

Spatial Logic of Food Consumers in a Peripheral District of Downtown Lubumbashi Case of the Kampemba District in the Democratic Republic of Congo

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Abstract: *In a context where most research in spatial economics and economic geography tends to consider that the spatial organization of the economy is essentially determined by the location of markets. This research contributes by demonstrating that, the spatial mobility of food consumers is influenced by the purchase price and the shelf-preservation quality of food products that differs from the city center to the periphery. Thus, the city center of Lubumbashi experiences consumer flows of various products in general, food products in particular, which is one of the consequences of a poor distribution of commercial areas in several districts of the different municipalities of the city. The more consumer flows grow in the cities of the Democratic Republic of Congo, the more they stimulate the development of "pirate markets". This article has shown that the choice of a place of supply is determined by the age of the consumer, the distance to be covered from the residence to the place of supply. But the price and quality of products remain key indicators, despite the problems related to time and transport costs to reach the places of supply.*

Keywords: mobility and spatial behaviour of consumers

1. Introduction

Nowadays, the analysis of the city as a functional reality and system of economic organization has become the constant concern of the research of geographers and planners. It is within this conceptual framework that the authors of this article have sought to analyze the spatial logic of food consumers in the city of Lubumbashi, finally to help understand how urban dwellers react to the constraints of urban life related to the supply of food products and to stimulate a better policy to improve the living environment. There are many variables that help explain this spatial logic: Age, consumer residence, choice and reason for the place of supply, etc.

The purpose of this article is not yet to quantify or correlate these various explanatory variables, but to present the raw results of a field survey carried out on this theme in order to draw the main directions that will have to be those of subsequent reasoning.

2. Methodological Considerations

The study is carried out in the city of Lubumbashi, a city located in the south-east of the Democratic Republic of Congo, in the province of Haut-Katanga at 27°29' south latitude and 11°41' east longitude. Population growth in the Democratic Republic of Congo is having an impact on the development of its cities. Since the economic boom in the space of greater Katanga the city of Lubumbashi is experiencing a strong urbanization. The economic activities that develop there attract capital and micro-entrepreneurs settle quite massively. This economic development also improves the standard of living of citizens by creating an emerging middle class. This population growth coupled with the rise of economic activities influences the spatial behavior of the inhabitants. Economic activities are an important indicator of the intensity of relations (PETIT P., 2003) and mobility in the city of Lubumbashi. These activities that are more concentrated in the city center. This would also justify the choice of the place of supply.

