

Intra-urban travel stress in a developing country – Nigeria

Asiyanbola R. Abidemi

Department of Geography and Regional Planning, Faculty of the Social Sciences, Olabisi Onabanjo University Ago-Iwoye, Ogun State, Nigeria

ABSTRACT: The paper empirically examined the experience of intra-urban travel stress in a developing country city – Ibadan, Nigeria through a cross-sectional survey of 232 households sampled in Ibadan city. The result of the regression analysis shows that there is a significant positive relationship between intra-urban travel and psychological distress. Analysis of variance Post Hoc (multiple comparisons) test shows that the intra-urban travel stress experience in the high density residential area is significantly different from that of the other residential areas. The result of the correlation analysis shows that there is significant relationship between intra-urban travel stress experience and the household income, educational level, occupation and household size. It is argued that in order to make urban transport attractive there is the need to urgently address the inconveniences and stress been experience at present through both short and long term solutions which are highlighted in the paper.

RÉSUMÉ : La communication étudie de manière empirique l'expérience du stress lié aux déplacements intra urbains dans une ville de pays en développement – Ibadan (Nigeria) par une enquête croisée sur un échantillon de 232 ménages dans la ville d'Ibadan. Le résultat de l'analyse de l'échantillon montre qu'il y a un rapport significatif positif entre les déplacements intra urbains et la détresse psychologique. L'analyse du test des variations Post Hoc (des comparaisons multiples) montre que l'expérience du stress lié aux déplacements intra urbains dans le secteur résidentiel à forte densité diffère de manière significative de celui des autres secteurs résidentiels. Le résultat de l'analyse de corrélation montre qu'il y a un rapport significatif entre l'expérience du stress lié aux déplacements intra urbains et le revenu du ménage, le niveau d'études, la profession et la taille du ménage. Il est soutenu que pour rendre le transport urbain attrayant, il faut instamment s'attaquer aux inconvénients et souligner l'expérience actuelle par des solutions courtes et à long terme mises en évidence dans la communication.

1. INTRODUCTION

The trend of urbanization and city growth in developing countries are characterized by rapidity of urban increase, urbanization outpacing industrialization, and a high rate of urban population growth by natural increase and migration. The pace of urbanization in most developing countries since the Second World War has accelerated markedly and is expected to continue to do so for some time to come. In Nigeria the pace of urbanization has been dramatic showing extraordinarily high rates of 5-10 percent per annum (Egunjobi 1999). The direct implication of this trend is that there has been an increasing demand for the means of mobility. Infact, the demand for public transport among Nigerians, especially those living in the urban centres has increased to a scale hitherto unprecedented.

Since Nigerian political independence in 1960, every successive government in the federation has shown appreciable concern for

transport planning and development. This concern is reflected in the share of the transport sector out of the total planned public investment. As noted by Filani (2002:38) the transport sector has consumed on the average 20.3 percent of the total planned national resource outlay since the First National Development Plan Period (1962-1968). This according to him means that about 20 Kobo of every Naira in the planned expenditure in Nigeria's development efforts since 1962 had been allocated to the transport sector. Even though there had been significant achievement in this sector, the sector is still confronted with many problems which include among others, inadequate planning, lack of intermodal coordination, insufficient public transport to cope with rising demand, urban traffic congestion, accident, etc. While different studies have examined various aspects of the urban transport problems, hitherto there is no study in the developing country and in Nigeria in particular that

has empirically examined the impact of the intra-urban travel on the psychological distress. Yet such a study is very important as it would inform decision-making on the provision of attractive urban transport in the developing countries.

In the paper an attempt is made to fill this identified gap using Ibadan city as a case study. The null hypotheses tested in the paper are: (i) that there is no significant impact of the intra-urban travel on the psychological distress of Ibadan city residents; (ii) that there is no significant variations in the intra-urban travel stress experience in Ibadan city; and (iii) that there is no significant relationship between the intra-urban travel stress experience and the socio-economic characteristics of Ibadan city residents.

