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Evaluation of Intercity Public Transport Service Quality and Passenger Patronage

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Abstract. *The study assessed the level of customer satisfaction with the quality of services offered by the main intercity public transport companies on the Owerri-Lagos and Owerri-Abuja travel routes in Nigeria. The study's objectives were to establish the level of patronage for intercity public transport providers and evaluate the level of service these providers offer on the assigned routes. To collect primary data, a survey instrument called a questionnaire was employed. Utilising the SERQUAL model of service quality, the study assessed respondents' pre-service and post-service quality expectations and views. Eight key intercity public transport operatives that transport the most intercity passengers through Owerri-Abuja and Owerri-Lagos routes were investigated, in addition to representing the long-distance intercity ways with the topmost demand for intercity journeys from Owerri. The following operators were selected for the study, namely, ABC Transport, LIBRA Motors, Young Shall Grow Motors, Heartland Travels, EKESONS Transport, GUO Transport, CHISCO Transport, and God is Good Motors (GIGM). Descriptive, inferential, and SERQUAL gap models were used to assess the gathered information. The major intercity public transport service operators' mean coefficient of service quality on the Owerri-Lagos and Owerri-Abuja routes is 23.6%, which suggests that their services are of low quality. However, GIGM received the highest service quality score (31.3%), indicating that individual operators in the sample offer services of disproportionately high quality. Additionally, the findings show that the mean daily patronage (MPAR) of 117.72 people was collected by the operators of intercity public transport services. The analysis also shows a substantial relationship between the amount of demand for intercity travel through specific operators and the quality of intercity public transport services. Individual operators must raise the calibre of their intercity travel services since there is a chance that giving the highest calibre of services and value to clients may increase demand for intercity travel.*

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Introduction

Over the years, the strategies and systems in transport development proffer that the demand for transport either passenger or commodity transport is a derived demand, and as such requires efficiency in operations and must be sustainable (Monyei, Aiyelabegun, Kelvin-Iloafu & Ukpere, 2023). This suggests that the demand for transport is derived from the need to satisfy other needs, for example, the need to transfer goods and services across geospatial locations. In Nigeria, the provision of intercity public transport services occurs in a competitive market setting, marked by the preponderance of many privately owned intercity public transport bus service providers or operators with few publicly held intercity public transport operators (Nwokedi et al, 2020). Thus, even the demand and patronage of the services of these competing service providers is derived from the desire to satisfy other needs; as it is influenced by several other factors such as fare levels charged by the individual operators, quality of services rendered on given corridors/routes, travel time and delay components, comfort, and other intercity public transport service attributes. The level of patronage to the services of the individual operators is as a result deemed to be influenced by other factors other than fare levels and the extent derived demand variables (Nwokedi et al, 2020). Patronage in this context is the number of passengers or intercity travellers willing and ready to demand and pay for intercity travels on a given corridor, through a given service provider over a specific period, for example, daily, weekly, monthly or annually. The level of patronage to the services provided by the intercity public transport operators is important because it has a relationship and influence on the revenue earning capacity of the operators, the profitability of the intercity public transport business component and consequently, the sustainable development of the transport sector in Nigeria. Service providers with very low levels of patronage may not survive the competition in the industry in the long run (Ugo & Ejem, 2020).

Available empirical studies agree that fare levels charged by operators significantly influence the level of demand and patronage for intercity public transport service providers. The same is observed for public transport service attributes such as comfort, safety, travel time, etc (Ugo et al, 2022; Apostolos et al, 2013). The opinion is that in line with the laws of demand, lower intercity travel fares will lead to increased

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demand for the services of individual operators, while improved passenger comfort, guaranteed safety, and optimized journey time will also lead to increased demand or patronage for the services of individual operators, even when the fare is higher.

However, the extent to which the quality of intercity public transport services rendered by individual operators influences passenger patronage and service demand through the operators is yet to be ascertained. While studies by Ali (2015), Adeniran and Fadare (2018a), and Choi and Chu (200) have described the basic relationship between service quality and passenger satisfaction, it is also known that other factors, such as public transportation service attributes, have an impact on passenger satisfaction, which in turn has an impact on public transportation service quality. This implies that any particular element or feature of public transport services that has a major impact on passengers' satisfaction with the services they receive has the potential to raise passengers' opinions of the quality of such services. Through these decisive elements, major intercity public transport companies, for instance, can promote improvements in passenger patronage and service quality. It is well known that in a competitive market environment like the Nigerian intercity public transport industry, passengers' opinions of the operators' service quality and fare levels affect their choice of service provider when they choose to travel. This suggests that intercity transport service providers must have a reasonable understanding of the level of demand and patronage for their services, about the operators' fare levels and service quality to compete effectively in the market. There is currently a dearth of empirical research on this topic in the Nigerian intercity public transport subsector. To determine the level of demand attained by these operators on the Owerri-Abuja and Owerri-Lagos corridors concerning the quality of services offered by the individual operators, the study's objectives are to ascertain the levels of the fare charged by intercity public transport companies on the identified routes in relation to the quality of service provided (Nwokedi et al, 2020; Anderson et al, 2009; Krishna, 2014). The current paucity of empirical data and knowledge of the aforementioned nexus makes it problematic for operators of intercity public transportation to simultaneously seek improvement in revenue earnings and service quality attributes without driving fares to levels that are too high for intercity public transportation passengers. This explains why many operators fail to make a profit while trying to raise service quality standards without raising fares significantly, while others experience low patronage and bad financial outcomes as a result of making ill-informed choices to forego service quality improvement initiatives in favour of higher fares and revenue-boosting tactics. Over time, these measures have not been able to guarantee the sustainability of intercity public transport companies' operations, nor have they been able to guarantee that customers in Nigerian cities and geopolitical zones will receive standard quality intercity public transport services.