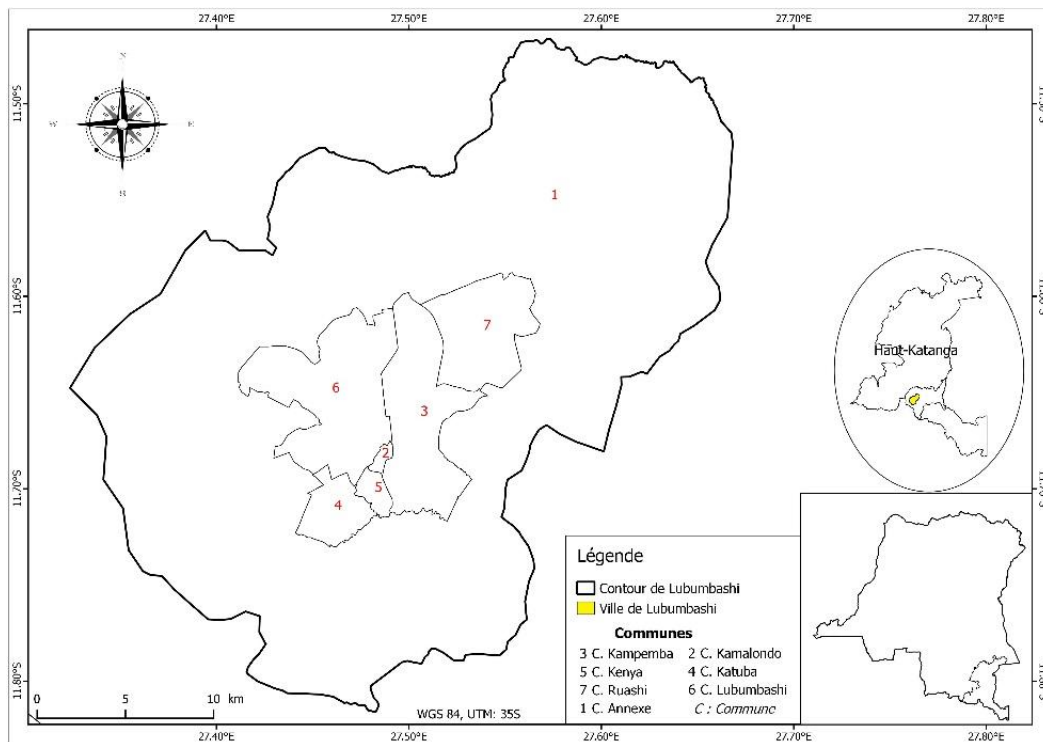


Figure 1: The city of Lubumbashi

This population growth mentioned above is manifested in the province of Haut-Katanga in general, the city of Lubumbashi in particular. It takes place in a context of increased poverty, where several challenges of spatial organization are to be met, and more particularly those related to the spatial distribution of public procurement. The latter make it possible to understand the question of the location of its activities and the spatial mobility of consumers. Although in Lubumbashi no such study has already been conducted, despite the high attendance of consumers of basic food products in the city center, it is striking to note that consumer motivations occupy only a very small place in the academic literature.

Indeed, this research was carried out in the commune of Kampemba located east of the city of Lubumbashi in the province of Haut-Katanga. It borders with the other municipalities of the city of Lubumbashi with the exception of that of Katuba. It is surrounded to the west from north to south by the communes of Lubumbashi, Kamolondo and Kenya from which it is separated by M'Siri and Lumumba Boulevards. It is bounded from the tunnel by the S.N.C.C. rails to the Camp Vangu barrier for the commune of Lubumbashi, by the Congo-Zambia railway for Kamalondo and Kenya. (Source Commune Kampemba)