2. DATA BASE

The data used in the paper was obtained from a questionnaire survey of 232 households in Ibadan between November 1999 and April 2000. Information was collected on some socio-economic variables. Information was also collected on the variables used to measure intra-urban travel stress. These variables are: weekly trips for various purposes e.g. secular work, children school, recreation, shopping, e.t.c.; and psychological well-being variables.

Socio-economic variables used in the study are measured as follows: age (total in years); household size (total number in the household); stage in the life cycle (1 if the age of the youngest child is below six years); income (total household income in naira); occupation (1 if skilled or administrative/professionals or white collar workers); marital status (1 if married); educational level (1 if having post secondary qualification). In the case of the weekly trips respondents were asked to fill in all the number of the trips made for the immediate past week for the various purposes. Psychological distress has two major forms (Mirowsky and Ross 1989; Theodore et al 1993;) depression (feeling sad, demoralized, lonely, hopeless, worthless, wishing you were dead, having trouble sleeping, crying, feeling everything is an effort and being unable to get going); and anxiety (being tense, restless, worried, irritable and afraid). Argument in the literature is that depression and anxiety are no distinct forms of psychological distress. They are instead closely intertwined (Mirowsky and Ross 1989; Dohrenwend et al 1980). In this study, I have adopted Theodore et al (1993) scale of psychological distress which comprises of

ten items that reflect various symptoms, including aspects of both anxiety and depression. Thus, in the first nine items, the respondent was asked to indicate how often he or she experiences certain feelings during the previous few weeks. The response categories were: often, sometimes, rarely, or never. The feelings were: (1) "Anxious about something or someone" (2) "that people are trying to pick quarrels or start arguments with you" (3) "so depressed that it interferes with your daily activities" (4) "that personal worries are getting you down physically, that is, making you physically ill" (5) "Moody" (6) "Felt you were confused, frustrated and under a lot of pressure" (7) "Are you ever bothered by nervous i.e by being irritable, fidgety, or tense?" (8) "Do you ever feel that nothing ever turns out for you the way you want it to?" And (9) "Do you have trouble concentrating or keeping your mind on what you are doing?" The last item was: (10) "Are you the worrying type – you know a worrier?" (Yes/No) (Theodore et al 1993 pp.1421-1422).

In order to get a representative sample, Ibadan metropolis was stratified into three residential densities (high, medium and low density residential areas) following existing work on the Ibadan metropolis (Filani et al 1994; Olatubara 1994). From these residential areas, 44 neighborhoods were selected. High density residential area is more widely spread so 22 neighborhoods were selected. From medium density residential area 12 neighborhoods were selected and 10 low density residential area neighborhoods. Also in the high density residential area 105 questionnaires were administered. 76 and 51 in the medium and low density residential areas respectively. The number of questionnaires administered in each neighborhoods were proportional to their respective projected 1996 population as given by the National Population Commission (NPC). The data were analyzed using analysis of variance (ANOVA) and the correlation and regression statistical techniques. One of the usefulness of the regression analysis is that it measure the amount of impact one variable produces in another (De Vaus 1996; Robinson 1998; Babbie 1998; etc).

2. RESULT

The result of the regression statistical analysis between the weekly trips and the psychological distress is shown in Table 1. This Table shows that the R-Square Change value is .026, F Change is 4.941 while the significant F Change is .027. This result is

significant at the .05 level. Also the beta value is .163 and it is significant at the .05 level. This result implies that there is a positive significant

relationship between weekly trips and the psychological distress of Ibadan city residents.

Table 1: Summary of the result of the Regression Analysis between the weekly trips and the psychological distress

Model	R Square	Adjusted R Square	Std. Error Of the Estimate	R Square Change	F Change	Sig. F Change	Beta	
							Value	t
1	.026	.021	1.9982	.026	4.941*	.027	.163	2.223*

* Significant at the .05 level. Constant t value = 6.625**

**Significant at the .01 level.

Regression analysis was used to obtain the regression standardized predicted values between the psychological well-being variables and the weekly trips made for each of the cases in the sample. The regression standardized predicted values are the values that the regression model predicts for each case. This regression standardized predicted values are used in the analysis of the intra-urban travel stress experience. Table 2 shows the result of the analysis of variance (ANOVA) Post Hoc (multiple comparisons) test result of the intra-urban travel stress experience in

Ibadan. The analysis of variance F-value is 8.863 and it is significant at the .001 level. The Post Hoc test result shows that there is a significant difference between the intra-urban travel stress experience in the high density residential area and each of the other residential area, that is, medium density residential area and low density residential area (see Table 2). This result implies that there is a significant intra-urban variation in the intra-urban travel stress experience in Ibadan.

