 519	68 425
2014	71 652	151 902	80 250
2015	81 783	173 379	91 596
2016	92 422	195 934	103 512
2017	102 047	216 339	114 292
2018	107 723	228 372	120 649
2019	116 477	246 930	130 453
2020	126 563	268 312	141 749
2021	136 206	288 756	152 550

Source: Ministry of Transport and our extrapolation

This extrapolation gives us a better idea of the role of motorized two-wheelers in the mobility of the population of Niamey. On this basis, there will be more motorcycles on the road in Niamey than cars in 2021.

- Population and household motorization rates

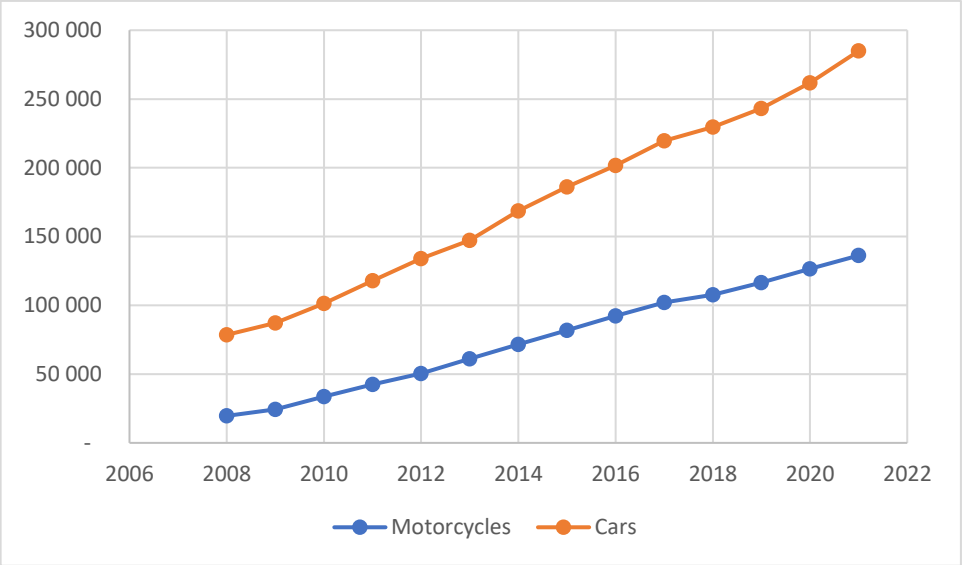
In 2021, the population of the city of Niamey is estimated by the INS at 1,365,927 hbts, or 227,655 households of 6 people. With a fleet of 284,932 cars and 136,206 motorcycles, there will be 421,138 cars + motorcycles. The motorization rate is therefore 30.83%. If we take into account the actual number of motorcycles counted

on the road (288,756), we have a fleet of cars + motorcycles of 573,688, giving a motorization rate of 42%. The average household motorcycle ownership rate will be 127.84%.

2.4. Cross-analysis of motorcycle and car fleets in Niamey

The variation curves shown in figures N°1 and N°2 show an overall downward trend in the rate of increase in the motorcycle and car fleets from 2008 to 2021. Despite this drop in variations, the absolute value of the fleets is growing strictly, as shown in figure N°3 below. Car fleets remain higher than motorcycle fleets.

