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CAR WASH SERVICE IN NIGERIA'S ROAD TRANSPORT SYSTEM: Evidence from Ilorin

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ABSTRACT

The informal sector is a vital segment of the economy of most developing countries, including Nigeria. Research on the urban informal sector in general and the road transport sector in particular in Nigeria has neglected road transport supportive services. These services are crucial to the effective and efficient operation of the road transport system. This paper therefore examines one of such services, the car wash service, and uses Ilorin as the case study. The survey revealed that it is a sole proprietorship business dominated by males. About 95 per cent of the operators used informal financial sources to start the business. It provides employment and income to operators who are mostly unskilled and have little formal education. The number of vehicles washed and the age of the business were found to be positive determinants of earnings, while apprentice access was found to impact negatively on earnings. The major constraints in the industry are irregular water supply and lack of financial assistance for development and modernization. For the full potential of this informal business activity to be realized, the water board needs to guarantee adequate supply of water, while the formal financial institutions should make the provision of finance easier to enable the car wash operators to modernize their operations.

JEL classification: G29, J21, L89, L92, O17

1. Introduction

THE EFFICIENCY of the road transport system in Nigeria is not only a function of good road network, available vehicles, effective and efficient road transport

regulatory institutions, and high safety standards, but also includes the cleanliness of the vehicles. Vehicle cleanliness is one of the service standards used for the measurement of service elasticity in the demand for transport services. Road transport research in Nigeria has examined various issues such as network, passenger and goods traffic, crashes, pollution, traffic management, etc.¹ Research on these areas is crucial for the development of the road transport sector in terms of planning and policy. These studies have, however, ignored some peripheral phenomena in the informal road transport sector that are necessary for the smooth running of the system. Arosanyin and Ipingbemi (2004) refer to some of these phenomena as 'special issues in urban transportation in Nigeria'. The bulk of operations in the Nigerian road transport system are carried out in the informal segment of the market. These include vehicle repair services, tyre repairs, inscriptions on vehicles, cleanliness of vehicles (car wash), etc. This is also true of the supportive services in the road transport industry. Informal road transport supportive services constitute a vital source of employment and income for the operators, but research on road transport has not focused attention on the operational characteristics, problems, funding, employment, income generation capacity of the sector, and on how the sector can be improved.

It is in the light of the above gap in research that this paper derives its rationale and strength. This paper examines the operational features, funding, employment and income, and problems, among other issues, in car wash service in Nigeria using Ilorin as a case study. The rest of the paper is divided into the following sections: conceptual issues in car wash services; research methodology; findings of the survey; problems of the industry and the way forward..

2. Conceptual Issues in Car Wash Services

A car wash is a facility where the exterior and interior of automobiles are cleaned. Car washing is an essential function of preventive maintenance since it prevents rust and oxidation, and reduces the occurrence of fine scratches (Wikipedia, 2005a). Also, constant cleaning wards off bugs and other insects (Arosanyin and Ipingbemi, 2004: 307).

There are several types of car wash services ranging from the do-it-yourself coin operated facilities to fee-based full-service operations (mechanized car wash). In the coin-operated (token-operated) self-service, the vehicle is parked inside a large bay equipped with a soap and water sprayer and a scrubbing brush. The customer inserts coins or tokens into the controller and chooses to dispense soap or water from the sprayer or to scrub the vehicle with the brush. The coin-

¹ For further reading on these issues see Oduola (nd); Onakomaiya, 1981; Ogunsanya, 1984; Ogunsanya and Galtima, 1993; Arosanyin, 1999a, 2001, 2004 and 2005, etc.

operated facilities are usually equipped with separate vacuum stations, that enable the customer to clean the upholstery and rugs inside the car.

Under the mechanized car wash system, which has tunnel-like bays, the driver (customer) drives the car into the tunnel-like bay, remains inside the parked car while the machinery inside the bay alternately sprays water, soap and sometimes wax onto the car. This system is sometimes called 'in-bay automatic'. Another type of mechanized car wash is referred to as 'conveyorized'. In this system, the car is parked on a conveyor belt that pulls it past stationary cleaning machines. While soap is sprayed onto the vehicle, roller brushes spin around against the car's exterior, scrubbing dirt off it. Both styles of mechanized car wash service provide an 'underbody wash' in which streams of water are directed at the bottom of the car to remove mud and other residue (Wikipedia, 2005b).

The above describes the industry in advanced countries. In the developing world, car washing is not as mechanized as described above. In some countries, it is mainly manual, while in others it is carried out by a combination of manual and mechanized processes. There are mechanized car wash services in Abuja, Nigeria. The car wash service in Nigeria is one of the activities under the urban informal sector and can also be classified under activities in the informal road transport supportive system.