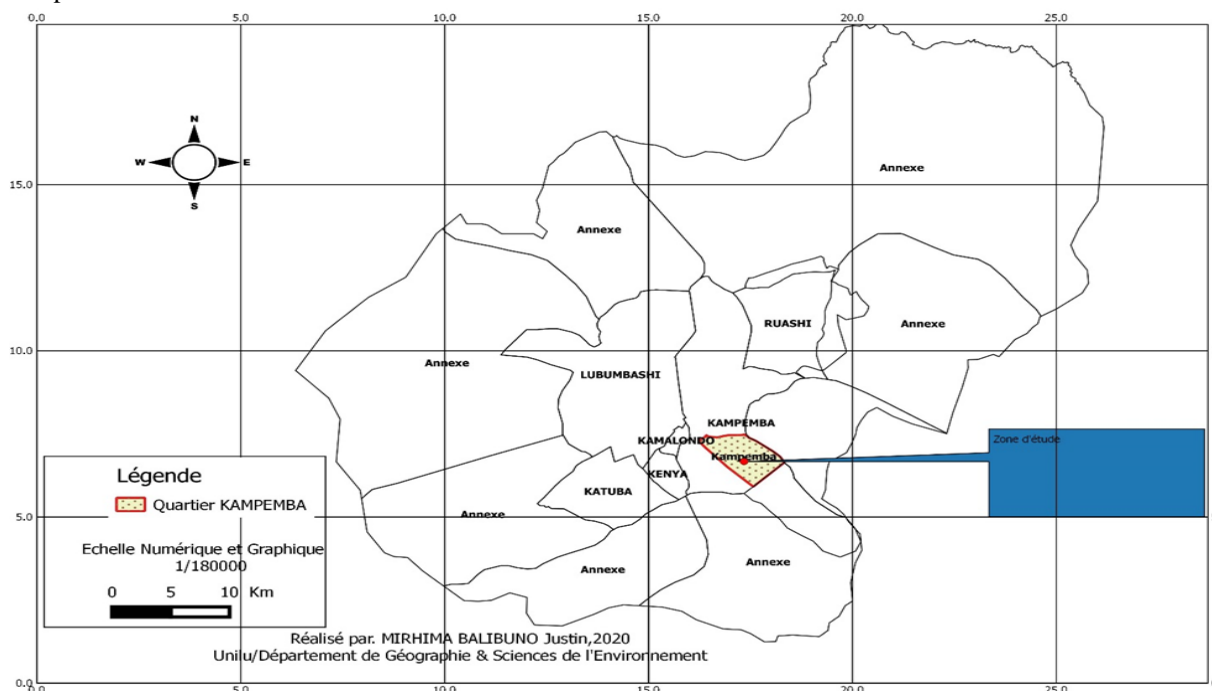


Figure 2: Study Area Location

The collection of geographical data relating to the supply areas in the city of Lubumbashi was done using several materials: a Garmin extrex GPS, aerial photos, satellite images, maps or existing plans. The processing of the geographical data of the observation points was done thanks to QGIS. The analytical method made it possible to systematically analyze all the data collected using the coefficient of location and specificity. This key coefficient in this analysis is intended to define the attributes dominant or specific to a supply area. This method makes it possible to check the category of the greatest relative importance and the most specific category.

It is used in this study because each consumer has their own motivations for sourcing from a commercial area of their choice (here and not there). Different sales locations are identified. In addition, this statistical method is useful in this study with a view to achieving the mapping of the results. Note that the study uses the Converse 3 software for converting geographical coordinates expressed in latitude / longitude into different geodetic systems or in X / Y in different projections to determine the study area. It is a second approach that is cartographic. It is of great importance. Indeed, mapping the most frequented commercial areas means including the spatial dimension and also understanding the interactions of the subject of study with a territory, an environment (CORNELIS B., et al., 1999).

Therefore, the location of the areas of supply and origin of consumers have a strategic stake. Therefore, the cartographic approach makes it possible on the one hand to materialize the space, to make perceptible the virtuality by giving it shape and contour, to situate the different interventions of each consumer of food products. On the other hand, this cartographic approach is considered as a privileged information and decision-making tool in the process of social negotiation about spatial planning (BOULKAIBET, 2011).

From the cartographic approach, the size of the flows will be determined. The basic principle of classifying consumer

flows in consumption areas follows five situations by referring to the size of the flows: very high concentration, high concentration, medium concentration, and low and very low concentration.

1) Analysis of the results of the survey

Spatial distribution of food markets and auction houses in a peripheral district of downtown Lubumbashi (Kampemba) When we look at the location of the outlets for basic food products in the Kampemba district, we find that there are two types: food and markets. It turns out that these points of sale are arranged colinearly following the look of Avenue Verviers.

From East to West, the power supplies are punctuated by two markets, that of Kampemba at the first turn and that of Chez Bubu at the second turn after Avenue Verviers (Kafubu Road) has met Circular Avenue. One fact is to be observed: in the fringes near or far of the avenues Verviers and Circulaire, there is an almost remarkable emptiness of the power supplies. As a result, customer flows are essentially directed to these two avenues that join.

2.1. Factors explaining the choice of places of supply of food products

Household financial availability, characteristics such as age, sex, physiological state, social position are all factors that influence market accessibility (Ngom, N. 2011). Our research is part of the logic of finding factors influencing the location of a place of purchase by a consumer. It determines the relatively homogeneous behaviour in relation to the use of local commerce, but also to that of large peripheral surfaces as well as the central commercial space.

a) Age and place of purchase

The places of sale of basic food products are not chosen in the same way by the respondents; older people frequent nearby places as shown in the graph (fig.4).