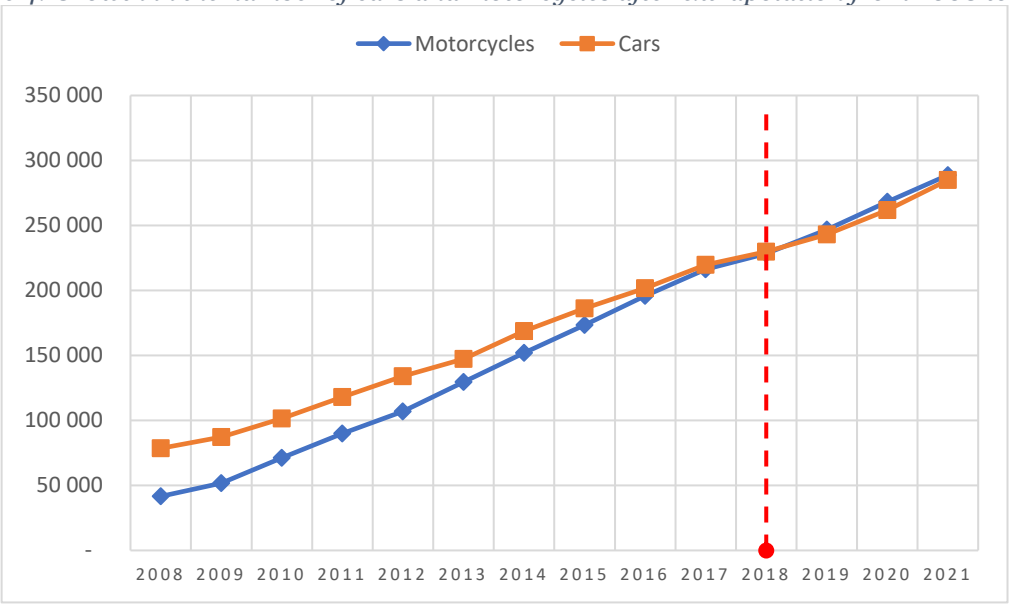
Figure 3: Change in motorcycle and car fleets from 2008 to 2021



Source: Ministry of Transport

After updating the motorcycle fleet on the basis of road counts carried out, it emerged that the number of motorcycles on the road in Niamey caught up with and exceeded that of cars in 2018, with around 220,000 motorcycles on the road at that time.

Figure 4: Growth in the number of cars and motorcycles after extrapolation from 2008 to 2021



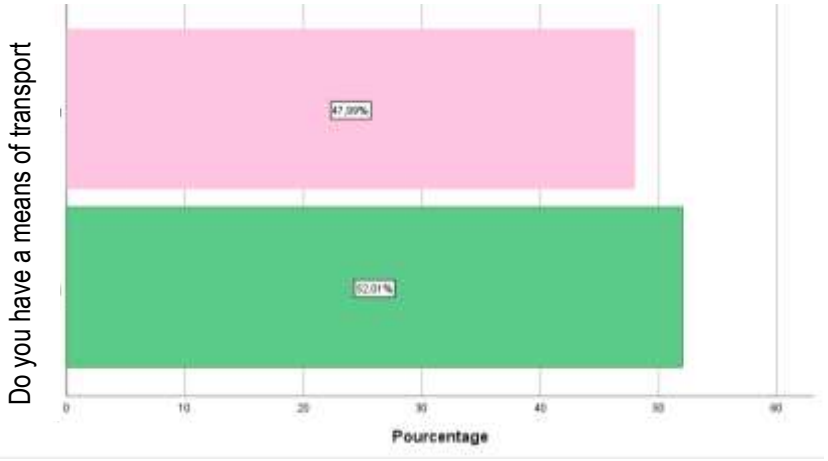
This figure (No. 4) shows the now central importance of motorized two-wheelers in the mobility of the population of the city of Niamey, which reached their climax in 2018 by surpassing cars.

2.5. Individual means of transport in the mobility of the population of the city of Niamey

In 2002, institutional transport accounted for 7% of urban transport supply in Niamey and individual modes for 59% (Godard, 2002). Since then, the institutional offer has dwindled considerably. Indeed, the Société des Transport Urbain de Niamey (SOTRUNI) is no longer in top form. Its buses are barely visible in the city's fabric.

In 2024, it has just five buses in circulation (Land Transport Department, Ministry of Equipment and Transport). Individual and small-scale modes of transport have naturally become more widespread. Cars and motorcycles account for almost equal proportions of individual transport (see statistical analysis above). The household survey carried out in June 2023 in the city's outlying districts reveals a supply dominated by individual modes and small-scale transport. Most households (52.01%) have their own means of transport, as shown in figure N°5 below.