The importance of the informal economic sector in Africa as a source of survival for a large section of the population that cannot rely on the formal economy for employment or income has been increasingly recognized (Tripp, 2003). The informal sector is often referred to as a subterranean or shadow economy. It consists of non-corporate enterprises, micro-enterprises, or petty producers and is defined as consisting of a large number of self-employed entrepreneurs in developing countries who are engaged in small-scale production and service activities (Trager, 1987; Castells and Portes, 1989; Sanyal, 1991; Grey-Johnson, 1992; Cheaka and Nangbe, 1998; Todaro and Smith, 2004). The businesses are individually or family-owned and the activities are labour intensive and use simple technology. The mainly self-employed workers in this sector have little formal education, are generally unskilled, and lack access to financial capital. As a result, worker productivity and income tend to be lower in the informal sector than in the formal sector. Informal sector activities are usually untaxed, unlicensed and unregulated.

The contribution of the informal sector to economic development is enormous. For example, informal employment makes up 48 per cent of non-agricultural employment in North Africa; 51 per cent in Latin America, 65 per cent in Asia, and 72 per cent in sub-Saharan Africa. If agricultural employment is included, the percentage rises to above 90 per cent in some countries like India and many sub-Saharan African countries (Wikipedia, 2006). The Economic Commission for Africa (ECA) estimated that the informal sector's contribution to GDP in African

countries is about 20 per cent, while its contribution to the GDP of the non-agricultural sector is about 34 per cent.

There are basically two types of activities in the informal sector — licit and illicit. The illicit activities have no legal counterpart in the society in question while the licit or legitimate activities have legal counterparts in the society in question (Tripp, 1997). The car wash activity in Nigeria is legitimate and falls into the service segment of the informal sector.²

In Nigeria, car washing is done in two ways. The first is the one where the owner, his son or a relation washes the car. The second is the car wash service that is paid for. This group of car wash services that provide employment and income to the operator are in three main categories. The first includes *screen mobbers* who clean windshields when cars are held up in traffic or are stopped by traffic lights. Payment for this service is usually determined by the car owner and is in the form of a 'tip'. This practice is common on major roads in Nigerian cities and it is not compulsory to pay. This category of operators constitute a traffic hazard as they impede traffic flow, and are sometimes hit by vehicles. There is ample evidence that they rob in traffic, as some of them are miscreants or urchins popularly called *area boys*. Windshield cleaning is also common in petrol stations as a complementary service to enhance patronage.

The second category encompasses those who wash cars in hotels or business districts. Some hoteliers offer it as a complementary service, but in most cases, the owners of the vehicles are expected to pay or give a tip.

The third category includes those who have a washing bay specifically constructed for car washing for a fee. They usually locate their bays near the road and where the main water pipes are laid (Arosanyin and Ipingbemi, 2004). This third category of car wash services is the primary focus of this paper.

3. Research Methodology

This survey was conducted in Ilorin, the Kwara State capital. In all, a total of 176 car wash operators were randomly selected from different car wash area. The major car wash areas were identified, and in each area the operators were randomly selected using the odd-even number selection mechanism. In all, about 50 per cent of the car wash operators who worked on the major routes were surveyed. The survey was conducted in 2003, with the use of a structured questionnaire. The questionnaire-based interview was complemented with personal cum participant observation and focus group discussions, so that the study could take advantage of the benefits of triangulation in transport research.

² For more on the informal sector in Nigeria, see Callaway (1973), Fapounda (1985), Abumere et al. (1998), Ihimodu et al. (1997, 2001), CBN (2001) and Arosanyin et al. (2005).

The response rates to the questions were satisfactory and ranged from 97.7 to 100 per cent. It implied that the differences between total cases and valid cases were very small. When the number of cases used was less than 176, they were indicated as valid cases. The primary data were analysed with the use of descriptive statistics, earning models (see technical appendix for details) and the weighted factor scaling method of 3 x 3.

4. Findings of the Survey

4.1 Characteristics of car wash operators

4.1.1 Age, Sex and Ownership

The age of car wash operators in Ilorin ranged from 18 to 60 years with an approximate mean age of 29 years and standard deviation of 9.8. The age bracket of operators showed that 68.7 per cent were between the ages of 18 and 30 years while the remaining 31.3 were between the ages of 31 and 60. The above shows that there was no overt evidence of child labour among operators.

The survey also showed that the car wash business in Ilorin is a male-dominated enterprise. All the surveyed respondents were male. The observation method also confirmed this male dominance.

The ownership structure was that of sole proprietorship. They were, however, not registered. The preponderance of sole proprietorship in informal sector enterprises in this study reinforces the findings of Ihimodu et al. (1997) in a survey of 382 informal sector enterprises in Ilorin, where 86.4 per cent were found to be sole proprietors.

4.1.2 Religion and Tribe

The survey revealed that 59.3 per cent of the operators were Muslims, 40.1 per cent Christians and 0.6 per cent traditionalists (valid cases = 172). The car wash business is overwhelmingly controlled and operated by the Yoruba, who accounted for 90.9 per cent, while other tribes namely Nupe, Ebiras, etc. accounted for 9.1 per cent. A typical feature of the other tribes is that they were fluent in Yoruba language and had a good grasp of the culture. The domination of the business by the Yoruba may be linked to the fact that the survey area in Ilorin is predominantly inhabited by the Yoruba.³

³ It is important to note that it is not in all cases in the road transport industry in Nigeria that the ethnic group of the survey location dominates the business. For instance, a survey of luxurious bus drivers in any location in Nigeria shows a predominance of the Igbo, while the Hausa dominate truck/trailer surveys and the Yoruba dominate the taxi business.