1. Literature Review

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According to Monyei et al., (2023), and Adeniran et al. (2018b), the sustainability and quality of service are the standards that customers assign to a service and that determines whether or not they will remain loyal to the brand and type of service. The discrepancy (gap) between the pre-service expectations (E) and post-service perceptions (P) of intercity travellers (passengers) is the idea of intercity public transport service quality (SQ). As a result, SQ depends on intercity travellers' expectations for service quality as well as their post-service assessment of that quality. As customers of intercity public transport services, travellers' pre-service quality expectations and port service quality judgements are influenced by several service qualities or factors, according to Parasunaman (1988). According to the SERQUAL model, Paraunaman (1988) defined five characteristics of service quality, which are displayed in Table 1 below:

Table 1: Five Characteristics/Determinants of Service Quality

Determinant	Description
Reliability	The ability to reliably and accurately execute or perform the promised services
Responsiveness	The readiness to assist clients and deliver timely services.
Assurance	Concerned with staff members' aptitude for fostering confidence, trust, expertise, and civility.
Empathy	Showing concern and providing each client with personalised attention and services.
Tangible	Physical aspects of the service include the way that premises, staff, equipment, and communication materials look.

Source: Modified from Parsuraman et al., (1988)

Adeniran et al. (2018b), Luigi et al. (2012), and Choi and Chu (92001) concur that these characteristics or elements for evaluating the quality of public transport services can be further refined to reflect the essential and realistic characteristics of public transport services. According to research by Ugo et al. (2022), the following important public transport service characteristics affect the quality of intercity public transport services:
(i) Passenger comfort,
(ii) Passenger safety,
(iii) Punctuality,
(iv) Service information,
(v) crew/driver cum driving quality,
(vi) Arrival and departure time, and
(vii) Pattern of complaint response;

According to Ugo et al. (2022), to maximise their utility, intercity public travellers select which service operators to use based on these service qualities. In other words, the conditions of the specified public transport service qualities, which differ among the public transport service providers, have an impact on intercity travellers' pre-service expectations and post-service quality assessments. By contrasting the service's performance with expectations, customer satisfaction is assessed. Assimilation will take place if

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perceived performance is only marginally below expectations; otherwise, perceived performance will be raised to meet expectations. The contrast will arise, and the perceived performance gap will be inflated if it significantly falls short of expectations (Ugo et al, 2022). According to Choi and Chu (2001), when performance surpasses expectations, customer happiness rises, and they become more receptive to the brand. Customers lose faith in the service and disconfirmation increases when perceived performance falls short of expectations, which could hurt demand for the service (Choi and Chu, 2001; Ugo et al, 2022).

Adeniran and Fadare (2018a) investigated the quality of aviation services at Murtala Muhammed International Airport (MMIA), Lagos, Nigeria, using the SERQUAL model in a separate study. The study evaluated the standard of aviation services offered by the MMIA's domestic wing in Lagos from the perspective of passengers. According to the study's conclusions, the airport provides poor and/or insufficient aviation services. Furthermore, it was demonstrated that there is a nearly 71.1% positive association between the satisfaction of travellers or passengers with the services provided at the airport and the quality of aviation services. Prospecting and keeping clients are still two crucial business strategies, according to Luigi et al. (2012). To keep consumers, a company needs to be able to offer them satisfactory services that guarantee value for money. However, it has been discovered that the ability of public transport service providers to please intercity passengers depends on their ability to enhance the previously described public transport service qualities, which have an impact on travellers' choice of service providers. According to Ferguson (2002), providing consistent, high-quality services that guarantee continued to be the most effective way for individual public transportation service providers to improve their competitive edge, increase passenger traffic, and achieve sustainable growth in the face of globalisation and growing market competition. According to Luigi et al. (2012), three strategies support the need for implementing a customer/passenger retention policy:

(i) Better service quality;
(ii) Better customer/passenger satisfaction; and
(iii) Better public transport service attributes, which in turn improve travellers' post-service quality perceptions towards the company's services.

The quality of services provided has always been a key component of the different strategies employed by different businesses to keep clients and win their loyalty over the long run, according to Luigi et al. (2012) and Chris (2009). As indicated in Table 2 below, Friman et al. (2001) and Ferguson (2002) list eight factors related to customer/passenger satisfaction and retention in order of priority:

Table 2: Passenger Satisfaction and Retention Variables

S/No	Variables	S/No	Variables
1.	Service Quality	5.	Value Added Service
2.	Service Frequency	6.	Information About Service
3	Service Cost	7.	Response to Passengers' Appeal

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4.	Timeliness of Service	8.	Service Value

(Source: Friman, 2001; Ferguson, 2002)

Regarding service quality, Ali et al. (2015) point out that a public transport service provider's ability to succeed depends on how keen they are to learn how their customers see the services they receive. This is because service quality management involves reducing the discrepancy between desired and perceived quality to satisfy customers (Ali et al 2015). Perceived quality of service, as defined by McKnight et al. (1986), is the users' assessment of a product's overall performance. This may be different from objective quality because it is based on attitude, but it is not the same as satisfaction because the perception of quality is based on a comparison between expectations and performance perceptions. The definition of public transport service has been fraught with difficulties because the quality of service in this context is made up of many characteristics that may compete with one another. These features include the cost, level of comfort, timetable, reliability, service scope, and safety of the transport service (Krishna, 2014).

In light of the challenges associated with applying both objectives and perceived service, McKnight et al. (1986) emphasised the difference between objective and perceived service quality by asserting that service quality is a means of evaluating the overall calibre of the product or services and is comparable to attitude in many ways. Krishna (2014) noted that comprehensive models of service quality and their shortcomings can be studied, but it's not always clear which elements of quality matter to passengers. This makes it insufficient for transportation companies to set quality standards based on erroneous assumptions about the expectations of their customers or passengers. The significance that passengers frequently place on the calibre of service organisations, when considering the service quality dimension, is the basis for defining service quality. Furthermore, Nigerian public transportation operations, especially intercity public transportation services, have encountered supply and demand-related issues over the years. These problems negatively affect both the country's economic growth and the sustainability of the public transport services offered by Nigeria's intercity public transport companies. The existing empirical literature specifically demonstrates that issues with the quality of public transport services have an impact on operator revenue, fare levels charged by operators, passenger loyalty and repurchase intention, and ultimately, socioeconomic interactions and a nation's development. According to the aforementioned issues, the study found a knowledge gap: there is no empirical data or understanding of the amount of patronage to intercity public transport providers on the designated intercity routes about the operators' level of service quality in Nigeria. There is also a dearth of data on the fare levels that intercity public transport providers charge on the designated intercity travel routes about the quality of service provided, which operators use as the foundation for sustainability decisions. The study aims to close these recognised gaps in knowledge.