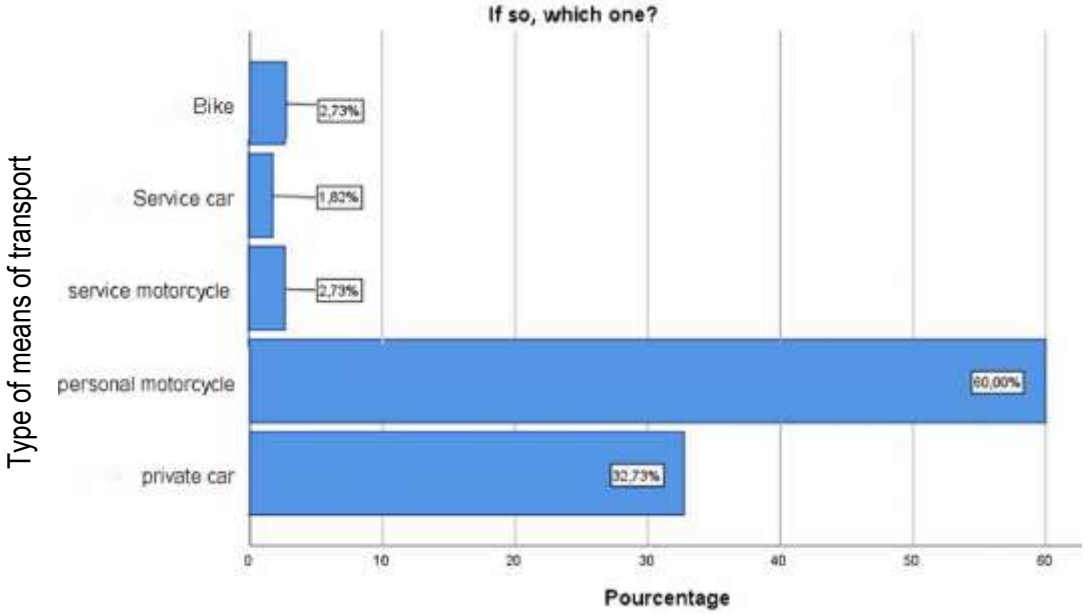
Figure 5: Breakdown of households according to whether or not they have their own means of transport



Source: 2023 household survey

These individual modes of transport are quite diverse, but can be grouped into three parts: cars, motorcycles and bicycles. In this breakdown, motorized two-wheelers account for 62.73% and represent the overwhelming majority, followed by cars with 34.55%. Bicycles are the least used mode, accounting for just 2.73%. Figure N°6 shows the proportion of each individual mode.

Figure 6: Type of transport used by head of household



Source: 2023 household survey

If we relate these percentages to the total population, including those using artisanal modes, we get the following breakdown, summarized in Table 2.

Table 3: Share of means of transport for all categories combined

Travel modes	**%**
Small-scale public transport (Taxi + Faba-Faba)	42%
Motorized 2-wheelers	**33%**
Cars	18%
Several combined modes	4%
Walking	2%

Bikes	1%
Total	**100%**

Source: 2023 household survey

Table N°3 shows that small-scale transport is the leading means of transport used, followed by motorized two-wheelers with 33% use. Bicycles are the means of transport least used by the population of Niamey's outlying districts, at 1%. Motorized two-wheelers are therefore undeniably the individual mode most used in the mobility of the population of the outskirts of the city of Niamey. Walking accounts for just 2% of all modes of transport. Soft modes (cycling and walking) account for just 3%.

2.6. Motorized two-wheelers and plot occupancy status in Niamey city margins

Motorized two-wheelers are the main individual means of transport used, accounting for 62.73% of all individual modes. Table 4 below shows the distribution of the proportion of individual means of transport used, by household tenure status.