Table 2:Result of the Analysis of Variance (ANOVA) Post Hoc Tests (MultipleComparisons) of Intra-Urban Travel Stress Experience in Ibadan

(I) RESD	(J) RESD	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence interval	
					Lower Bound	Upper Bound
1.00	2.00	.6646957*	.1606978	.000	.3476137	.9817778
	3.00	.4346742*	.1862211	.021	6.723072E-02	.8021178
2.00	1.00	-.6646957*	.1606978	.000	-.9817778	-.3476137
	3.00	-.2300215	.1928444	.235	-.6105337	.1504907
3.00	1.00	-.4346742*	.1862211	.021	-.8021178	-.6.72307E-02
	2.00	.2300215	.1928444	.235	-.1504907	.6105337

*The mean difference is significant at the .05 level (ANOVA F-value = 8.863 Sig. value = .000)

- RESD = Residential areas
- RESD 1 = High density residential area
- RESD 2 = Medium density residential area
- RESD 3 = Low density residential area

Result of the correlation analysis of the intra-urban travel stress experience and some socio-economic variables is shown in Table 3. This table shows that there is significant

relationship between intra-urban travel stress experience and the household income, educational level, occupation and household size.

Table 3: Result of the Correlation Analysis between intra-urban travel stress experience and some socio-economic variables

Some socio-economic variables	Result of the Correlation Analysis between intra-urban travel stress experience and some socio-economic variables
Household income	-.255**
Educational level	-.209**
Occupation	-.196**
Household size	.219**
Stage in the life cycle	-.103
Age	.022
Marital Status	-.057

** Correlation is significant at the .01 level.

* Correlation is significant at the .05 level.

3. DISCUSSION

The regression analysis and the analysis of variance (ANOVA) results may be due to the fact that the urban transport problems which is characterized in terms by (Filani 1994; 2002; Ikporukpo 1994; etc): accidents; the relative immobility of the disadvantaged shown in, for instance, in waiting for long periods at the bus stops; pollution from transport; traffic congestion and the related parking problems, etc is becoming acute in the city. This is due to the city's rapid economic and industrial developments which have resulted in the large expansion of the city's areal extent which is now sometimes ten fold its initial

point of growth (Filani 1994; Egunjobi 1999; Ogunsanya 2002; Oyesiku 2002).

The city of Ibadan covered an area of about 12.5 sq. km in 1934 (NISER 1988). This increased to 30 sq. km in 1963, an increase of about 52 percent in 30 years. In 1970, the total land area enveloped by the city was 103.8 sq. km which reached 136 sq. km in 1984. It is interesting to note that by 2001, the total land area enveloped by development in Ibadan has reached about 348 sq. km (Table 4 and Fig. 1). In other words, in 68 years, the city of Ibadan has expanded by over 2,680 percent (Bello, 2001; NISER, 2000; Oyesiku 2002).

Table 4: The Successive Land Cover Change in Ibadan (1930-2001)

Year	Extent of Growth (sq. km)
1830	5.40
1934	12.50
1963	30.00
1970	103.80
1973	112.00
1981	136.00
1984	176.00
1988	214.00
1997	322.00
2001	348.46

Source: Bello (2001)