2. Data and Methods

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With an emphasis on intercity public transport service providers in Imo State, the research focus is the Nigerian public transport sector. The study evaluated the quality of service offered by the intercity public transport services operators on the Owerri-Abuja and Owerri-Lagos corridors using a sample of the major intercity public transport companies in Imo state, Nigeria. Eight significant intercity public transport companies that convey most of the intercity passengers on the Owerri-Abuja and Owerri-Lagos routes were examined, in addition to representing the long-distance intercity roadways with the highest need for intercity travel from Owerri City. The following transport companies were selected for the study: Heartland Travels, ABC Transport, CHISCO Transport, LIBRA Motors, EKESONS Transport, GUO Transport, God is Good Motors (GIGM), and Young Shall Grow Motors.

3.1 Research Design

The study used the survey research design approach, which uses primary sources, or survey data, to conduct the research. Using questionnaires and interviews as survey methods, data was obtained from primary sources when the survey research method was adopted. Specifically, the study used a cross-sectional survey approach to collect data through interviews and questionnaires with the primary intercity public transport service providers on the Owerri-Lagos and Owerri-Abuja routes. As mentioned above, primary sources provided the data for the study. Eight of the largest intercity public transport companies that carry the most passengers between cities on the Owerri-Lagos and Owerri-Abuja routes supplied primary data on the post-service perceptions and expectations of intercity travellers about service quality. Heartland Travels, ABC Transport Ltd., God is Good Motors (GIGM), LIBRA Motors, CHISCO Transport, EKESONS Transport, GUO Transport, and Young Shall Grow Motors, are a few of these companies. The data was utilised to evaluate the intercity public transport services offered by the primary service providers along the routes.

3.2 Population of the Study and Sampling Technique

People who use public transport in Imo State, Nigeria, specifically those who travel between cities along the Owerri-Lagos and Owerri-Abuja routes, were the main source of data for the study. On the aforementioned routes, they are primarily composed of male and female intercity travellers. 4.8 million people live in Imo State, according to data on the state's population provided by the National Population Commission (NPC). It is impossible to pinpoint the precise number of persons who require intercity travel from the Owerri-Abuja and Owerri-Lagos corridors. The Z score method for unknown populations was utilised in the study to ascertain the sample size. Using a purposive random sample, intercity passengers on the Owerri-Lagos and Owerri-Abuja routes who utilised any of the eight key transport service providers were chosen at random to participate in the survey, receive questionnaires, and have interviews.

The following is the Z score used to determine the sample of the unknown population:

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$$N = \frac{Z^2(P)(1-P)}{C^2} \quad (1)$$

Where Z = standard normal deviation set at 95% confidence interval =1.96
P = percentage picking a choice or response =50%
C = confidence interval =0.05
Therefore $N = \frac{(1.96)^2(0.5)(1-0.5)}{(0.05)^2}$

$$N = \frac{0.9604}{0.0025}$$
$$N = 384.16$$
$$= 384$$

As a result, around 400 questionnaires were created and distributed to users of the intercity public transport system in the state of Imo. Passengers patronising each of the eight service providers chosen for the study were given 50 surveys.

3.3 Testing Reliability of the Instrument

The survey instrument's repeatability and consistency are evaluated by reliability. For instance, if a measurement or survey instrument yields the same output or nearly the same result when repeated under the same or comparable circumstances, it is considered trustworthy. The Cronbach Alpha index and the slit-half reliability index were used to assess reliability. The 384 raters evaluated their pre-service and post-service views of service quality, as well as the impact of public transport service qualities, due to the large number of respondents. Similar to the test-retest reliability approach, the correlation method was used to compare the correlation between the raters' (respondents') various responses to determine inter-rater reliability. The correlation coefficient of 0.74 in the result indicates that the data is approximately 74% credible.

3.4 Data Analysis Methods

According to the stated goals, the study analysed the data using the Principal Component Factor Analysis (PCA), the Gap Model of SERQUAL, and Analyses of log-linear multiple regression with descriptive and inferential statistics. The basis for evaluating the quality of service is the Gap Model of Service Quality, which examines the expectations and perceptions of consumers and customers. The gap model compares customers' pre-service expectations with their post-service quality perceptions in examining the service quality. The Gap Model of Service Quality (SERVQUAL) was used to evaluate the quality of services rendered to passengers by intercity public transport operators in Imo state on the Owerri-Lagos and Owerri-Abuja service routes by making a comparison between the passengers' pre-expected service quality with the post-service perception of each of the eight sampled service providers (Ugo et al, 2022, Nwokedi et al, 2022). Consequently, the following is the intercity public transport quality of service (SERVQUAL) equation for the study:

$$SQ_{ia} = P_{ia} - E_{ia} \quad (2)$$

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Where;
SQ_i= intercity public transport service quality for route I and operator a.

Similarly, $SQ_{jn} = P_{jn} - E_{jn}$
P is the individual's perceptions of a given service delivery
E is the individual's expectations of a given service delivery
i = route in consideration = Owerri-Abuja
j = Owerri-Lagos route
a …. N = number of operators or service providers selected on the routes.

A low level of service quality is defined as when passengers' expectations (E) exceed their perceptions (P). Perceptions that are higher than expectations indicate great service quality. Using equation (2), we determined the intercity public transport quality of service for each transport company on the Owerri-Abuja and Owerri-Lagos routes. Individual intercity public transport service providers' patronage levels on the Owerri-Lagos and Owerri-Abuja travel routes were determined by a field survey and passenger traffic count conducted over 50 days. In Imo State, the daily passenger traffic of the sampled intercity public transport companies on the Abuja and Lagos routes provides a gauge of the demand for travel via the service providers over 50 days. Data analysis was done using descriptive statistics.

