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PRICING OF TRANSPORT SERVICES: A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE OPERATORS IN ILORIN

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ABSTRACT

More often than not, the aim of government participation in the production of goods and services is to provide affordable products for the generality of its citizens. In the same vein government participation in transport service provision is to enable it to make the services available to the public at a fare lower than erstwhile obtainable. The inability of government operated fleets to charge lower fares, considering government enormous investment and revenue losses of the corporations, necessitate a policy reappraisal on government participation in transportation services provision.

The research involves a comparative analysis of government and private provided transport services, taking into consideration factors like cost and service demand. Also the perception of commuters to prices was appraised to support the proposition that lower fares attract more customers in the business.

Primary data on commuter's perception of fares charged as a determinant of choice among bus transportation mode, and data relating to fares charged by different modes of commercial bus transport were gathered. Means and standard deviations were used to analyze data on perception while student 't' was used to compare mean of transport fares gathered.

The result is that government fares are not statistically different from private sector operated transportation facilities, and lower prices charged by road side, company operators and government owned attract commuters to them. Government subsidy for private operators or government operating as fully commercial undertaking was recommended.

1.0 INTRODUCTION

The importance of the need for movement of people and properties is one that can not be over emphasized. People move from one place to another for pleasure or for business. Movement of people for short trips and long journeys started since creation of man and used to be on foot. It graduated to the use of animal for transportation and

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later machine which has passed through stages of development and is still developing to date. Various modes of transport (rail, road, water, air and pipe line) exist, but according to Usman (1989) road seems to be most favored in Nigeria due to physical and human geography of the country.

Transportation could be referred to as the system by which people and goods are moved from one place to another. For people wishing to move self or goods from one place to another today, have the options of either providing their personal means or using the commercially operated types where available. Unless there exist legal restrictions the only important consideration in self-provided transportation is resources of the individual. This is to say that an individual may choose to travel on a bicycle or his private jet if the individual has the means. If one chooses to use the commercially provided type, a range of decisions and decision combinations are always available to the individual.

All means of transportation are commercially available, like for other goods and services, at varying prices. In almost all parts of the world, government, like in other sectors, plays an important role in commercial transportation even to the extent of operating a transport service and mostly also at a price expectedly different from private provided types.

An important benefit of commercial transportation (be it private or government provided) is the fact that the relatively poor members of the society that do not own their private means will have the opportunity of transporting self and goods to any destination. Commercial transportation as a business, like all other business, is at a cost and the cost is expected to be reflected in the fares charged, for the providers to survive in the business.

This first section introduced the work and the remaining part is divided in to three sections. Section two is for literature review and theoretical frame work of the research, three for the methodology of the study and the analysis of result and conclusion constitute the final part of this paper.

In developing Countries like Nigeria, the poverty level is such that essential goods and services provided are not within the reach of majority of the populace. This is, especially, so when these goods and services are privately provided. This reason, more often than not, necessitates the involvement of the government in the provision of such goods and services, either completely as a monopoly or along side private providers. Government provided goods and services are therefore, for no other reason than as a social responsibility to her citizenry.

Government is expected to provide services at a price cheaper than any other private provider, because there services are not profit motivated. The transport system reveals the contrary of this. There exist private provider offering equal and even lower prices when compared with government provided one. The problem now becomes the method and/or level of government participation in the sector taking the lapse mentioned above in to consideration.

This study is an empirical work that is designed to shed more light on transport services pricing and specifically compares private provided with public owned in Ilorin Kwara State, Nigeria.

1.1 OBJECTIVES OF THE STUDY

The overall objective of this study is to carry out a comparative analysis of the private and public sector in the area of pricing of transportation services that are provided by them. The following specific objectives are pursued,

- General analysis of pricing decision and of transportation pricing system,
- Comparative analysis of public and private sector pricing system,
- Determination of the effect of price on commuters choice,
- Recommendations on public transport pricing and general policy on transportation.

1.2 STATEMENT OF HYPOTHESES

Two hypotheses stated here under are tested:

Hypothesis 1

- H₀ — There is no statistically significant difference between the mean of the prices of public provided transport services and the mean of the prices of private provided transport services.
- H₁ — There is statistically significant difference between the mean of the prices of public provided transport services and the mean of the prices of private provided transport services.

Hypothesis 2

- H₀ — Price is not considered an important choice variable between government provided and private provided commercial transport services.
- H₁ — Price is considered an important choice variable between government provided and private provided commercial transport services.