4.1.3 *Marital Status and Children per Family*

The survey revealed that 53.4 per cent of car wash operators were single, while 46 per cent were married and 0.6 per cent were divorced. For those that were married, 86.4 per cent had one wife, while the rest had a minimum of two wives. This was not surprising as a substantial proportion of the respondents were Muslims (see section 4.1.2) whose religion allows for more than one wife. The average number of children per married operator was computed at three, with a mode of two.

4.1.4 *Educational Attainment and Years in Business*

The level of educational attainment of the study sample showed that 4 per cent of the operators had no form of formal education, that is no schooling at all, 10.9 per cent had Koranic education, 14.3 per cent had attended primary school, 10.3 per cent had junior secondary school education, while 52 per cent had senior secondary education. Operators who had post secondary education accounted for 8.6 per cent (valid cases = 175). The educational level of the car wash operators is shown in figure 1.

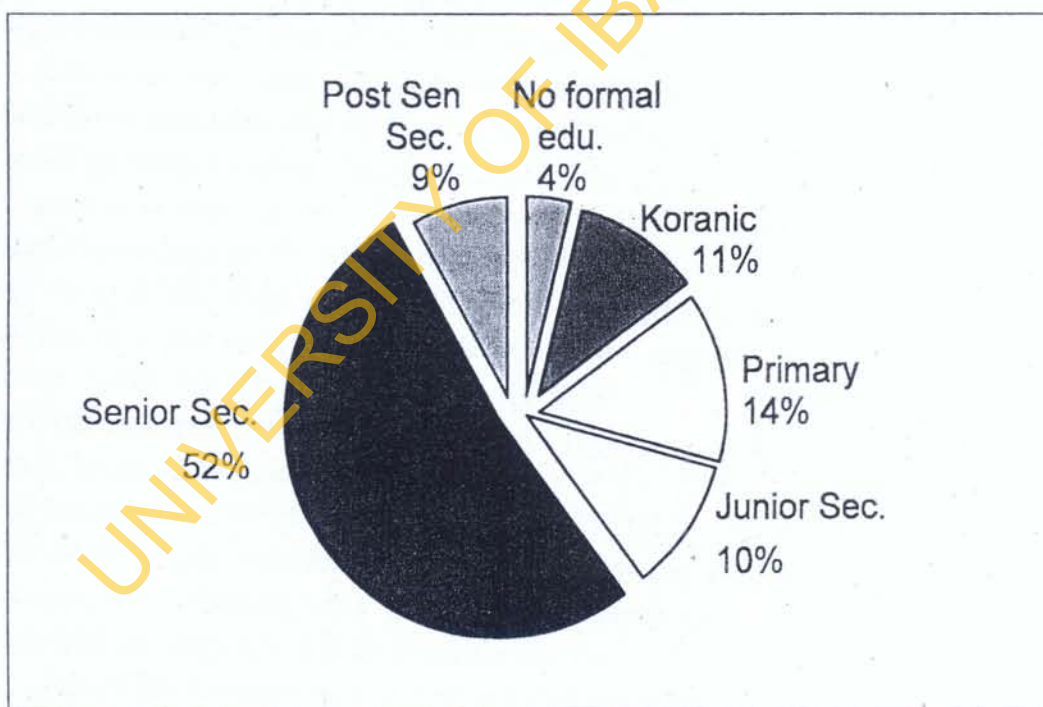


Figure 1. Highest Educational Attainment

The survey shows that apart from Yoruba, the local language spoken, the bulk of the operators were literate in English to some extent, which enabled them to communicate with their clients, particularly the non-Yoruba customers. Most of them, however, could only speak a type of English referred to as *Pidgin English*.

The survey also reveals that the mean number of years which car wash operators remained in the business is three and a half years. The distribution shows that 44 per cent of the operators have been in the business for not more than two years, while those that have spent between 2 and 4 years constitute 30.8 per cent of the operators. Only 25 per cent of the operators have spent more than four years (see table 1).