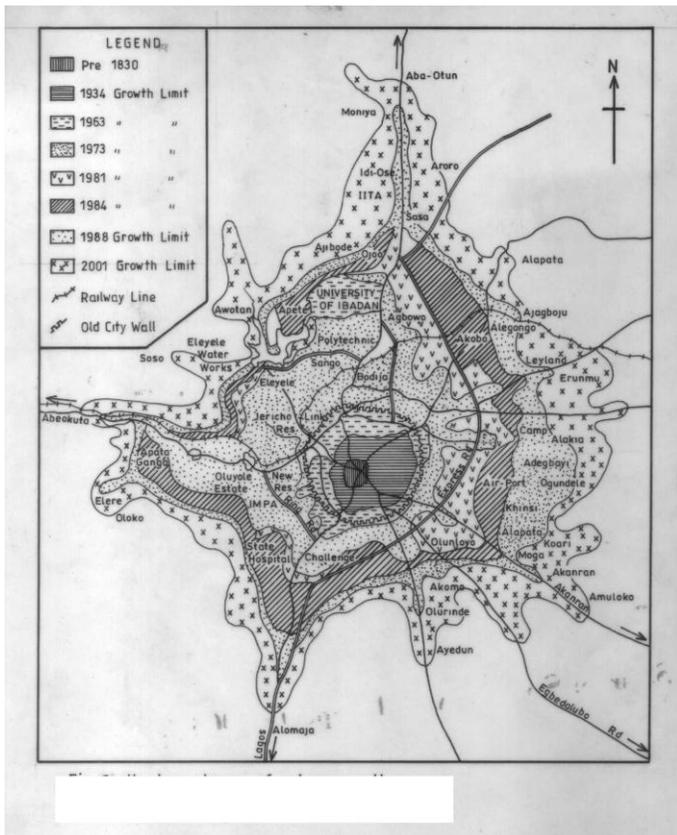


Fig. 1: Ibadan stages of urban growth 1830-2001

Source: NISER 1988; Bello 2001; Oyesiku 2002.

A crucial aspect of this is that city growth and expansion in Nigeria has been largely uncontrolled. Consequently, the scaring and unsatisfactory situations in the cities have been increasing at an alarming rate. Urban transport which serves as the sinew binding together various land-uses have not

only remained inefficient, it has grown over the years to be expensive and dangerous (Egunjobi 1999). Urban transport in many Nigerian cities revealed a remarkable feature. This as summarized by Oyesiku (2002: 257) is shown in Box 1.

Box 1: Features of Urban Transport System in the Nigerian cities.

- 95% of urban trips are by road. Out of this, about 70% of the urban trips are made by public transport. Private operators dominate the public transport system and characterized by taxis, unregistered fare paying cars, para-transit, minibuses, two-wheeled motorcycle and three-wheeled motorcycle.
- Intermodality of trips is limited to public transport journey by road based public transport. The import of this is that most city travelers have no option of traveling by rail (light, metro, or tram) as well as by ferry.
- Ownership and organization of road public transport systems are characterized by haphazard and uncoordinated operators.
- Complete absence of comprehensive and integrated of urban mass transit public transportation system. Proliferated and largely uncoordinated private operators of para-transit and motorcycles public transport services accompany this.
- Decrease in the supply of new vehicles of all types and depletion of existing fleet, since the middle of 1980s. For instance, there were 248 people to one vehicle in 1980, which declined to 600 people to one vehicle in 1998. The low level of motorization is partly connected with decline in the economic fortune of the country, high rate of inflation occasioned by continued pressure on the general domestic level has reflected in the double digits increase in the overall urban consumer prices for all items, and that for the transport in particular rising to the third digits.

- The rapid population growth and mismatched between urbanization and economic growth has led to inability of planners to adequately planned for existing cities and emerging settlements. The same gap between urbanization and economic growth has resulted in inadequate provisions for infrastructure and services, limp-frogging development in settlement that were never planned for and overall poor infrastructural base of the cities.
- Specifically poor condition of city roads which in turns shortens life span of motor vehicles and high cost of maintenance (Torres, 2001)

Source: Oyesiku (2002:257)

Lack of physical planning in many parts of Ibadan city has contributed in no small measure. It gives rise to the almost disorganized arrangements of buildings which in turn negates and continue to prevent the development of better sections of the city. Even in the areas which appear to be better planned, there is no adequate provision of sidewalks to facilitate pedestrian movements. Where sidewalks exist, they are usually taken over by roadside traders (Filani 1994; Egunjobi 1999), forcing pedestrians more to walk on road pavements. According to Filani (1994:188), this, in essence means constant conflicts between pedestrians and motorists.