Table 4: Use of motorized two-wheelers and plot occupancy status

		Mode of travel					**Total**
		Personal car	Personal motorcycle	Service motorcycle	Service car	Bike	
Housing tenure	Family House	29,7%	67,6%	1,4%		1,4%	**100,0%**
	Tenant	18,6%	71,4%	4,3%		5,7%	**100,0%**
	Access to property	55,2%	40,3%		4,5%		**100,0%**
	Free accommodation	12,5%	75,0%			12,5%	**100,0%**
Total		**33,3%**	**60,7%**	**1,8%**	**1,4%**	**2,7%**	**100,0%**

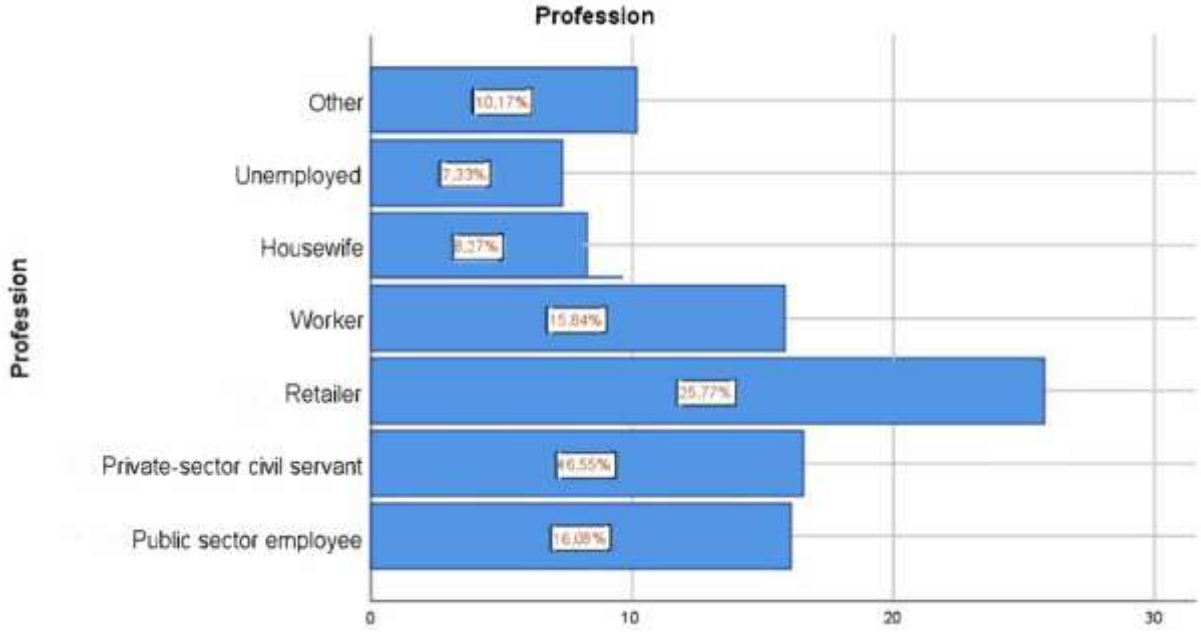
Source: 2023 household survey

Free lodgers and tenants use motorcycles more, with 75% and 71.40% respectively. Those living in their own homes use motorcycles less as an individual means of transport, with over 55% having a car.

2.6. Motorized two-wheelers and occupation of household heads

The household survey reveals a very heterogeneous population on the outskirts of Niamey. Civil servants from the public and private sectors account for 32.60% of the population, tradesmen for 25.77%, and manual workers for 15.84%, as shown in figure N°7.

Figure 7: Population distribution by occupation



Source: 2023 household survey

To understand whether there is a link between the occupation of the head of household and the individual means of travel he or she uses, we used a cross-tabulation to see the relationship between the two variables.