Table 1. Years in Car Wash Business

Years (Y)	%
≤ 2 years	44.2
Between 2 and 4 years	30.8
≥ 4	25.0
Valid cases = 172	100

Source: Field Survey

4.2 Sources of initial capital

As at the time of this survey, the reservoir used for storing water for the business was estimated to cost ₦32, 000 to construct. It excluded the cost of connecting water from the main water pipeline and rent for the land on which it would be built. No business can start without an initial sum of money. The bulk of the car wash operators started their business using their personal savings only (PSO). This source was used by 44.3 per cent of the operators as shown in table 2. The next significant source of capital for initial take-off was loans from the informal credit sector (LICS). This source of capital was used by 14.4 per cent of the operators, while 14.3 per cent of the operators used a combination of personal savings and loans from friends and relations (PSLFR). Other sources of capital included; personal savings and loans from the informal credit sector (PSLICS) – 12.1 per cent; loans from friends and relations (LFR) – 9.8 per cent; and personal savings and loans/grants from the government (PSLGG) – 5.2 per cent. The survey reveals that none of the operators used loans from the following sources; formal credit sector only, loans/grants from the government only, and the combination of personal savings and loans from the formal credit sector (PSLFS).

From the foregoing, it is evident that the major sources of initial capital for the operators were from the informal financial sector which included personal savings, loans from friends and relations, and loans from informal credit associations popularly called co-operative or *ajo*, either as a sole source or combined sources. Informal sources of finance therefore accounted for about 95 per cent of the sources used by the operators while the formal financial sector accounted for about 5 per cent. Even the funds from the formal financial sector were supplemented

with personal savings as shown in table 2. The graphical representation of the magnitude of these two broad sources of finance is shown in figure 2.

Table 2. Sources of Initial Capital

Source	Percentage
Personal savings only (PSO)	44.3
Loans from friends and relations (LFR)	9.8
Loans from the informal credit sector (ajoo, co-operative, etc) (LICS)	14.4
Loans from formal credit sector (banks) (LFS)	-
Loans/grants from the government (NDE, NAPEP, etc) (LGG)	-
Personal savings and loans from friends and relations (PSLFR)	14.3
Personal savings and loans from the informal credit sector (PSLICS)	12.1
Personal savings and loans from the formal credit sector (PSLFS)	-
Personal savings and loans/grants from the government (PSLGG)	5.2
Valid cases = 168	100

Source: Field Survey

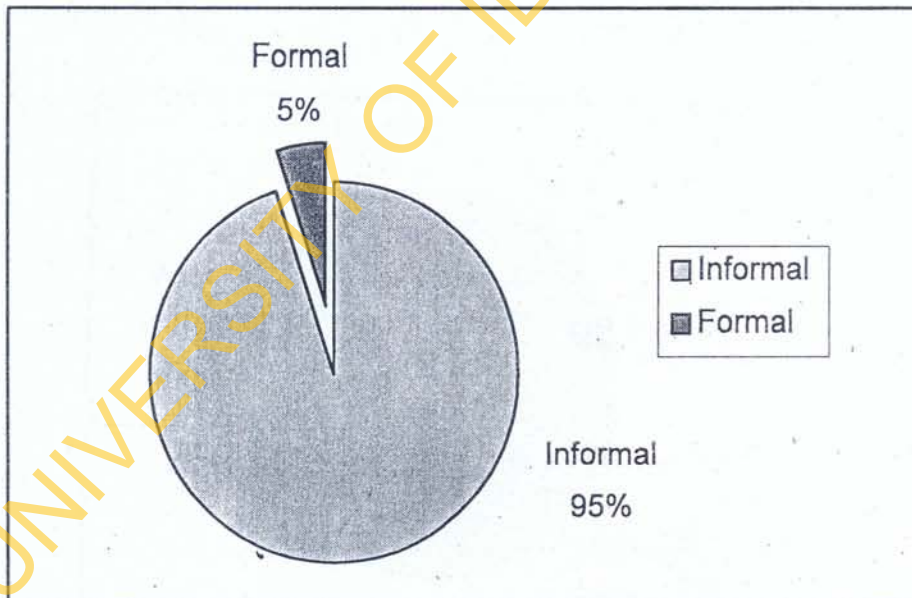


Figure 2. Initial Sources of Finance

Another important revelation from the above is the use of more than one source of finance to start the business. About 33 per cent of the respondents combined two sources of finance to commence operation. These results further corroborate the Arosanyin et al. (2005) study on the informal motorcycle passenger transport called *okada*, in which about 96 per cent of the operators used informal sources to finance the acquisition of their motorcycles. Also in the study, about 23 per cent used combined sources of finance to purchase their motorcycles. Ihimodu et al.

(2001) also show in their study of 382 informal enterprises that 89.7 per cent of the owners sourced their initial capital from informal financial sources, while formal sources accounted for only 10.3 per cent. The above shows that the financial needs of the informal sector activities are usually met through the informal financial market. There is a limit to how much the informal financial sector can provide particularly for expansion. This may be one of the reasons why operations in the informal sector are usually small and often a one-man affair, i.e., owner-operator.

4.3 Operational issues in car wash business

This sub section examines some operational issues in the car wash business.

4.3.1 Sources of Water, Pit Sharing and Operational Tools

The major input in the car wash business is water, apart from detergent and car polish. Regular water supply is required for the business to succeed. In the business, the slogan is usually *no water, no business*. The survey showed that 62.2 per cent of the operators rely on pipe-borne water supplied by the Kwara State Water Corporation for their business, 35.7 per cent use well water while only 2.1 per cent use stream water. The graphic representation of these sources of water is shown in figure 3.