Also most of the existing roads in the city were constructed in the late 1940s and early 1950s when the city's economic base and territorial extent were very limited (Filani 1994). At that time the major commercial and industrial activities were concentrated in a few pockets area and fewer vehicles were in circulation within the city. Consequently, the roads are narrow, winding and lacking in pedestrian sidewalks and adequate parking facilities. The existing transport system fall far short of the ever increasing commuter traffic demand and the complexity of intra-urban journey patterns. This has resulted in excess capacity utilization which has contributed to the deterioration of the roads.

Moreover, as there are very few organized parking lots people suffer stress in search for parking space. Vehicles and their owners are subjected to dangers in non-conventional car parks. Parking space inadequacy is the result of illegal street parking which has already reaches crisis proportions in the city. In addition, such vehicles parked on the streets are ready targets of thieves and reckless drivers. Vehicles are always double-parked along the verges of the main roads thereby decreasing their lane capacity. As a result, traffic congestion, 'hold-

ups' and bottlenecks are a common feature, particularly during rush hours.

The result of the correlation analysis of the intra-urban travel stress and the socio-economic variables is an indication that the problem of the urban transport is a clear definition of social and economic inequalities. This is particularly so because the problem is not uniform in its incidence amongst groups and individuals. City spaces have been shaped unequally. City spaces have been segregated through household income and the pursuit of fragmenting urban policy (Goerg 1998; Byrne 1999; Agbola and Agbola 1997). In most of the neighborhoods particularly in the high density residential areas basic amenities and facilities are non-existent, urban transport infrastructures are in a deplorable condition.

The slump in the oil revenue since 1983 has resulted in the institution of series of economic adjustment program (SAP) in Nigeria. This has involved the strict control of foreign exchange spending. Since SAP involved, among other things, adjustment of the local currency (Naira) to international convertible currencies as well as withdrawal of petroleum subsidy, vehicle prices and maintenance costs have skyrocketed beyond the reach of most individuals in the country. Consequently are the following crises (Filani 2002:40):

- High prices prevent the purchase of new vehicles; the astronomical prices of the available limited spare parts make vehicle maintenance almost impossible;
- Public transport operators are saddled with rickety and ill-maintained vehicles due to exorbitant prices of spare parts and their inability to purchase new ones to expand their fleet of vehicles; and

- Queues of passengers at major urban terminals and along routes get longer and longer everyday. All these according to Filani (2002) have resulted from serious distortion and gap which have been created between demand and supply of means of mobility among the populace.

Figure 2 shows one of the agonies experienced by the public transport operators in Nigerian cities.



Fig. 2: Showing one of the agonies experienced by the public transport operators in Nigerian cities

Source:IFRA,2002:2

Figure 3 below shows the agonies experienced by the commuters as they struggles to board buses in the Nigerian cities. Even though, the role of urban transportation is to facilitate the movement of people and goods comfortably and safely, when they are required and recognizing that there is no alternative to mobility, what exists in the Nigerian cities are a litany of inconvenience, and frustration (Egunjobi 1999, 2002; Osita etal 2003; Olukoju 2003).