3. Results and Discussion of Findings

Table 3: Owerri-Abuja and Lagos-Owerri-Owerri Service Quality Expectations and Perceptions of Customers of Selected Major Intercity Public Transport Operators

Variables	N	Range	Minimum	Maximum	Sum	Mean%	Std. Deviation
GIGE	50	30.00	70.00	100.00	4380.00	87.6000	8.76216
GIGP	50	30.00	40.00	70.00	2815.00	56.3000	9.93910
HRTLANDE	50	30.00	70.00	100.00	4455.00	89.1000	9.29615
HRTLANDP	50	40.00	40.00	80.00	3065.00	62.5510	10.80714
LIBRAE	50	35.00	65.00	100.00	4530.00	90.6000	8.30785
LIBRAP	50	50.00	50.00	100.00	3346.00	66.9200	11.14256
EKESONSE	50	50.00	50.00	100.00	3785.00	75.7000	13.55299
EKSONP	50	60.00	30.00	90.00	2876.00	57.5200	15.02955
YOUNGE	50	60.00	40.00	100.00	4375.00	87.5000	13.78590
YOUNGP	50	60.00	30.00	90.00	3005.00	61.3265	16.41822
GUOE	50	45.00	55.00	100.00	4180.00	83.6000	13.40271
GUOP	50	45.00	45.00	90.00	3220.00	65.7143	11.85854
ABCE	50	45.00	55.00	100.00	4440.00	88.8000	11.97617
ABCP	50	65.00	35.00	100.00	3180.00	63.6000	14.96254
CHISCOE	50	60.00	40.00	100.00	3835.00	76.7000	12.10540
CHISCOP	50	60.00	30.00	90.00	2766.00	57.6250	15.19746

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Valid N (listwise)	50						

Source: Authors' calculation

With regards to the Owerri-Abuja and Owerri-Lagos routes, Table 4 above shows the pre- and post-quality of service expectations and perceptions of commuters of the major intercity public transport companies. The SERQUAL model states that service quality is defined as the discrepancy between pre-service expectations and post-service quality judgements. According to statistics shown in Table 4.45 above, God is Good Motors (GIGM), HEARTLAND Motors, LIBRA, and EKESONS had mean pre-service expectation scores of 87.6%, 89.1%, 90.6%, and 75.7%, respectively, with corresponding post-service perceptions of 56.3%, 62.5%, 66.92%, and 57.52%. The same is true for Young Shall Grow Motors, GUO Transport, CHISCO Transport, and ABC Transport, which had mean pre-service quality expectation ratings of 87.5%, 83.6%, 88.8%, and 76.7%, respectively, and post-service quality perceptions of 61.3%, 65.7%, 63.6%, and 57.6%. Based on the expectations and perceptions of the customers of the sampled transport companies, the SERQUAL model of service quality is used to measure the intercity public transport service quality of the sampled transport companies on the Owerri-Abuja and Owerri-Lagos routes. The quality of intercity public transport services offered by the selected principal operators on the selected routes is shown in Table 4.46 below. Clients' pre-service expectations and post-service perceptions can be used to determine the quality of services that each operator offers. For example, operators that score higher than others are those with the greatest post-service impression score and the lowest pre-service quality expectations. This suggests that to get higher service quality and, consequently, higher customer patronage, operators should plan to enhance the elements that enhance passengers' post-service quality perceptions.

Table 4: Selected Operators' Level of Demand for Intercity Public Transport Services on the Owerri-Lagos and Owerri-Abuja Routes concerning Operator Service Quality

Operator	N (days	Minimum	Maximum	Sum	Mean Patronage	Std. Deviation
DLAGGIG	50	108.00	162.00	6840.00	136.8000	16.66476
DABJGIG	50	18.00	54.00	1944.00	38.8800	11.70494
DLAHRTLAND	50	36.00	90.00	2988.00	59.7600	19.04941
DABJHRTLAND	50	18.00	54.00	1692.00	33.8400	11.86206
DLALIBRA	50	90.00	126.00	5418.00	108.3600	13.84279
DLAEKESONS	50	36.00	72.00	2214.00	44.2800	13.70839
DABJEKESON	50	18.00	54.00	1566.00	31.3200	13.01560
DLAYOUNG	50	126.00	162.00	7218.00	144.3600	13.84279
DABJYOUNG	50	36.00	72.00	2574.00	51.4800	11.50553
DLAGUO	50	72.00	126.00	4788.00	95.7600	19.04941
DABJGUO	50	18.00	54.00	1422.00	28.4400	13.15707
DLACHISCO	50	18.00	54.00	1944.00	38.8800	11.70494

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DABJCHISCO	50	18.00	36.00	1296.00	25.9200	9.02568
DLAABC	50	36.00	108.00	3762.00	75.2400	26.64625
DABJABC	50	18.00	36.00	1296.00	25.9200	9.02568
Valid N (listwise)	50					

Source: Authors' calculation

Regarding service quality, Table 4 shows the daily needs for intercity public transport services from each of the key transport companies selected for the routes between Owerri Abuja and Lagos. On the Owerri-Lagos roadways, GIGM, HEARTLAND Motors, LIBRA Motors, and EKESONS attained average daily customer demand/patronage of 136.8 travellers, 59.8 travellers, 108.4 travellers, and 44.5 travellers, respectively, according to the quality of services rendered. Standard deviations of 16.66, 19.05, 13.8, and 12.02 were the corresponding values. In a similar vein, according to the quality of service rendered, The Young Shall Grow Transport, GUO, CHISCO Transport, and ABC Transport each had daily average passenger patronage of 144.4, 95.8, 38.9, and 75.2 passengers, respectively, with standard deviations of 13.8, 19.04, 11.70, and 26.64. GIGM, HEARTLAND, LIBRA, and EKESONS achieved daily patronage levels of 38.88, 33.9, 31.32, and 51.5 passengers on the Owerri-Abuja service route, respectively, with standard deviations of 11.7, 11.9, 13.8 and 13.01 based on their individual service quality. Similar to this, Young Shall Grow Transport, GUO, CHISCO Transport, and ABC Transport each had daily average passenger patronage of 51.48, 25.5, 25.92, and 25.92 passengers respectively, on the Owerri-Abuja route, based on the quality of service provided. The chart illustrating the daily passenger traffic on the routes and the service quality of each operator is shown in Figure 1 below.