1.3 SCOPE OF THE RESEARCH

Wide range of transport services are provided commercially by the private and the public sector in Nigeria. Road, air, and water all have the presence of government and private individuals/corporate bodies. This study shall be limited to Bus transportation Service for inter city purposes and originating from Ilorin. Specifically, Kwara express (state government owned and managed corporation) shall be compared with three other categories of private bus service providers which include corporate bodies, private individuals registered under unions and individuals not registered at all.

2.0 LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

Theories of pricing and that of public corporation are relevant to this work. Profit maximizing theory is the most popular of pricing theories. Although sales maximization theory by Baumol and others also exist, that of profit maximization is most discussed and it is also most relevant to this study. According to Lucey (1997)

micro-economics states that firms should seek the price which maximizes profit and will thereby obtain the most efficient use of the economic resources held by the firm.

In the same vein and giving more insight to pricing theory, Asaolu and Nassar

(1997) stated that

the theory is based on the concept that a relationship can be established between price, quantity demand, quantity sold and total revenue.

They stated further that demand sympathizes with price and therefore varies with it, and if an estimate can be made of demand at different price levels, it should be possible to derive a revenue and also profit maximizing price.

Drury (2000) identified demand as determinant of price, and went ahead to highlight the importance of cost on it. According to him where some organizations depend on the market forces of demand and supply to determine prices, other pricing decisions are influenced directly by their cost of production.

Public corporations, especially in developing countries, are established as a social service. According to Oshisami (1991), the establishment of public corporation is said not to be for profit generation but could be said to be for achieving the aim of socialism that make available essential goods and services within the means of the common man. Placed in the hands of private operators, the accessibility to the essentials would have been difficult for the majority of the populace.

In line with this Chang (1999.4) stated that

where the objective is one of income redistribution through public ownership, contribution to cost recovery rather than full cost recovery is the focus of management, and often, the enterprise receives government support through direct subsidies.

In summary, pricing theory that is based on profit maximization emphasizes cost and demand determined pricing, while public ownership theory emphasis social well being of majority of the populace.

2.2 CONCEPTUAL FRAMEWORK

2.2.1 PRICING DECISIONS

2.2.1.1 PRICING OF TRANSPORT SERVICES

Like other goods and services, the price of public transportation is also influenced by the forces of demand and supply and also cost of production. Road passenger transport according to Nash (1982) is like a perfect competitive market which is usually "characterized by a large number of small firms supplying similar products with easy entry to the market." For the sake of this, it is expected that road passenger transport could be treated like a perfectly competitive market. In determining the price of transport service, the objectives of the operator is important. Before reviewing transport fare determination, it is important to review the nature of transport demand and cost.

2.2.2 DEMAND FOR PASSENGER TRANSPORT

The nature of inter-urban passenger demand was discussed by Nash (1982). According to him, direct demand model and sequential demand model could be used to establish demand for transport services. Having stated the weaknesses of the two models and their strengths, he stated further that "most inter-urban travel demand models are elaboration of the basic gravity model principle, which states that:

Cost of road infrastructure on the other hand is common to different companies, individuals, and even government. Consequently, it is difficult to apportion. Four bases of allocation of these costs, according to Nash, include:

- Vehicle miles
- Passenger Car Unit Miles
- Gross vehicle weight miles and
- Standard axle miles.

Road constructed by the government usually involve commitment or economics resource with inter urban roads consuming more in Nigeria (Ogunjumo, 1988).

2.2.4 PECULIARITIES OF TRANSPORT PRICING

Cervero (1985) stated that two competing rationales exist for defining transit fares structures. Fare is either set to reflect cost structure or the perceived value of services. That is to say it could be cost based or quality or service based.

If fare is value-based, it tends to capture what users are willing to pay for services as reflected in their demand scheduling. Service reliability, comparative travel time, passengers amenities and safety, have important influence on such demands.

Pricing of transport services can not be compared with some other products. Some of transportation service products are some times lost if it is not consumed because they can not be stored. For example, a ten-sitter bus that traveled with just seven passengers automatically loses the revenue of the remaining three. This adds to cost and affects also, price. The consequence of the above, according to Nash, is that output and pricing decisions do not necessarily determine one another. He said, accordingly, that "the most sensible practical approach to pricing decisions is not to base price on estimates of costs", but to reverse the procedure and to consider the capacity and cost implications of alternative levels of price.

Another factor in transport fare determination is the objective of the operator. Nash (1982) identified a profit maximizing objective for private operation and non profit maximizing one common to state owned services. According to him

a profit maximizing operator raises fares whenever demand is inelastic.