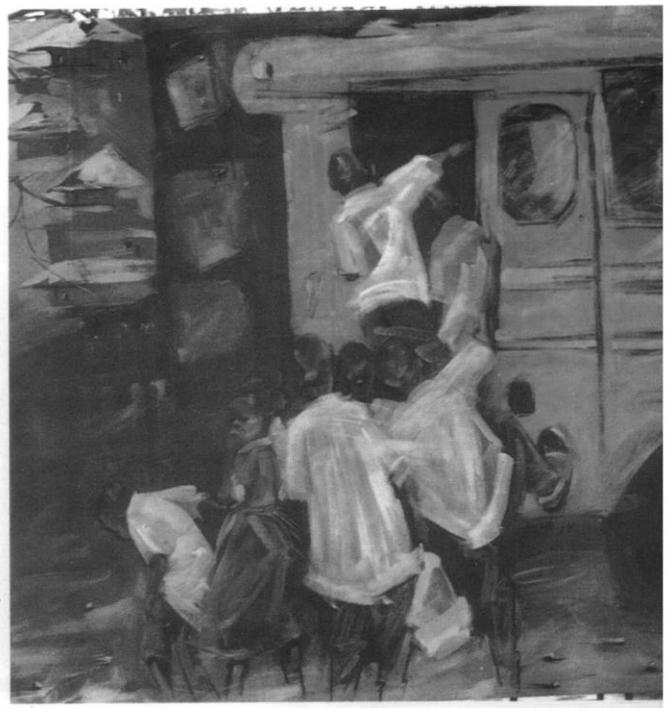


Fig. 3: Showing one of the agonies experienced by the commuters as they struggles to board buses in the Nigerian cities.

4. URBAN TRANSPORT POLICY IMPLICATION AND CONCLUSION

In order to make urban transport attractive there is the urgent need to address the inconveniences and stress been experience at present. Most of the current efforts have been ad hoc base on mere guess work and unconventional (Filani 1994; 2002; Oyesiku 2002; Ogunsanya 2002; Badejo 2003). Little wonders then that such efforts have not produced the required outcome. Therefore, as noted by Filani (1994) there is the need for both long term and short term solutions. Short term solutions to the problems within the city might include the introduction of better traffic controls particularly synchronized traffic signals; provision of better facilities for pedestrians and cyclists; construction of more parking spaces and an efficient and regular enforcement of traffic laws and regulations. In the long term there is the need for a comprehensive urban transportation plan for Ibadan and its immediate region. Research should be geared towards the study of the existing patterns of activity in the city; the analysis of the road networks in terms of their capacity and utilization, trip patterns of the population and the various vehicles providing the means for circulation. This should be complimented by some relatively accurate projections for future urban traffic demand, population and economic growth forecasts and suggestions for planning the

REFERENCE

Agbola. T. and Agbola. E.O. 1997. "The Development of Urban and Regional Planning Legislations and their impact on the Morphology of Nigerian Cities". *The Nigerian Journal of Economic and Social Studies*, Vol. 39, No. 1, p. 123-144.

Babbie Earl. 1998. *The Practice of Social Research*. New York: Wadsworth.

Badejo Dele 2003. Transportation Planning and Management in Nigeria: The Way Forward in the 21st Century. Unpublished Seminal paper delivered at the Department of Geography and Regional Planning, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria, August 2003.

Bello, I.K. 2001. "Land use changes under the pressure of urbanization: A time dimensional analysis of Ibadan metropolis (1970-2000)",

city's transportation system in such a way as to meet the expected demand (Filani 1994:188-189).

Ad hoc approach should be avoided in urban transport planning and management. This is because urban transport planning and management require adequate planning, data gathering, data analysis, policy formulation considerations – all these can not be achieved through ad hoc methods. In addition there is the need for improved information and data management base to help in actual urban transport management pursuance.

Urban transport planning and management should be depoliticized and professionalized. Government should desist from using the transport sector as means of assisting and compensating political associates and friends especially those not grounded in transport education (Badejo 2003). Transport is highly technical, dynamic and complex and so must not be handled by people without transport education. Efforts should be made to integrate transport and communication together in such a way that one can compensate for the other in a complimentary manner. Hitherto, there is yet to be an officially published national transport policy in Nigeria. Therefore, there is the need to initiate a national transport conference whereby all stake holders in the area of transportation and the Nigerian society are brought together in a forum to articulate a national transport policy that will respond to the transport needs of every stake holders.

Unpublished MURP Dissertation, Ibadan: Centre for Urban and Regional Planning, University of Ibadan.

Byrne D. 1999. *Social Exclusion: Issues in Society*. Buckingham: Open University Press, pp. 109-124.

De Vaus, D.A. 1996. *Surveys in Social Research*. , London: UCL.