Table 5: Relationship between means of transport and occupation of head of household

		Mode of travel					Mode of travel
		Personal car	Personal car	Personal car	Personal car	Personal car	
Profession	Public sector employee	50,0%	44,6%		3,6%	1,8%	**100,0%**
	Private-sector civil servant	46,3%	44,4%	7,4%	1,9%		**100,0%**
	Retailer	26,4%	71,7%			1,9%	**100,0%**
	Worker	8,3%	87,5%			4,2%	**100,0%**
	Housekeeper		80,0%			20,0%	**100,0%**
	Unemployed	8,3%	83,3%			8,3%	**100,0%**
	Other	20,0%	73,3%			6,7%	**100,0%**
Total		**33,3%**	**60,7%**	**1,8%**	**1,4%**	**2,7%**	**100,0%**

Source: 2023 household survey

Cross-tabulation table 5 shows a very high level of motorcycle use across all socio-professional strata. Housewives and blue-collar workers lead the way. Civil servants in the public and private sectors use fewer motorcycles, but with an average of 44.45%.
Summarizing tables N°4 and N°5, we can see that civil servants are the ones who live in their own homes the most and use motorcycles the least as an individual means of transport, while preferring cars. However, motorcycles remain the dominant means of transport used by all professional social classes on the outskirts of Niamey.

III. Discussion

Our article highlights four main findings. Firstly, in the wake of exponential demo-spatial growth, the number of motorized two-wheelers on the road has risen sharply, from 19,625 motorcycles in 2008 to 136,206 in 2021 - a sevenfold increase in thirteen years, with an average annual variation rate of 16.39%. The motorcycle fleet is highly underestimated, as more than half the motorcycles on the road are unregistered. The number of cars on the road will rise from 78,559 in 2008 to 284,932 in 2021, with an average annual variation rate of 10.61%. This is twice the growth rate of motorcycles over the same period. Secondly, our study shows that motorcycles are by far the most common means of individual transport used by households living on the outskirts of the city, with a rate of 62.73%. Motorcycles account for 33% of all modes of transport, both individual and collective. They come just after small-scale collective transport, which is used by around 42% of heads of household. Thirdly, we have established that there is a link between the type of means of transport used and the occupation of the head of household. The overwhelming majority of workers (87.50%) who have an individual means of transport use motorcycles. Civil servants in the public and private sectors have the lowest proportion of motorcycle use, with an average of 44.50%.
- A very strong demo-spatial dynamic
Niamey, like other sub-Saharan capital cities, is experiencing very strong demographic growth and dizzying spatial dynamics. At the time of the 1977 general population and housing census (RGP/H), Niamey's population numbered 242,973, rising to 709,869 in 2001 and 1,026,848 in 2012. In 2023, the INS estimated this population at 1,449,801 hbts. This strong demographic growth is due not only to natural population growth, but also to the rural exodus which, even if it has run out of steam, continues to breathe life into the city's demographic dynamic. One of the consequences of this demographic growth is the city's spatial expansion, which is reaching worrying proportions (Map N°2).
Between 2003 and 2023, the city's footprint tripled from 11,100 ha to 33,100 ha. The decade 2014-2023 saw a decisive boost, with the city's spatial footprint doubling from 15,500 ha to 33,100 ha (Ilyassou 2024). The liberalization of the subdivision sector in 1997, notably through law N°97-306/PRN/MI/I of August 08, 1997, setting the conditions for the establishment, approval and enforcement of subdivision plans, made possible the overproduction of land (Ilyassou, 2024,), the gentrification of certain central districts of the city (Adamou, 2012) and the support of small-scale public transport, which has made it possible for people living in the city's outlying districts to get around in a context of low household incomes and a lack of institutional public transport services (Ilyassou, 2024).
- Strong growth in the number of motorized two-wheelers in Niamey
The National Institute of Statistics (INS) reported a fleet of 19,625 motorcycles in 2008 for the city/region of Niamey (Table N°2). In 2020, it estimated the motorcycle fleet at 136,206, representing an average annual growth rate of 16.39%. According to the results of the count, 52.83% of motorcycles circulating in Niamey are unregistered. This means that the actual number of motorcycles on the road is estimated at 288,756. This result is in line with the work of Guézéré (2008), who shows that out of 96,445 motorcycles imported into Togo, only