Also that he could raise fares even if demand is elastic as long as there would result bigger reduction in cost than loss in revenue. The operator is never expected to charge fares to result in loss of revenue. He is never expected to charge fare to result in loss and at the same time fare should not result in over exploitation of the customers. This may in the long run affect their business. If prices are too high people may decide to own their cars which according to White (1983), affects bus services. For state operated services, though not to behave commercially, Nash(1983) stated that they are expected to be financially self-supporting, earning a target rate of return on capital employed and possibly financing part of their capital requirements.

2.3 EMPIRICAL STUDIES

A number of work has been carried out bringing together public sector provided and private sector provided services into Focus.

Viton (1982) viewed a situation where there exists a publicly operated system

and private firm(s) are entering into the market. He sees the private firms as being in a tight corner as the existing system is "not constrained to cover all costs from the fare box". The fact that public utility system is not expected to maximize profit made him conclude that public operated transport deters private entry.

Meyer and Gordon (1982) explored the benefits of cooperation between Government and private sector in providing transport services. They concluded that government and corporate employers could cooperate to provide transportation services.

Purchase and Markstedt's (1983) study was more about government subsidy for mass transit. The result of their study carried out in America was that government subsidy has kept fares down, expanded services, but increased cost beyond inflation rate. They carried out a regression which shows that operating cost of private operators are lower than publicly managed transit systems. The result of their study put in doubt, the applicability of economy of scale to transportation business.

Close to Vitons' findings, Kay et al (1998) considered pricing of a new tunnel for transportation where others including government owned exists. They believed that the firm with lower cost of technology rules in pricing, but recommended cooperation among players for optimal pricing.

Ikporuko (1998) examined the role of public sector in urban mass transit provision in Nigeria. He sees public transport service as business of the private sector, and suggested the running by public sector as an economic enterprise or the provision, by government, of buses for private concerns to operate.

3.0 RESEARCH METHODOLOGY

3.1 METHOD OF DATA COLLECTION:

Survey method of data collection was used for the purpose of this study. Data were sourced through personal contact with the respondents. In doing this, personal interview was conducted and questionnaire administered in relevant areas and on relevant personnel of organizations, members of unions, unofficial transporters' agents referred to as touts, and sampled individual commuters.

Sampling is pertinent to three aspects of data generation for this research. The aspects are determination of the destination (city) to be used, number of corporate operators to be considered and number of commuters that should be interviewed. For the first, major cities been plighted and one per state for Kwara express were considered. This is also applied to other modes of Bus transportation under consideration. For corporate operators, three companies that are easily accessible were considered.

And, finally, for the commuters interviewed, one hundred willing respondent are sampled by simple random means without replacement, from University of Ilorin students population.

3.2 METHOD OF DATA PRESENTATION AND ANALYSIS

Two types of data used are presented and analyzed as appendix to the work. All data are tabulated after necessary editing. Opinions like data from commuters also are tabulated in the same vein. For analyses, student t, statistical method was used to test for the difference between the means of bus transportation modes. This statistical

method is appropriate for comparing mean of two samples with sample number less than thirty.

For data generated from commuters which seek to capture their perception of the impact of price on demand for one means as against the other means, standard deviation and coefficient of variation were computed and used to analyze the data which were on a Lickert scale of one to five. Computed means were compared with expected mean of '3'. Expected mean of (3) is the result of an even response to the scales of one to five.

The result of both analysis served as bases upon which decisions to accept or reject our hypotheses were reached.

3.3 FORMULAE

Student T.

$$\text{Critical Value } t = \frac{\mu_1 - \mu_2}{SE} \quad (1)$$

Where μ_1 = Mean of sample 1

μ_2 = mean of sample 2

SE = standard error

$$\text{Standard error} = s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \quad (2)$$

Where n_1 = size of sample 1

n_2 = size of sample 2

S = Pooled standard deviation.

$$\text{Pooled Standard deviation } S = \sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-1}} \quad (3)$$

Where S_1 = standard deviation of sample 1

S_2 = standard deviation of sample 2

$$\text{Degree of Freedom } Y = (n_1 - 1) + (n_2 - 1) \quad (4)$$

$$\text{Mean} = X = \frac{\sum X}{n} \quad (5)$$

$$\text{Standard deviation} = S = \sqrt{\frac{\sum (X - X)^2}{n-1}} \quad (6)$$

$$\text{Coefficient of variation} = \frac{S}{X} \times 100\% \quad (7)$$

Source: Drury (1996)

3.4 DECISION RULES

Our calculated T is less than table value of T at 5% level of significance and at the degree of freedom appropriate the null could be accepted and alternative rejected, and vice versa.

Hypothesis 2's null is failed to be accepted if computed mean is greater than expected mean, and the alternative could be accepted then.