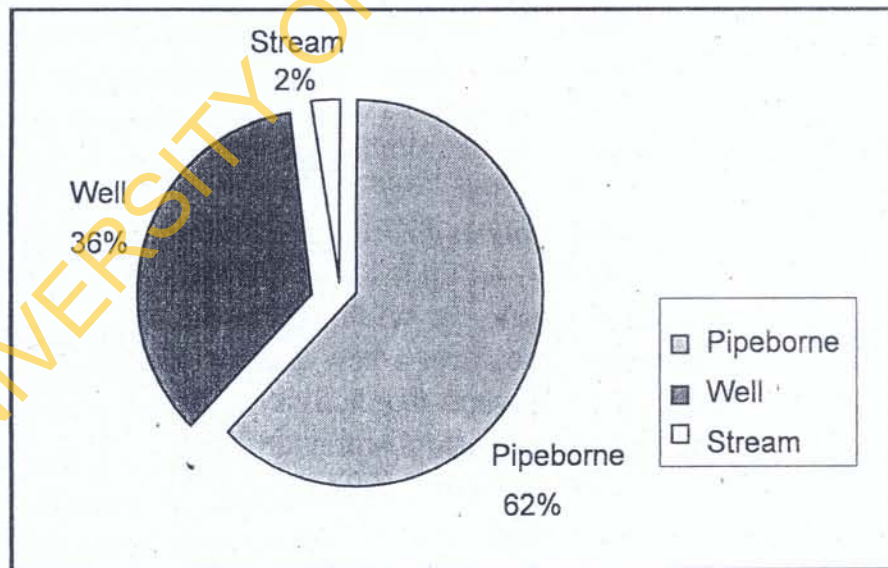


Figure 3. Sources of water

The heavy reliance on pipe-borne water, supplied by the Kwara State Water Corporation, explains why the bulk of car wash businesses are located along the main trunk pipe of the water corporation. Those who relied on well and stream

water were those located in areas where the water pipeline network was yet to cover. Even this group of operators located their bays along routes that future water pipeline expansion is expected to follow. Operators pay a fee for the water from the state's water corporation.

The water is usually stored in a concrete water reservoir. These reservoirs are usually called *pits* and they are shared by operators. The mean number of *pit sharers* was computed at three with two as the mode. The tools of operation are rudimentary, comprising bucket, brush, sponge or wash mitt, water hose and chamois.

4.3.2 *Apprenticeship Issues and Family Labour*

Undergoing a period of pupillage or apprenticeship in jobs in the informal sector is a common phenomenon. Some of the operators in this survey went through apprenticeship training before starting their business. The study shows that 51.2 per cent of the operators had apprentice training while the remaining 48.8 per cent did not. The fact that about 49 per cent of the operators did not go through apprentice training is an indication that; one, the business could be operated without any serious training, given that there is no sophistication in the car wash business in the area, unlike in advanced countries; two, most of the operators had been washing cars for their parents/relations without pay before they started the business.

For the category of operators that had apprenticeship training, their mean period of training was computed at six months, with twelve months as the mode. The survey also shows that about sixty per cent of the operators had apprentices at the time of the survey. The mean number of apprentice per operator was computed at two.⁴

As soon as the apprentice completes his training and undergoes what is called a '*freedom*' ceremony, he is free to set up his own business. This process leads to the establishment of more small-scale car wash centres rather than an increase in vertical growth. This splitting off to form a new enterprise in the informal sector is what Tinker (1987) called an *amoeba-like* activity. The apprentice system and its role in employment generation and establishment of small enterprises in Nigeria has been widely discussed (Ihimodu et al., 1997).

Apart from the use of apprentices, 28.1 per cent of the married operators used their sons as 'assistants' in the car wash business.⁵ The 'assistants' are usually

⁴ The apprentices are usually trained in the art of soliciting for customers; to be courteous, quick, and honest; and to use machines where available, apart from the processes for washing various vehicles.

⁵ The assistants wash the vehicle tyres, foot mats, etc. to reduce the time taken to complete the washing of the vehicle. The sons usually work after school hours or during holidays.

given stipends in return for their services. The stipend is usually not a daily wage but in the form of lunch or money for snacks called *owo ipannu*. The above confirms the prevalence of family labour in informal business activities.

4.3.3 Working Days, Use of Machines and Washing Density

The survey shows that majority of the car wash operators (90.3%) work between 6 and 7 days a week (table 3). Only 9.7 per cent of the operators work for less than 6 days a week. The reason for this overwhelming percentage of those working between 6 and 7 days a week is that the business is a daily income generating one. This tallies with a slogan in the Nigerian labour circle which says: *No work, no earning*. If you do not work for a day you earn nothing for that day. This daily income phenomenon is one of the attributes of the informal road transport sector and its supportive services. In local parlance, it is called *owo oojo*, literally translated as daily money. The mean working days per week was six days.