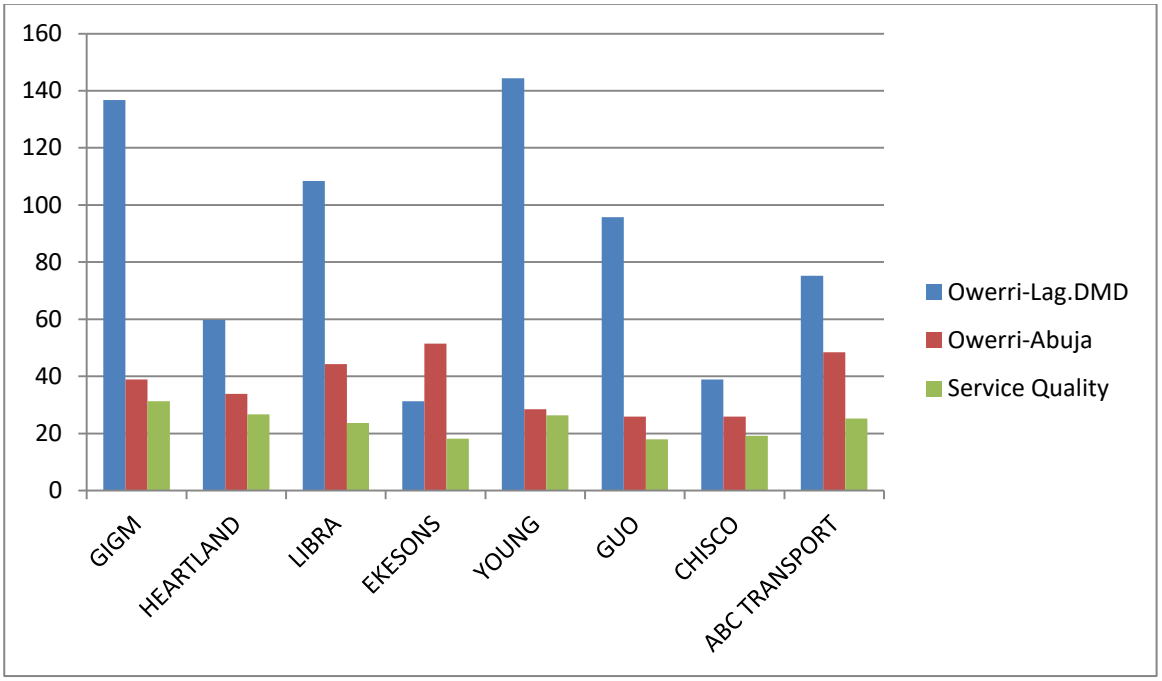

Figure 1 shows the daily passenger traffic on the routes as well as the service quality of each operator.

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Source: Authors' calculation

According to the above figure, GIGM provides the best level of service and receives the most customers on the Owerri-Lagos lines, but it receives fewer customers than LIBRA, EKESONS, and ABC on the Owerri-Abuja routes. Similar to HEARTLAND and Young Shall Grow Motors, ABC offers lower-quality service, but it outperforms both of them in terms of passenger traffic on the Owerri-Lagos route and against Young Shall Grow on the Owerri-Abuja route. The Owerri-Abuja Road corridor also sees more people travelling through GIGM, which has the greatest service quality score, than EKESON, which has the lowest service quality. This suggests that variables other than service quality affect passenger demand or patronage of intercity public transport. As a result, when choosing an intercity public transport service provider, clients do not base their judgements only on service quality. A variety of criteria, including cost, duration of travel, level of service, convenience, and route considerations, might affect passengers' preference for certain service providers. Furthermore, it implies that each route has a different level of patronage for public transport service providers, therefore routes with higher passenger quantities but poorer service quality can nevertheless have higher patronage than routes with lower passenger volumes but better service quality.

Table 5: Selected Operators' Travel Fare Levels for Intercity Public Transport Services on the Owerri-Lagos and Owerri-Abuja Routes about Each Operator's Service Quality (SQ)

	N	Range	Minimum	Maximum	Sum	Mean
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
FLAGIG	50	3600.00	8000.00	11600.00	546900.00	10938.0000
FABJGIG	50	2500.00	10000.00	12500.00	593300.00	11866.0000
FLAHRTLAND	50	3550.00	7800.00	11350.00	510700.00	10214.0000
FABJHRTLND	50	3550.00	11000.00	14550.00	637600.00	12752.0000
FLALIBRA	50	1500.00	8000.00	9500.00	462400.00	9248.0000
FLAEKESONS	50	1350.00	10000.00	11350.00	533100.00	10662.0000
FABJEKESONS	50	3500.00	10500.00	14000.00	618050.00	12361.0000
FLAYOUNG	50	2850.00	8500.00	11350.00	505750.00	10115.0000
FABJYOUNG	50	3300.00	10000.00	13300.00	595350.00	11907.0000
FLAGUO	50	3000.00	9000.00	12000.00	530250.00	10605.0000
FABJGUO	50	500.00	12000.00	12500.00	615450.00	12309.0000
FLACHISCO	50	87000.00	8000.00	95000.00	843500.00	16870.0000
FABJCHISCO	50	1600.00	11000.00	12600.00	590300.00	11806.0000
FLAABC	50	10000.00	1000.00	11000.00	466300.00	9326.0000
FABJABC	50	2000.00	12000.00	14000.00	636700.00	12734.0000
Valid N (listwise)	50					

Source: Author's calculation

Descriptive Statistics

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	Mean	Std. Deviation
	Std. Error	Statistic
FLAGIG	111.64411	789.44310
FABJGIG	111.41428	787.81796
FLAHRTLAND	146.62210	1036.77483
FABJHRTLND	182.11322	1287.73492
FLALIBRA	64.77528	458.03039
FLAEKESONS	63.88063	451.70426
FABJEKESONS	125.92750	890.44188
FLAYOUNG	110.40048	780.64926
FABJYOUNG	136.44921	964.84164
FLAGUO	96.28031	680.80460
FABJGUO	25.01795	176.90364
FLACHISCO	3295.94092	23305.82173
FABJCHISCO	107.18704	757.92682
FLAABC	370.08339	2616.88473
FABJABC	112.72542	797.08909
Valid N (listwise)		