4.0 RESULT AND CONCLUSION

4.1 RESULT

The result of analysis using student T distribution depicts pictures that point in the same direction. Case I which compares government provided with corporate operated, at 95% confidence limit and degree of freedom of 14 (see appendix), show the mean of the two samples to have no statistically significance difference. This point to the fact that there is no serious difference between prices, charged by the two modes in the case. Table value in case I is 2.145 while calculated value is 0.1326. For cases II and III that compares government provided with organized unions in motor parks and with road sides respectively, the result shows a similar thing. The degree of freedom for case II is 13 while the other remains 14. For the last analysis the mean of Kwara Express fares was compared with all private providers put together and same result like when separated was obtained. Over all we may up-hold our null hypothesis 1 because all calculated T are less than table value of T. Where calculated value was 0.1065, table value was 2.045, when all private providers were merged. The degree of freedom in this case is 29.

The second analysis that tend to investigate the relationship between price and commuters preference for a mode of bus transportation shows the result of computed mean to be greater than expected mean of '3'. For this we may conclude that our null hypothesis 2 does not hold. This help to explain the fact that price really affects the behavior of people patronising any of the modes considered. Close analysis of above, as shown in table 4 under the appendix, shows customers of individual operators not registered with union and not corporate transporter at one extreme and customers of registered operators in motor parks at the other extreme. Where the earlier stated that prices have serious effect on their choice the later stated that price, do not seriously affect their choices but other factors. In between, we have government provided and corporate transporters' commuters that exhibits a fair combination of price and other factor, with price and other factor having upper-hand in influencing, government operated and corporate operated commuters respectively.

4.2 DISCUSSION OF FINDING

Pricing of transport services is not seriously different from profit maximization pricing theory mentioned in the literature. It is greatly influenced by cost and also has effect on demand for one means of transport as against others, as shown in our analysis. However, there is a peculiarity in transport costing which has to do with inability to store services produced and hence an extra cost.

The theory that underlies public service provision is significantly deviated from, when compared with the result here. This is because it is not ideal for there to be possible the existence of any private provided service that charges fares that is equal to government provided and even less than it. Government provided service is in theory service oriented not profit motivated. Also, some benefit which does not accrue to private operators does accrue to government managed enterprises. All these brought together are expected to make government transport prices to be cheaper compared to any private one.

The work of Purcher and Markstedt (1983) seems to agree with the result of

this study on the fact that economy of scale does not apply to transport operation. State owned service with the highest number of fleet and reasonably higher level of operation is not offering the lowest fare, which should be the case if the laws of return to scale actually hold. Viton's (1982) assertion is not seriously applicable here, in his own case, the existence of public own service serves as a kind of check on private pricing. This study reveals a situation where one seems not to disturb the other. This is because government fares, when looked at as obtained from respondent, are not seriously far from those charged by corporate operated services. It may further even make one to think that corporation for optimal pricing, recommended by Kay et. al. (1998), is in practice.

4.3 CONCLUSION AND RECOMMENDATION

4.3.1 CONCLUSION:

It could be seen from our findings that the aim of public corporation is not being achieved in the case of publicly provided transport service. Despite tax freedom on profit and other benefits enjoyed by state owned services, they are unable to provide services at a price that could be said to be the masses oriented. This in turn has led to further losses incurred by people who seek cheaper but unofficial means, in form of load loss and even robbery as often reported in the media. The difference between Motor Park (Road Union) fare and government own is only because of the charges of unions. Without the charges, their fares too may not be higher than government owned.

4.3.2 RECOMMENDATION:

There is a clear difference between what government should manage and what should be run by the private sector. A clear demonstration of this is what is obtainable in advanced countries and the current drives of Nigerian government. Government in most developed countries are concerned with defense, security and other centrally manageable affairs while the private sector takes full charge of business like activities. In the same vein, the government of Nigeria has taken a giant leap towards privatization of sectors believed to be better managed in the hand of private individual and corporate bodies.

The Recommendation here is that the business of transport should be left with the private concerns. If the government is to step in, however, it should not be beyond assisting operators in line with Ikporuko (1998)'s suggestion which encourages government providing buses for private operators as done in the past under Federal urban Mass transit scheme and some other state assisted schemes. This should not be free, but to a reasonable extent be subsidized, as operators too shall make money from the business. This would translate in reduction in total cost and possibly reduction in fares.

Alternatively, the government decision to go into transportation should be strictly economical (that is not as a social service). Consequently, the enterprise must be profit oriented and taxable. By so doing the government will not be investing in an unprofitable venture that is not achieving its aims. By and large, the first recommendation, the researcher believes, should yield better result, this is because it will create more employment if well distributed. It would also avoid the diseconomy of

scale associated with transport business.

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