Table 3. Working Days per Week

Days	%
≤ 4 days	5.1
5 days	4.6
6 days	48.3
7 days	42.0
valid cases = 174	100

Source: Field Survey

The bulk of these car wash operators have no special car wash machine as shown in table 4. The survey shows that about 92 per cent of the operators do not use any machine (water pump). Only 8 per cent have water pumping machines which they use to get water from the reservoir under pressure to wash dirt from under the car, referred to as *underbody wash*.

Table 4. Use of Machine

Water Pump	%
Usage	8.1
Non-usage	91.9
Valid cases = 172	100

Source: Field Survey

In the urban informal sector or informal road transport sector, there are peak activity periods. In the car wash business, the survey shows that more vehicles are washed in the evenings, after close of work by 4pm, than in preceding hours. As

many as 92.2 per cent of the operators agreed that they wash more cars in the evenings than in the mornings (see table 5). On a weekly basis, 92.4 per cent of the operators affirmed that they wash more vehicles during the weekends than during week days of Monday to Friday. On seasonal basis, 64.3 per cent affirmed that they wash more vehicles during the dry season than in the wet season.

Table 5. Vehicle Washing Peaks

Period		%
Daily	Evenings	92.2
	Morning till 4pm	7.8
Week	Week days	7.6
	Weekends	92.4
Season	Dry	64.3
	Wet (Rainy)	35.7

Source: Field Survey

4.4 Employment, pricing and income generation

4.4.1 Employment

The urban informal sector employs a substantial number of labour, particularly through self employment. Business activities in the informal sector serve as income generating ventures for people. The car wash business employs people both on full-time as well as part-time basis. The survey shows that about 67 per cent of the operators are engaged in the job on full-time basis, while only about 33 per cent of the operators do the job on part-time basis (valid cases = 173). The graphical representation of this distribution is shown in figure 4.

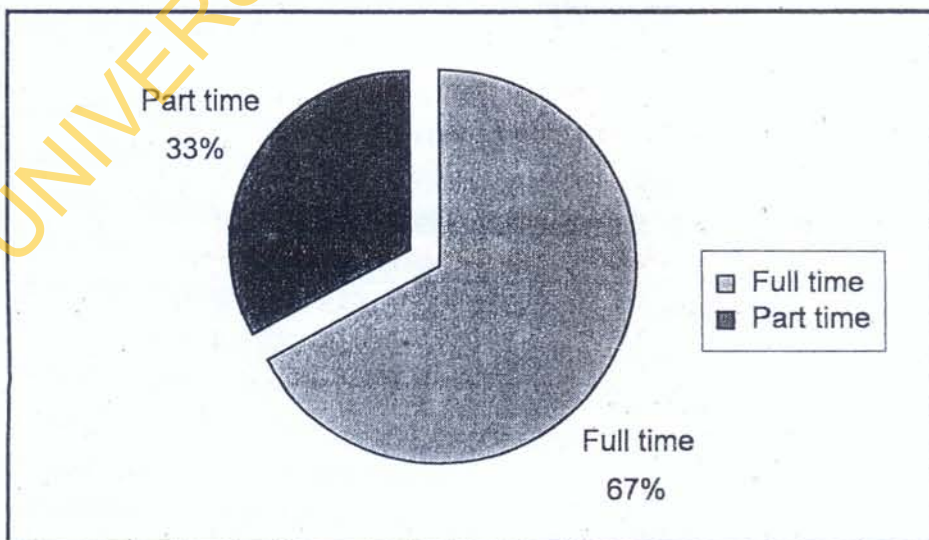


Figure 4. Employment Type

One particular feature of this type of business is the prevalence of sole proprietorship. The sole proprietor can rent or share his pit with others for a fee. Those who engage in the business on a part-time basis have other occupations/vocations as shown in table 6. The major supplementary occupations are schooling, artisanship and trading.

Table 6. Other Occupation/Vocation

Types	%
Schooling	24.6
Trading/Marketing	15.8
Artisanship	31.6
Teaching/Civil Servant	7.0
Farming	8.8
Others	12.2
Valid cases = 57	100

Source: Field Survey

4.4.2 Pricing

In the car wash business, the charges for services rendered are usually determined by the unions. They are usually fixed rates. As at the time of this survey, cars were washed at ₦100, while washing a car as well as its engine cost ₦150. It cost ₦150 to wash a bus without the engine, and ₦200 if it included the engine. In the case of trucks, the charges ranged from ₦300 to ₦800 depending on the size and configuration of the truck. It is important to note that the above prices are negotiable depending on the disposition of the operator and his relationship with the customer or owner of the vehicle.