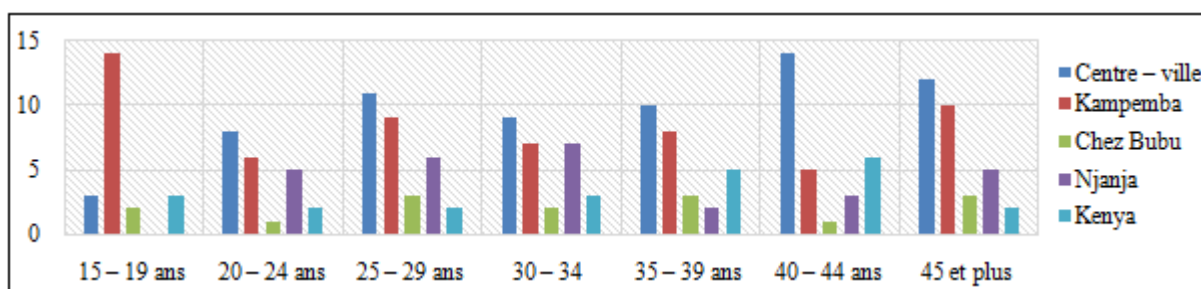


Figure 4: Age and place of purchase

Young people aged 15-19 are more confined to their cells and frequent much less the city center, Kenya, and especially Bubu. Those aged 20-24 extend their horizons and go to the city centre and Njanja. Respondents in the 30-45 age groups flock much more to the city centre and have an average attendance of their cell and Kenya market. The market at Bubu is under low demand. On the basis of the above, it must be argued that the older the age, the wider the horizon of attendance at places where basic foodstuffs are supplied.

b) The residence

The place of residence seems to be the real discriminating factor in purchasing mobility (Desse, R.P.2000). It determines relatively homogeneous behaviour in relation to the use of local commerce, but also to that of large peripheral surfaces as well as the central commercial space.

In the light of Figure 5 below, it should be noted that the markets in the city centre receive more consumers from the Tabacongo and Nyembo cells. Those of the Muteba, Solola,

and Kapya cells get much more from the Kampemba market. As for the Njanja and Kenya markets, they receive more users of Nyembo, Tabacongo and Muteba cells, unlike the bubu market, which is less solicited by the majority of respondents.

From this observation, we dare to say that the residence of consumers directly influences the place of supply. The place of residence of consumers would also have an influence on the supply area. There are two reasons for this close relationship.

- First of all, the proximity of the residence allows easy and fast accessibility to the products.
- Secondly, this proximity reduces transport difficulties.

It is therefore saving time and resources.

The solicitation or attendance of the markets is summarized by the importance of the flows as revealed in Figure 4 below.