35,866 have been registered, i.e. 37.21%. The slight difference can be explained by the fact that regulations on the import and circulation of motorcycles are more closely followed in Togo than in Niger. In the case of Niger, a very large proportion of the motorcycles - the number of which is difficult to quantify - come from Nigeria via an unofficial circuit. This strong growth in the number of two-wheelers is explained by the proliferation of very affordable motorcycles from China, which is flooding the market. These motorcycles pass through the official and unofficial channels of neighboring Nigeria. The high cost of customs and the registration process may account for the high proportion of unregistered motorcycles in Niamey. For Togo, growth in the motorized two-wheeler fleet was relatively stable between 2012 and 2018 (SITRASS, P.23), with an average of 47,000 motorcycles per year. In Burkina, on the other hand, there was a sharp increase of around +20% between 2008 and 2017, with a fivefold increase (SITRASS, P.17). For Mali, the rate of change in the motorcycle fleet is 7.13% at national level between 2017 and 2022. Burkina Faso remains the Sahelian country with the highest motorcycle fleet growth rate.

With this strong growth, motorized two-wheelers have become the individual means of transport par excellence in Niamey. Thus, 62.73% of heads of households who have their own means of transport use motorcycles (Tables N°4 and N°5). They represent 33% of all households (Tables N°4 and N°5). One-third of households in Niamey's outlying districts use motorcycles as a means of transport. The overall motorization rate of the population is around 42%. The ratio between the number of households and the actual number of motorcycles in circulation in Niamey gives a household motorcycle ownership rate of 127.84%. Added to this is the relatively low number of police officers in charge of traffic control in the city. Ho Chi Minh City, the scooter capital of the world, has 83% of households owning at least one motorcycle. This is a very high rate of motorcycle ownership compared with Niamey.

- Individual motorcycles, a means of transport for all social classes

For the people of Niamey, motorcycles have become a panacea for their mobility problems. In the margins, perhaps more than in the rest of the city, they are used by a third of the population (household survey, 2023). In addition, they represent 62.50% of individual means of transport for these inhabitants of the city's margins, including personal motorcycles (60.70%) and service motorcycles (1.80%) (Tables N°4 and N°5). This proportion is spread across all socio-professional classes. Workers lead the way with 87.50%, followed by the unemployed (83.30%) (Table N°5). Civil servants in the public and private sectors use fewer motorcycles, with an average of 44.50%, followed by shopkeepers (Table N°4). This can be explained by the fact that 59.70% of heads of household live in their own homes and have either a private car (55.20%) or a company car (4.50%) (Table N°5). This confirms the social idea that owning a car is a sign of upward social mobility. This proportion of use is a response to the absence of substantial institutional provision (Kumar, 2011).

Walking and cycling are very marginal in the mobility of heads of households in outlying districts, with 2% and 1% respectively. This can be explained by the fact that walking and cycling are highly efficient means of getting to the city center. The availability of relatively inexpensive small-scale public transport may explain this under-utilization, unlike in the city center, where walking is the dominant means of transport, accounting for two-thirds (Olvera et al, 1999).

Conclusion

The city of Niamey is at a turning point in its urbanization process. Its land area tripled between 2003 and 2023, and its population doubled over the same period. Since the 2000s, there has been a sharp increase in the number of motorized two-wheelers, from 19,625 in 2008 to 136,206 in 2021. Applying a correction to the count we carried out, the actual number of motorcycles circulating in the city is estimated at 288,756, slightly higher than the number of cars, which stands at 284,932 in 2021. From 2008 to 2021, the motorcycle fleet grew by an average of +16.39% per year. This strong growth is due to the fact that in Niamey, motorcycles have become a means of transport used by all the city's socio-professional strata, with a predominance of workers. Of the 52.01% of people living on the outskirts of the city who have their own means of transport, 60.70% use personal motorcycles as a means of transport.

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