4.4.3 Income Generation

The mean number of vehicles washed per day per operator was computed at 18. The mean gross earning per day was estimated at ₦2,611.00. Given that the mean working days per week was six (section 4.3.3), it means that in a week the operator earns an average of ₦15,666. On the assumption of 4 weeks in a month, an operator earns on the average ₦62,664 monthly. This monthly earning was, at the time of this survey, more than the total monthly emolument of an assistant lecturer in the Nigerian university system, which was ₦37,808.42 (as at 2003). The statistically significant determinants of gross earnings were found to be the number of vehicles washed, which is the core determinant; experience, measured by the number of years in the car wash business; and apprentice access. While the number of cars washed and experience were positive, apprentice access was found

to impact negatively on earnings (see technical appendix for details of the earning models, results and interpretation).

4.5 Other issues

Other issues which are peculiar to car wash operations in Ilorin include the fact that they wash rugs, curtains, upholstery, etc, which serve as other revenue sources. The washing of these items are occasional and are usually done when there are no vehicles at the bay for washing. Apart from the water rate paid to the Kwara State Water Corporation, the car wash operators seldom pay taxes to the government. The income tax is 10 per cent of earnings. Given that an operator earns ₦62,664 monthly, his tax default is equivalent to ₦6,266.40 per month. For the surveyed operators numbering 176, the government is losing ₦1,102,886.40 in income tax per month or ₦13,234,636.80 yearly. The losses are higher since the existing car wash operators are more than the figure surveyed.

5. Problems of Car Wash Service

No business whether in the formal or informal sector is free from problems militating against its efficiency and progress. The problems of the car wash business in Ilorin are examined from two perspectives; the operators' perspective and inference from observation.

There are basically three problems inhibiting the progress of this business from the perspective of the operators. The survey shows that irregularity of water supply is the most important problem as it was ranked 1st, accounting for 38.9 per cent of the total weighted score of 911. This is followed by inadequate capital to enable operators modernize their operations. This constraint was ranked 2nd with 36.4 per cent, while the third problem is a combination of police, local council and customers harassment, which scored 24.7 per cent. Harassment from the police and the local council is a recurrent problem of informal activities. This is usually due to the fact that: they are not legally registered; they do not pay taxes; they pollute the environment; or often operate in locations that cause obstruction of traffic. The three problems identified above are all significant because they met the 10 per cent benchmark.

The problems of this informal activity can also be examined from the perspective of field observation. Notable among the problems of this activity is the issue of externalities. These are problems which they create for others. It is not uncommon to see the *pits* filled with water and running over onto the streets, when water is available. This is a clear manifestation of wastage of scarce water in Ilorin metropolis. Two, the waste water from the bays are not properly channeled in most cases. They form stagnant pools in the blocked drains and therefore serve as avenues for breeding mosquitoes, a vector in the malaria crisis. Three, their activities near the road at times are hazardous to road users; water is splashed on

passersby or pedestrians and accidents do occur in an attempt to enter or exit from the bay.

6. The Way Forward

The car wash industry is a vital segment of the urban informal economy within the road transport sector. The employment and income generation benefits are enough reason why the activity should be made to function properly. The operators' perspective of requirements to move the business forward revealed that regular supply of water is the first thing required to make their operation successful. This measure ranked first with 49.4 per cent of the total weighted score of 575. This is not unconnected with the fact that regular supply of water is the *soul of the car wash*. The second important factor is financial assistance, which ranked second with 38.3 per cent. The operations of the car wash businesses surveyed are rudimentary, with very few operators using pumping machines. Financial assistance could be obtained from small and medium enterprise loan and micro finance schemes. Access to this resource could be channeled through their union or co-operative society for effective utilization and recovery. The government should play down the issue of collateral security. The third important issue that can assist in the growth of the business as identified by the operators is if the harassment by the police, council officers and customers, which ranked third with 12.3 per cent, is stopped. While this is desirable, it is important to note that harassment is one of the problems of urban, informal sector activities as they are unregulated, unregistered and lack any established code of conduct. This incessant harassment can only be stopped if the operators are registered, obey council laws, pay taxes as at when due, and improve their service delivery.

7. Conclusion and the Need for Further Research

This paper has examined the operations and employment and income effect of the car wash industry in Ilorin, Nigeria. The survey further confirms the place of the urban informal sector as a core employer of labour particularly of the urban unskilled and semi-skilled types.

There is the need to further explore the potentials of the car wash industry by regulating it and providing less stringent financial assistance for expansion and modernization. The financial resources required by the car wash operators for modernization are definitely beyond the scope of the informal credit market. It is therefore necessary for the formal credit market to assist these operators. The current recapitalization of banks in Nigeria and the other banking sector reform should provide a programme for the provision of loans to small-scale enterprises particularly those in the urban informal sector, which have high employment-generating potentials.

This research focused on Ilorin which is just one of the numerous state capitals and urban areas where car wash operations exist in Nigeria. There is the need for further research that will cover a wider range of issues and segment of Nigerian urban centers. Also there is the need to conduct research on car wash services in semi-urban areas. This is important to gain an insight into the peculiarities and spatial dimension of the issues discussed in this paper.