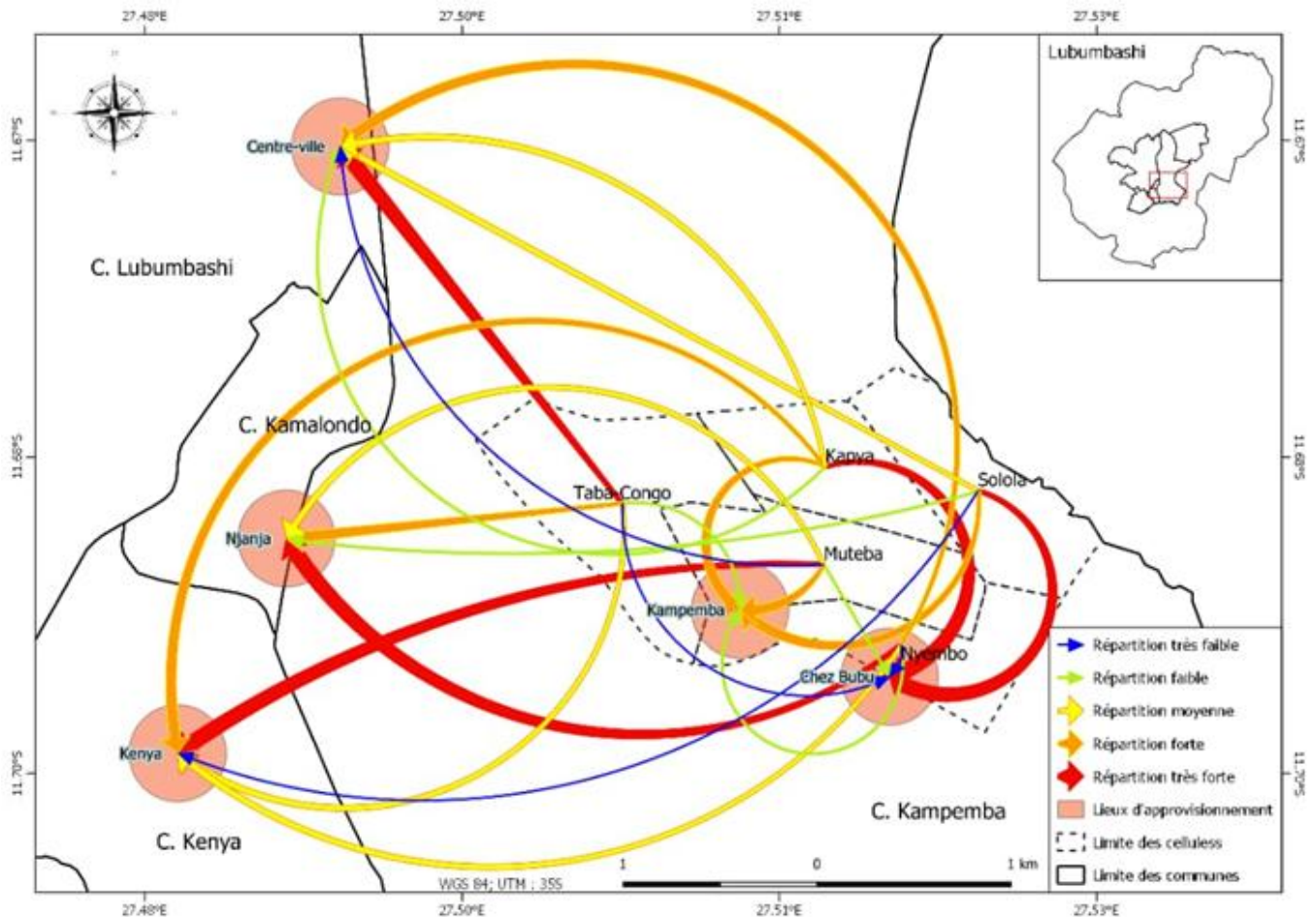


Figure 4: Flow of consumers to supply areas

In the spatial logic of consumers of basic food products in the Kampemba District, there are five supply zones, each of which is expressed by the thickness of the flow.

Based on the size of the flows, five situations can be distinguished: that of markets with a very high concentration of consumers as is the case for markets in the city centre; the one with high concentration, the case of the Kampemba market; that with medium concentration (Njanja) and that with low and very low concentrations of consumers (Kenya and Bubu).

It can then be deduced that the ease of access or proximity to a place of purchase in relation to the location of the consumer is a factor that can explain the concentration of flows in one area to another.

It remains to be seen what drives the respondents to make the choice of a place of supply, this from the notion of specificity or the quotient of location. The category of the greatest relative importance and the most specific category shall be checked by expressing the importance of each category *i* in each place *j*, in proportion to the overall importance of this category all places combined.

2.2. Reasons for moving consumers of basic food products to a place of supply

After having read the preferred places of supply of the respondents, we then sought to know the motivations of their choice on this or that other place of purchase. Several reasons have been given, which we group together in the specificity table below.