Source: Author's calculation

The above tables show the fare levels charged by the major intercity public transport service providers on the Owerri-Lagos and Owerri-Abuja routes. This information relates to the quality of services offered by different operators. For example, the findings show that the GIGM fare levels for the Owerri-Lagos route varied from a low of N8000.00 to a maximum of N11600.00 over the study period. With a standard deviation of 789.441, the average fare level charged by GIGM on the Owerri-Lagos route over the 50-day study period was 10938.00. The Owerri-Abuja route received a service quality score of 31.3%, with fares ranging from N10000 to N12500.00. GIGM charges an average fare level of N11866.00 on the Owerri-Abuja corridor, with a standard deviation of 787.82 and a service quality score of 31.3%. HEARTLAND Motors, LIBRA, EKESONS, and Young Shall Grow charge an average rate of N10214.00, N9248.00, N12361.00, and N10115.00 for the Owerri-Abuja route, with service quality ratings of 26.73%, 23.68%, 18.18%, and 26.3%, respectively. The average fares on the Owerri-Lagos Road corridor were N10605.00, N16870.0, and N9326.00 for GUO Transport, CHISCO Transport, and ABC Transport, respectively. The standard deviations were 680.80, 23305.82, and 757.92. They received 17.95%, 19.2%, and 25.25 per cent for service quality, respectively. On the Owerri-Abuja Road corridor, HEARLAND Transport, LIBRA, EKESONS, and Young Shall Grow Transport charged average charges of N12752.00, N10662.00, N10115.00, and N11907.00, respectively, based on their service quality scores. Similarly, according to the previously provided service quality scores, the mean tariffs charged by GUO Transport, CHISCO Transport, and ABC Transport on the Owerri-Abuja Road corridor were N12309.00, N11806.0, and N12734.00, respectively. Figure 2 below compares the average fare levels, average service quality ratings, and average passenger volume of the

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selected intercity public transport companies for the routes between Owerri and Lagos and Owerri and Abuja.

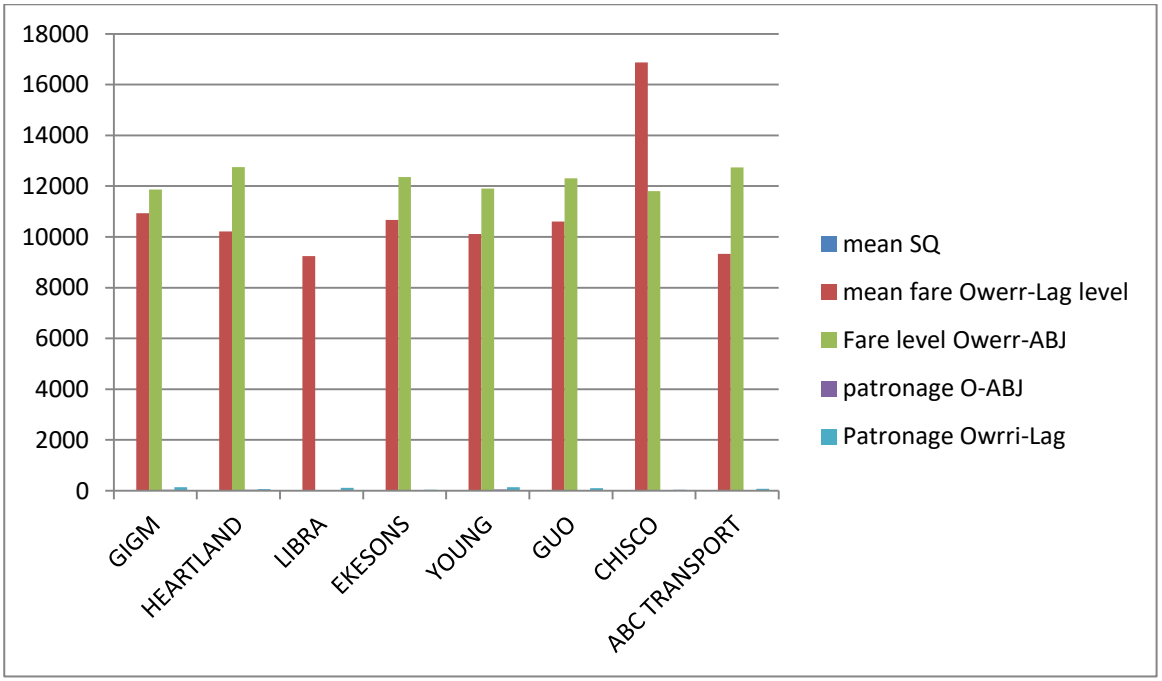

Figure 2: A bar graph that contrasts the average fare levels that operators charge with the calibre of service provided on the chosen routes.

Source: Prepared by the Author(s).

As a result, GIGM received more customers on the Owerri-Lagos route than other service providers. The fact that GIGM, for example, charges lower fares than GUO and ABC Transport but has the highest service quality score suggests this. It also drew more people than competing service providers at the same range of fares but with lower service quality ratings on the same route. This suggests that operators who provide better service on a given route will see an increase in passenger traffic when they charge comparable or comparable fares on the same route.

4. Discussion of Results

The study found that transport companies attained a mean daily patronage on the routes (MPAR) of 117.72, a mean customer satisfaction score (CS) of 66.69%, and a re-purchase intention (loyalty) score of 50.66% while providing poor intercity services. Despite the carriers' poor service, this indicates that the average industry intercity daily travel demand on each route is 117.72. This indicates that the demand for intercity road travel is independent of the operators' service quality. This supports the findings of Ogwude et al. (2018), who contend that patronage for travel may depend on a variety of different factors rather than only the quality of services provided because the desire for transport is a derived demand. The policy

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implications for individual operators, however, are that they must raise the quality of their intercity travel services because doing so could boost demand for intercity travel through companies that offer the best value and quality of services to customers. Even with a slightly higher level of customer satisfaction, as demonstrated by its customer satisfaction score of 66.69% and customer repurchase intention score of 50.66%, the customer loyalty (repurchase intention) to the service provider's brand is only average given the poor quality of services offered in the sector. The patronage table's erratic and fluctuating daily patronage to the service providers is a result of average or below-average customer repurchase intention (loyalty) linked to poor quality of service. This further suggests that transport companies will face uncertain situations and principles in their daily business activities, income, and overall profitability. Until they discover an intercity operator that offers the best value and service, travellers will continue to move between them without further considerations. Operators must implement operational rules that improve customer loyalty and repurchase intention to manoeuvre the phenomenon of uncertainty in daily service patronage as well as revenue and profitability.