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TECHNICAL APPENDIX

1. Earnings Models

Earning functions have been used across various types of employment as methods for evaluating the determinants of earnings and differentials in earnings. These functions are sometimes called Mincerian equations (Mincer, 1974; Rama 2002). Earning functions are diverse, and often reflect the features of the area of usage such as gender, child labour, informal sector, transport services etc (see Rodgers, 1999; Cervero, 2000; Artecona and Cunningham, 2001; Bourguignon et al., 2003; Suleman and Paul, 2004; etc). The determinants of gross earnings in informal sector activities, particularly in the transport industry are many and varied (see Cervero, 2000; Arosanyin et al., 2005). Principal among these variables are sex, educational attainment, work experiences or years in business, marital status, age, ownership status, patronage level, etc. The choice of variables is a function of the peculiarity of the employment being investigated. In this study the earning models are formulated as linear functions of the explanatory variables used. These models are as shown below.

$$\bar{r}E_i = b + \sum_{j=1}^n c_j x_{ij} + \epsilon \quad (1)$$

$$\log GE_i = b + \sum_{j=1}^n c_j x_{ij} + e \quad (2)$$

where GE is gross earning per day; b is the constant; c_j are the coefficients; x is a vector of determinants namely number of vehicles washed per day, that is patronage (NV), number of years in business (YB), which is a measure of experience, highest educational attainment of operator (LE), number of pit sharers (NPS) and apprentice access (AA); while e is the error term. The a priori expectations for model 1 are:

$$\frac{\partial G\epsilon}{\partial NV}, \frac{\partial G\epsilon}{\partial YB}, \frac{\partial G\epsilon}{\partial LE}, \frac{\partial G\epsilon}{\partial AA} > 0$$

while $\frac{\partial G\epsilon}{\partial NPS} < 0$

The a priori expectations for model 2 are:

$$\frac{\partial \log G\epsilon}{\partial NV}, \frac{\partial \log G\epsilon}{\partial YB}, \frac{\partial \log G\epsilon}{\partial LE}, \frac{\partial \log G\epsilon}{\partial AA} > 0$$

while $\frac{\partial \log G\epsilon}{\partial NPS} < 0$

It is important to note that the constant for both models are expected to be positive, and statistically different from zero for any of the models to be relevant.

2. Data Measurement for Determinants

The following measurements of data were used for estimating the car wash earning functions. The earnings from car wash service are measured in Naira- the Nigerian currency. The daily gross earnings were used because it is more pragmatic, given that the job is a daily-paid job, which is a feature of most informal service sector. The gross earning is preferred to the net due to the fact that any attempt to ask questions on operational cost and tax may completely jeopardize the research through hostility and non response. The average number of vehicles washed was used for *NV* while *YB* is measured in completed years. The ordinal measures are those of *LE* and *AA*. For highest educational attainment (*LE*), no schooling = 1; koranic = 2; primary education = 3; junior secondary = 4; senior secondary/technical = 5; post secondary = 6. In the case of apprentice access (*AA*), operator without apprentice = 1; operator with apprentice = 2.

3. Results and Interpretation

The OLS estimates of the earning models are shown in the below.

Table 7. Determinants of Gross Earning

Determinants	Dependent Variables	
	Gross Earning (1)	Log Gross Earning (2)
Constant	101.2*** (1.48)	6.87* (153.4)
NV	148.5* (70.1)	0.05* (39.31)
YB	-0.68 (-0.14)	0.005** (1.82)
NPS	-7.60 (-1.01)	0.0002 (0.05)
AA	-47.60** (-1.67)	-0.04** (-2.00)
LE	-9.07 (-0.87)	-0.007 (-1.05)
	R ² = 97.3 R ² Adj = 97.2	R ² = 91.9 R ² Adj = 91.6
	F = 1006.3 N = 148	F = 322.63 N = 148

Notes: t value in parenthesis; * Significant at the 1 per cent level; **Significant at the 5 per cent level; ***Significant at the 10 per cent level.

From the results in table 7, it is evident that both models are good for explaining the determinants of GE. Although both models have high R^2 and are statistically useful based on the F test, model 2 is preferred to model 1. The preference for model 2 is based on the fact that the constant is significantly at one per cent level than model 1 where the constant is significant at the 10 per cent level. Secondly, it has three vital and significant explanatory variables. Using this log GE model (model 2), three variables were found to be significant using the t-test. NV was found to be statistically significant at one per cent while YB and AA were found to be significant at the five per cent level. Both the coefficients of NV and YB conformed to the positive a priori expectation, but AA did not as it depicts a negative relationship between log GE and AA. The model shows that there is a positive relationship between gross earnings and number of vehicles washed on one hand and gross earning and years in business on the other. The positive relationship between GE and YB depicts the preference of customers for old and experienced operators. The negative relationship between log GE and AA could be an indication that customers do not usually want to wash their cars where apprentices are present and used. This is because they do not wash well, and at time not careful in cleaning. It is important to note that other factors were not significantly important as determinants of gross earning. In fact some of them apart from being insignificant did not conform to a priori expectations, particularly education. The fact that education was not significant underscores the fact that education places very little role in informal sector operation.