Dohrenwend, B.P. 1980. Shrout, P.E.; Egri, G.G. and Mendelson, F.S.. "Non-specific Psychological Distress and other Dimensions of Psychopathology". *Archs Gen. Psychiat*. 37, pp. 1229.

Egunjobi Layi. 1999. *Our Gasping Cities* An Inaugural Lecture delivered at the University of Ibadan on Thursday, 21st October 1999.

Filani, M.O. , 2002. "Mobility Crisis and the Federal Government's Mass Transit Programme" in Onakomaiya

- S.O. and Oyesiku O.O. (eds.). *Environment, Physical Planning and Development in Nigeria*, Department of Geography and Regional Planning, Olabisi Onabanjo University, Ago-Iwoye, Nigeria, pp. 37-51.
- Filani M.O. 1994. Transportation. In Filani, M.O., Akintola, F.O. and Ikporukpo, C.O. (eds.). *Ibadan Region*. Ibadan: Rex Charles, 1994. pp.179-190.
- Filani, M.O., Akintola, F.O. and Ikporukpo, C.O. (eds.) 1994. *Ibadan Region*. Ibadan: Rex Charles.
- Goerg, O. 1998. "From Hill Station (Freetown to Downtown Conakry (First Ward): Comparing French and British Approaches to Segregation in Colonial Cities at the Beginning of the Twentieth Century". *Canadian Journal of African Studies*, 32(1), p. 1-31.
- IFRA, 2002. *Echos, Cities and Artists in Nigeria*. French Institute for Research in Africa (IFRA): Ibadan, pp. 2-3.
- Ikporukpo Chris O. 1994. The Urban Transport Crisis and Urban Violence: Reflections on the Nigerian Situation. In Albert I.O., Adisa J., Agbola T. and Herault G. (eds.) 1994. *Urban Management and Urban Violence in Africa*. Proceedings of the International Symposium held at Ibadan, Nigeria, 7-11 November 1994. Ibadan: IFRA, pp. 21-28.
- Ogunsanya Ade A. 2002. *Makers and Breaker of Cities*. The Fifty-ninth Inaugural Lecture delivered at the University of Ilorin on Thursday, June 27, 2002.
- Olatubara, C.O. 1994. *Activity Patterns and Urban Residential Location Decision in Ibadan: Oyo State*. A PhD Thesis, Department of Geography, Obafemi Awolowo University, Ile-Ife.
- Oyesiku, O.O. 2002. *From Womb to Tomb*. 24th Inaugural Lecture, Olabisi Onabanjo University, Ago-Iwoye, 27th August 2002.
- Oyesiku O. K. 2002. "Policy framework for urban motorcycle public transport system in Nigerian cities" in Xavier Godard and Innocent Fatonzoun (eds.) *Urban Mobility for All*, Lisse: A. A. Balkema, pp.255-261.
- Olukoju Ayodeji 2003. *Infrastructure Development and Urban Facilities in Lagos, 1861-2000*. Occasional Publication No. 15, Ibadan: IFRA.
- Osita Nwajah; Ibim Semenitari; Anene Ugoani; Stephen Ubanna; Dele Oyewale and Ann Ariole 2003. "Infrastructure: A Rotten Foundation". *TELL Nigeria's Independent Weekly* No. 23 June 9, pp. 47-50.
- Robinson M. Guy 1998. *Method and Techniques in Human Geography*, New York: Wiley.
- NISER 1988. *Socio-Economic survey of Ibadan city*. Report of a survey commissioned by the Ibadan Metropolitan Planning Authority (IMPA), Ibadan: NISER
- Mirowsky, J. and Ross, C.E. 1989. *Social Causes of Psychological Distress*. New York :Aldine.
- Torres Martinez, A. J 2001. "Road maintenance policies in Sub-Saharan Africa: unsolved problems and acting strategies", *Transport Policy*, 8 (4): 257-266
- Theodore, D. F.; John, N.E.; Santhat, S. and Sairudee V. 1993. "Housing Stress, Physical Well- being: Evidence from Thailand". *Social Science and Medicine* , 36(11), p. 1417-1428.