5. Conclusion

In conclusion, the mean daily patronage (MPAR) of all intercity public transport companies' services on all the roadways is greater than zero (MPAR>0), and the same applies to the industry average (namely, 117.72>0) with regards to the quality of services provided by the transport companies. Hence, the quality of services rendered determines the level of patronage for the intercity public transport companies in Imo State, Nigeria. The practical implications is road passenger intercity public transport service providers in order to attarack higher daily patronage must prioritize the implementation strategies that improve service quality. On service routes where operators are currently facing declining trend in daily passenger patronage, the adverse trend should be reversed by implementing strategies that maximize service quality. Regarding service quality, the mean fare levels charged by each intercity public transport service provider on all destinations (MF) are greater than zero (MF>0), which is the industry average (i.e., 11895.25>10997.25>0). Therefore, disproportionately levels of patronage on the specific routes studied are linked to the operators' disproportionately high charges as well as the disproportionately high calibre of services provided. Therefore, to generate value and utility for money, operators' fare policies should be designed in line with the level of services they provide. Under such an atmosphere, customers will have a better service experience and transport service operators will become more competitive individually.

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URL: http://jedep.spiruharet.ro
e-mail: office_jedep@spiruharet.ro

References

[1] Aarakit, S. M, Ntayi, J. M, Wasswac, F, Adaramolad, M. S (2021). Adoption of solar photovoltaic systems in households: Evidence from Uganda, Journal of Cleaner Production, 329 (2021), 12961.

[2] Adeniran S. O., Fadare A. (2018a) Comparative analysis of publicly operated airport terminal and concessioned airport terminal in Lagos, Nigeria. Discovery 54(272) 304 – 318.

[3] Adeniran A. O., Fadare SO (2018b) Assessment of Passengers' Satisfaction and Service Quality in Murtala Muhammed Airport (MMA2), Lagos, Nigeria: Application of SERVQUAL Model. J Hotel Bus Manag. Vol. 7 (188) 106-120. doi: 10.4172/2169-0286.1000188

[4] Ali, A.N (2010) A assessment of the quality intra-urban bus services in the city of Enugu, Enugu state, Nigeria. Journal of Theoretical and Empirical Research in Urban Management, 6(15) 334-342.

[5] Anderson, S.W., Baggett, L.S. and Widnener, S.K. (2009) The impact of service operations failure and customer satisfaction: Evidence on how failures and their source affect what matters to customers. Manufacturing & Service Operations Management, Vol.11 (1) 52-69.

[6] Apostolos N. G., Petros T., Dimitris Z. (2013) Suppliers Logistics Service Quality Performance and its Effect on Retailers' Behavioral Intentions. Procedia - Social and Behavioral Sciences 73 (2013) 302 – 309.

[7] Choi, T.Y. & Chu, R. (2001) Determinants of Hotel Guests' Satisfaction and Repeat Patronage in the Hong Kong Hotel Industry. International Journal of Hospitality Management. Vol. 20: pp. 277-297.

[8] Friman, M., Edvardsson, B and Garlnig, T. (2010). Frequency of Negative critical incidents and satisfaction with public transport service. Journal of Retailing and Consumer Services.

[9] Ferguson, A.F. (2002). Strategy to improve occupancy rate and passenger satisfaction in Hyderabad city Region. Report submitted to ARS-RTC.

[10] Krishna, G. (2014) Theoretical overview public transport service quality: A focus on Bus and Mini-Bus Taxi service in South Africa. Journal of Social Sciences. [COES and RJ-JSS], 3(2):301-316.

[11] Luigi D, Luliana C., Alma P. (2012). Customer satisfaction analysis – parts of the effectiveness control of customer loyalty management. International Journal of Academic Research in Economics and Management Services, 1(6) 232 -244.

[12] Mcknight, C. E., Pagano, A. N., Paaswell, R.E (1986) Using quality to predict demand for special transportation. In behavioural research for transport policy. International Conference on Travel Behaviour, Noordwijk, Netherlands. VNU Science Press.

[13] Monyei, F.E., Aiyelabegun, H.T., Kelvin-Iloafu, L.E., & Ukpere, W.I. (2023). Strategy Sustainability of Small and Medium-Sized Ventures in the 4IR and Post-Covid-19 Era. Onomázein, (62 (2023), 1258-1273.

[14] Nwokedi T.C., Okoroji L.I., Okonkwo I. and Ndikom O.B. (2020) Estimates of Economic Cost of Congestion Travel Time Delay Between Onne-Seaport and Eleme-Junction Traffic Corridor. LOGI – Scientific Journal on Transport and Logistics Vol. 11 (2)33-43. DOI: 10.2478/logi-2020-0013.

[15] Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing, 49(4), 10.

(online) = ISSN 2285 – 3642
ISSN-L = 2285 – 3642
Journal of Economic Development, Environment and People
Volume 14, Issue 1, 2025

URL: http://jedep.spiruharet.ro
e-mail: office_jedep@spiruharet.ro

[16] Ugo J. (2020a) Assessment of airport service quality in Nigeria. Unpublished M.Sc. thesis at the Department of Transport Management Technology, Federal University of Technology, Owerri.

[17] Ugo J., Ejem A. E., Nwokedi T. C., Okoroji L.I & Mabachu, J. C. (2022); Major Component Determinants of International Airport Service Quality in Nigeria. Hmlyan Jr Eco Bus Mgn; 3(3) 78-88

[18] Ugo J. and Ejem A. E. (2020b) Assessment of airport service Quality in Nigeria. European Journal of Logistics and Supply Chain Management Vol. 8(4) 1-18.