Table 1: Reasons for choosing the place of purchase of food products. (Notion of specificity)

Place of supply	Reasons for choosing where to buy food products													
	Good exposure or conservation		Enjoy greeting friends		Product price too low		Produced in large quantities		Search for various products		Close to the place of work		Close to the residence	
	If.	Csij.	If.	Csij.	If.	Csij.	If.	Csij.	If.	Csij.	If.	Csij.	If.	Csij.
Downtown	16	1.5	2	0.5	13	0.8	9	0.8	0	1.1	8	1.2	9	0.7
Kampemba	6	0.6	8	2.3	9	0.6	8	0.8	4	0.5	6	1.0	18	1.6
At Bubu	2	1.0	0	0.0	1	0.3	0	0	0	0	2	1.6	8	3.4
Njanja	3	0.6	0	0.0	12	1.6	10	1.8	6	1.3	1	0.3	0	0
Kenya	2	0.5	1	0.7	8	1.5	5	1.3	6	1.9	1	0.4	0	0

From the table above we find out the following facts:

- The grounds "good exposure or conservation, research of various products, and proximity to the workplace" are more specific to consumers who source from downtown markets. According to this result, the favorable attitude towards food products sold in the markets increases the perception that the quality of these products is good and vice versa. This result is explained by the fact that basic food products sold in neighbourhood markets have a lower quality than products in large markets, which discourages some quality-sensitive consumers from looking elsewhere.
- "Search for various products, close to the residence, enjoy greeting friends" are reasons twice as specific to consumers in the Kampemba market. The market at Bubu is three times specific to the reason of proximity to the consumer's residence.
- The "affordable price, products in large quantities, search for various products" patterns are localized or specific to consumers in the Kampemba district who visit the Njanja and Kenya markets.

The results regarding the influence of consumer price sensitivity on their attitude towards food products sold in or around Kampemba markets are consistent with the results of Huang, L. H. (1994) who argues that the favourable attitude towards goods and services sold in markets increases with increasing consumer price sensitivity.

This result is explained by the fact that large markets or those close to the city center offer cheaper products than those sold in neighborhood markets, which pushes some price-sensitive consumers to travel a distance to the surrounding markets. Indeed, the price difference is an important factor in encouraging consumer mobility.

From this analysis, we can say that consumers in Kampemba prefer to buy from large markets to enjoy an affordable price, products in large quantities and various food products in one place, which justifies that their mobility would cause the use of the different types of means of transport that remain dependent on the distance to be traveled to the place of supply, and consumer income.

3. Conclusion

This analysis of the frequencies of spatial logic allowed us to confront the consumer with the commercial areas of basic food products. It shows that the spatial mobility of consumers of basic foodstuffs is influenced by the purchase price and the quality of preservation. At the end of this study, the analysis shows that:

- Children under the age of 15 are sent to markets close to their homes for fear of multiple dangers to which they may be exposed to reach distant markets. Consumers between the ages of 15-19 are twice as represented in the Kampemba market compared to the rest of the age groups.
- Then, the influence of the residence in relation to the place of purchase of basic food products, the markets of the city center, and Njanja receive more from the consumers of the Tabacongo and Nyembo cells that are close; they reduce the costs of transport and the risk of theft. Compared to the remains of food consumers in the Solola, Muteba, and Kapya cells, they source from the markets of the Kampemba District since these markets are close to their homes, but also to avoid wasting more time, and reduce the cost of transport to other markets. In addition, consumers are looking for products of better quality (well preserved), good for health and too low a price. However, some consumers are suspicious of good product preservation and place the affordable price at the forefront, which relates to quality and economics.
- Ultimately, the causes of mobility vary from one consumer to another. Starting from the perception of the price of basic food products. Price plays a key role in consumer purchasing behavior. Many consumers consider the price as a quality index, so the rise or fall in the price of a product can affect the performance of the latter, so the price is a key indicator of consumer behavior towards products.

This first exhaustive inventory is a limited work. It could pave the way for a more detailed analysis, particularly with regard to the spatial distribution of public procurement in the different districts/municipalities of the city of Lubumbashi. It also makes it possible to reflect on the more or less spontaneous structuring of urban space, and finally on the functioning of an African city.

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