

Accessibility of centres to the road networks: lagos island



THE ACCESSIBILITY OF CENTRES TO THE ROAD NETWORKS: THE CASE OF LAGOS ISLAND, NIGERIA

Mr. A. O. Atubi

&

Prof. P. C Onokala

Abstract

Proper co-ordination of transport and public facilities provision is vital to any balanced regional development strategy. The central aim of this study therefore was to study the relationship between access to the transport networks and the provision of central facilities in Lagos Island. The results of the analysis of connectivity indices reveal the development of an increasing complex network, although the road network for 1997 remained the same as that of 1986. Using simple regression analysis, it was found that no strong relationship between road, accessibility and occurrence of facilities could be established. Rather population of centres was found to be more significant factor in the distribution of public facilities. Thus, recommendations capable of enhancing equitable transport development include; constructing new roads that will increase accessibility, save time and reduce cost to other centres and relocating some facilities too.

Introduction

In an urban area, there is a complex mix of land uses and all the major broad groupings of person movements (i. e.) journey to work, official trips,

education trips by school children/students, shopping trips, journey made to get home, an miscellaneous journeys) in urban areas are made between them. Thus, while trip are made for a variety of purposes, they are made to and from various land use Onokala. (1995). Oyelegbin (1996), observed that traffic jams keep Lagos motorist on the roads for hours and that many motorists are blaming frequent traffic Jams of numerous deep pot-holes, blocked drainages and poor road network system. While the number of vehicles were increasing the road network infrastructure are not bet increased proportionately and even the existing ones degenerate in quality at increasing rate.

The Lagos Island Local Government Area is the single most important local government in Lagos State due to the fact that most government establishments: private parastatals and public buildings are located here.

It is essential to appreciate that the purpose of transport is to provide accessibility, or the ability to make a journey for a specific purpose.

Transport is not timed for its own sake, but is merely a means to an end.

The construction of transport infrastructure influences transport costs by is of a reduction of distances and/or a higher average speed. This will lead to changes in the choice of transport mode, route choice, time of departure (in the case ingested networks) and the generation or attraction of new movements per zone (Bruinsma, et al 1994). For example, within several European countries both the private sectors, as represented by mobile shops, and the public sector for example mobile library, have for many years provided services on-wheels for rural communities.

Existing services could in future be coordinated to ensure that each community in turn became the focus of several of these services, so that the hinterland population need make only one journey into the centre to take advantage range of facilities (Brian and Rodney. 1995).

Thus, in the U. S. A. accessibility studies in the late 1970's and 1980's centres on access to public facilities especially as observed by Lineberry (1977). Mladcnka 78), McLafferty and Gosh (1982). In Nigeria several studies on accessibility tend to be related to urban centres or urban based activities. However, Onokerhoraye (1976) and Okafor (1982) sought to identify the major factors that influence distribution of post primary schools in Ilorin and Ibadan respectively. They attributed the larger catchment areas to urban schools to travel distance to school and to population of urban centres. [Bardi (1982) also investigated the relationship between growth of road network and accessibility of urban centres in Bendel State, while Abumere (1982) tried to establish the nodal structure of Bendel State towns m the foregoing discussions of past studies in Nigeria we observed that the emphasis tends to be either on urban centres (Onokerhorave. 1976), postal services (Oherein, 1985), banking (Soyode et al. 1975), bus transport services (Ali, 1997) and access to facilities in relation to road network (Atubi, 1998). There is however a need to take a total vie of transport in terms of the various activities for which the users demand mobility (Jansen, 1978).

Methodology

This research focused primarily on the study of road transport network system in Lagos Island Local Government Area especially as it relates to

accessibility of centres Thus, structural characteristics and accessibility of major centres to the road network was considered at three points in time i. e. (1976, 1986 and 1997 periods).

In developing the research design, areas that are accessible to the road network and with population of 1, 000 and above at each period were taken as activity centres. Population of 1. 000 was chosen as cut-off point to enable a substantial number of centres, especially those at the end of routes to appear as nodes especially as the network grows. The choice of nodes was therefore based on population size.

Data Analysis and Discussions of Results

In order to classify the major centres, data on six areas of central facility provision were collected namely: Medical, educational, market, postal services, banking and administrative headquarters.

Data on these chosen facilities were collected both from published sources and through field survey. A list of registered health facilities in the study area by 1997 compiled by the Lagos State Ministry of Health, Alausa. Ikeja: list of primary schools in Lagos Island Local Government Area from the Lagos Island Local Education District Department, and monthly returns of postal facilities from post and Telecommunications (NIPOST) Marina, Lagos were used as the base data to collect the number of these facilities. More comparative data on the number and location of the services are collected from the General Post Office (G. P. O.) Marina. Lagos. The data on the distribution of banks in Lagos Island Local Government Area were collected from Central Bank of Nigeria, Lagos, while data on the distribution of markets <https://assignbuster.com/accessibility-of-centres-to-the-road-networks-lagos-island/>

were collected from the Department of marketing Lagos Island Local Government Secretariat. City Hall, Lagos.