Appendixes

Appendix-1: Daily Passenger Patronage of Selected Intercity Public Transport Operators in Imo State (Routes Considered: Only Lagos and Abuja Routes) for 50 days

S/N	GIGM		HEARTLAND		LIBRA		EKESOSN		YOUNG		GUO		CHISCO		ABC	
	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB
1	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
2	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
3	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
4	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
5	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
6	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
7	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
8	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
9	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
10	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
11	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
12	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
13	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
14	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
15	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
16	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
17	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
18	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
19	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
20	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
21	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
22	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
23	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
24	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18

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25	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
26	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
27	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
28	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
29	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
30	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
31	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
32	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
33	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
34	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
35	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
36	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
37	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
38	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
39	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
40	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
41	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
42	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
43	126	36	54	36	108	-	36	18	144	54	90	18	36	18	90	36
44	108	36	36	36	108	-	36	18	126	54	72	18	36	18	54	18
45	144	18	36	36	90	-	36	18	126	36	72	18	36	36	54	18
46	126	36	54	18	90	-	36	36	144	36	90	18	18	18	36	18
47	144	54	72	18	108	-	54	36	162	54	108	36	54	18	72	36
48	144	36	72	36	126	-	36	36	144	72	108	54	36	36	108	18
49	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36
50	162	54	90	54	126	-	72	54	162	54	126	36	54	36	108	36

Source: Field Survey

Appendix-2: Fare Levels Charged by the Selected Intercity Public Transport Operators in Imo State on Lagos and Abuja Routes

S/N	GIGM (~~₦~~)		HEARTLAND (~~₦~~)		LIBRA (~~₦~~)		EKESOSN(~~₦~~)		YOUNG (~~₦~~)		GUO (~~₦~~)		CHISCO (~~₦~~)		ABC (~~₦~~)	
	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB	LA	AB
1	8900	10000	7800	11000	8000	10000	10000	10500	8500	10000	9,000	12350	8000	11000	7400	12000
2	8000	10000	7800	11000	8000	10000	10000	10500	8500	10000	10000	12350	95000	11000	7400	12000
3	10400	10400	8000	11000	8000	10000	10000	11500	9050	10450	10000	12350	8000	11000	9500	12000
4	10000	10000	8400	11000	8000	10000	10350	10500	10000	10450	10000	12500	8000	11000	9500	12000
5	10000	10000	8400	11400	8450	10600	10500	11500	9500	10450	10000	12500	8000	11000	10000	12000
6	10000	10500	8400	11400	8450	10600	10500	11500	9500	10500	10000	12500	8500	11000	9000	12000
7	10800	10900	8500	11950	9000	11000	10000	11500	9500	11000	11850	12500	8000	11000	9000	12000
8	10500	10800	9000	12000	9000	11000	10000	11500	10000	11000	11000	12500	8000	11500	9500	12500
9	10500	11800	10500	12000	9000	11000	10500	12000	10000	11500	11000	12500	8500	11500	10000	12500
10	10800	11800	10500	12000	9000	11000	10500	12000	9500	11000	10850	12500	9000	11500	10000	12500
11	10500	12000	10400	12500	9500	12000	10000	12000	9500	11500	10000	12350	10000	11000	9500	12400
12	10,000	12000	10000	12500	9500	12000	10450	12000	9500	11900	12000	12350	10000	11000	9500	12400
13	10500	12000	10000	14000	9500	12000	10300	12350	10000	11900	10000	12350	10000	11000	9500	12400
14	11500	12000	10500	14550	9500	12000	10900	12500	10000	12000	11000	12350	95000	11000	10500	12000
15	11500	12000	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000

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16	11500	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
17	11600	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	11000	13800
18	11600	12500	11350	11850	9500	12500	10900	12500	11350	13300	11000	12350	11000	12600	11000	13800
19	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	1000	13800
20	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	11000	14000
21	10800	10900	8500	11950	9000	11000	10000	11500	9500	11000	11850	12500	8000	11000	9000	12000
22	10500	10800	9000	12000	9000	11000	10000	11500	10000	11000	11000	12500	8000	11500	9500	12500
23	10500	11800	10500	12000	9000	11000	10500	12000	10000	11500	11000	12500	8500	11500	10000	12500
24	10800	11800	10500	12000	9000	11000	10500	12000	9500	11000	10850	12500	9000	11500	10000	12500
25	10500	12000	10400	12500	9500	12000	10000	12000	9500	11500	10000	12350	10000	11000	9500	12400
26	10,000	12000	10000	12500	9500	12000	10450	12000	9500	11900	12000	12350	10000	11000	9500	12400
27	10500	12000	10000	14000	9500	12000	10300	12350	10000	11900	10000	12350	10000	11000	9500	12400
28	11500	12000	10500	14550	9500	12000	10900	12500	10000	12000	11000	12350	95000	11000	10500	12000
29	11500	12000	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
30	11500	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
31	11600	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	11000	13800
32	11600	12500	11350	11850	9500	12500	10900	12500	11350	13300	11000	12350	11000	12600	11000	13800
33	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	1000	13800
34	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	11000	14000
35	10800	11800	10500	12000	9000	11000	10500	12000	9500	11000	10850	12500	9000	11500	10000	12500
36	10500	12000	10400	12500	9500	12000	10000	12000	9500	11500	10000	12350	10000	11000	9500	12400
37	10,000	12000	10000	12500	9500	12000	10450	12000	9500	11900	12000	12350	10000	11000	9500	12400
38	10500	12000	10000	14000	9500	12000	10300	12350	10000	11900	10000	12350	10000	11000	9500	12400
39	11500	12000	10500	14550	9500	12000	10900	12500	10000	12000	11000	12350	95000	11000	10500	12000
40	11500	12000	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
41	11500	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
42	11600	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	11000	13800
43	11600	12500	11350	11850	9500	12500	10900	12500	11350	13300	11000	12350	11000	12600	11000	13800
44	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	1000	13800
45	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	11000	14000
46	11500	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	10500	12000
47	11600	12500	10500	14550	9500	12500	10900	12500	10000	12000	10000	12000	11000	12600	11000	13800
48	11600	12500	11350	11850	9500	12500	10900	12500	11350	13300	11000	12350	11000	12600	11000	13800
49	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	1000	13800
50	11600	12500	11350	11850	9500	12500	11350	14000	11350	13300	11000	12350	11500	12600	11000	14000

Source: Field survey