The accessibility of centres to the road network in Lagos Island Government Area was analyzed using the graph theory approach. It is used to handle properties to transportation networks in order to bring out their characteristics and structures. Other major techniques of analysis used include the homogenization of data etc.

By 1976, we had 22 out of the 30 major centres directly connected by all season roads. Each direct connection forms a link. As an illustration by 1976, one could only move from race course to Cable Street (Net) before moving to C. M. S. (Old Marina). In this case we have 2 links along Race Course – C. M. S. (Old Marina) road. In sum, 23 links or edges were identified by 1976 which connected 22 nodes.

By 1986, the network became more complex as more nodes are connected through different routes. However, the same principles are applied. It has been observed that by 1986 the 30 nodes had become connected by 39 links. That means 7 extra centres had entered into the network systems. These are Leventis. C. M. S. New Marina), Force Road. Awolowo Road, Ilubirin, Ebute-Elefun and Anokantamo.

By 1997, the network remained the same as that of 1986 but the major difference was the construction of Third Main Land Bridge that links Lagos inland Local Government Area to Lagos Island Local Government Area. This was that since 1986, no major work has been done on the road network in

Lagos and Local Government Area, hence the road network remained the
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same. Although, the indices of connectivity indicate increasing complexity of network between 1976 and 1997, the indices of nodal accessibility, which explain the accessibility of one node to all others in the network, indicate the changing fortunes some centres.

It is interesting to note that in terms of overall road distance, the most accessible centres in 1976 were Tinubu, Martins and Balogun, while the least accessible were Race Course, Epetedo and C. M. S. (Old Marina).

By 1986, we observed that Odulami had become the most accessible centre, while Tinubu and Nnamdi Azikiwe had become the second and Third most accessible centres in the network. Again, it was noted that Epetedo (Okepopo Marina), Ebute-Elefun, Anokantamo and Idumagbo remained the least accessible centres. Other new centres connected to the network at this state include C. M. S. Maria road), Force Road, Awolowo Road, Ebute-Eletun, Anokantamo and Idumagho. Their entry into the network has the effect of increasing the accessibility for all the nodes. However, by 1997 it was observed that Odulami remained the most accessible centre which corresponds with the nodal accessibility by 1986, while Tinubu and Nnamdi Azikiwe remained the second and third most accessible centres in the network which also corresponds with the nodal accessibility by 1986. Again, it was observed that Eptedo (Okepopo Marina), Ebute_Eleflm, Anokautamo and Idumagbo remain the least accessible centres. Also he Tinubu-Nnamdi Azikiwe-Odulami-Bamgbose axis seems to have been enjoying high level of accessibility throughout the period. The more nodes are connected the greater the accessibility value for individual nodes. However, the entire network accessibility expands with increasing number of nodes brought into

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the network. Another observation is that there are some nodes (Awolowo Road, Ilubirin. Force Road, and C. M. S. (New marina Road) that were not connected in earlier times but they acquired quite high accessibility as soon as they were connected. It is observed further that there are some nodes, which declined in accessibility as more links were added. Thus Tinubu, Odulami. Olowogbowo, Balogun and Broad Street among others, declined in accessibility. The construction of Leventis – C. M. S. (New Marina Road) meant that a shorter route to cable street (net) from Force Road than through Tinuhu had been created. Other routes constructed prior to 1997, which reduced the position of Tinuhu, include martins Street-Idumota, C. M. S. (Old marina-Odulami and Okepopo. In this analysis. the researchers used the simple regression. A possible relationship between accessibility and human activities has been suggested by Lachene (1965) and Chapman (1979) among others, while Keeble et al (1982) actually established a relationship between accessibility and economic activities among the countries of the E. E. C. within the country. Atuhi (1998) has in Lagos State suggested some relationship between accessibility and public facility index, while Ali (1997) suggested some relationship between accessibility and bus transport services in Enugu.

For public facilities however, whose essential quality of their location is that they be as accessible to their users as possible one should expect to find a strong relationship between the two.

Policy Implications

The strategy of constructing new links to improve accessibility may involve heavier financial investment. Thus, a proper cost-benefit analysis is needed to determine the desirability of such investment.

Still another strategy would be to provide those services which centres lack based on extensive surveys of what are available and what are needed. This centre based approach might prove more useful if the people are guided to choose out of their preference.

Conclusion

It is pertinent to note that the social benefit of constructing a road that increases accessibility saves time and reduces cost goes beyond the financial evaluation. This is because it touches on human value.

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