SATISFACTION ANALYSIS OF USERS OF VESSEL TRANSPORT SERVICES USING THE MODERN MANAUS WITH THE PORT SERVICE LEVEL

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Resumo - As organizações têm como desafio suprir as necessidades de clientes que exigem níveis de serviços cada vez mais elevados, sem comprometer a viabilidade econômico-financeira do empreendimento. A razão disso é que níveis de serviços elevados demandam também custos elevados, trade-off que também se aplica ao transporte fluvial de...
passageiros, como os praticados na Amazônia, com forte impacto sobre a indústria do turismo local. Neste sentido, este estudo teve como objetivo analisar a satisfação dos usuários das embarcações com o nível de serviço de transporte que lhes é disponibilizado. Foi utilizado o método de levantamento, cujos dados foram coletados junto a 408 usuários dos serviços de transporte de passageiros fornecido pelas embarcações que aportam no porto da Manaus Moderna através de questionários com questões fechados e analisados com o uso de estatísticas descritivas, especialmente os testes de Kruskal-Wallis e U de Mann-Whitney, com a finalidade de detectar associações das categorias analíticas com aspectos sociodemográficos dos respondentes. Os resultados mostraram que a) os usuários estão muito satisfeitos com o nível de serviço que lhes é oferecido, b) não há associação entre as categorias de satisfação e o estado civil, gênero e faixa etária dos usuários, c) há diferenças em 14 categorias de satisfação em relação à renda pessoal dos usuários. A conclusão mostra que a altíssima satisfação dos usuários com o nível de serviço pode ser modificada, caso se lhes altere a renda pessoal, o que revela a fragilidade econômica, financeira e operacional desse meio de transporte que predomina na Amazônia.

Palavras-Chave: Satisfação de usuários; Nível de serviço; Transporte de passageiros; Logística na Amazônia

Summary - Organizations are challenged to meet the needs of customers who demand ever-higher service levels without compromising the business’s economic and financial viability. The reason for this is that high levels of service also demand high costs, a trade-off that also applies to river passenger transportation, such as those practiced in the Amazon, with a strong impact on the local tourism industry. In this sense, this study aimed to analyze the satisfaction of boat users with the level of transportation service available to them. We used the survey method, whose data were collected from 408 users of passenger transport services provided by vessels that dock in the port of Manaus Moderna through questionnaires with closed questions and analyzed using descriptive statistics, especially the tests of Kruskal-Wallis and Mann-Whitney U, in order to detect associations of analytical categories with sociodemographic aspects of respondents. The results showed that a) users are very satisfied with the level of service offered to them, b) there is no association between satisfaction categories and users’ marital status, gender and age, c) there are differences in 14 categories satisfaction with users’ personal income. The conclusion shows that the high satisfaction of users with the level of service can be modified if they change their personal income, which reveals the economic, financial and operational fragility of this predominant mode of transport in the Amazon.

Key-Words: Users satisfaction; Service level; Transportation of passengers; Logistics in the Amazon
1. INTRODUCTION

The Amazon is a badly exploited tourist power, evidence that can be seen with its main means of transport, river vessels. The rivers are the great Amazonian highways. A region where other modes of transport are scarce or nonexistent, the waterway is part of the large system of distribution of regional goods and wealth. Amazonian uniqueness is also constructed by two sordid attributes: first, poverty that equals almost all of its inhabitants, especially those of smaller cities; and, second, the need to use the precarious vehicles available to move production from smaller to larger cities, almost always in the hope that the income available there will enable them to acquire what smaller cities produce. In the Amazon, survival is almost always produced in small towns that feed the larger cities; conversely, larger cities meet the demands for industrialized goods from smaller cities.

Since there is no rail transport and air and road modes are scarce, the first due to the high cost of the tickets and the second due to the regional geography itself, where there is a predominance of rivers, river transport would have to prevail. And it has reigned to this day. But, also, what seems to be perpetuated is the precariousness, the insecurity of this type of transport and the low level of service that seems to want to be perpetuated there. Modernity, it seems, has been reluctantly approaching this mode.

In this sense, this study sought to analyze whether boat users are satisfied with the level of service they offer them. The general hypothesis that guided and guided this study was that users can only be satisfied with what is offered to them; if they were not, they would probably have already migrated to other types of logistics or forced their supply, decisively affecting the tourist flow in the region.

This document is thus organized. The first part is this introduction, followed by the literature review, where the phenomenon of satisfaction is defined and its dimensions and analytical categories are pointed out, then the methodological procedure used to generate the research results is detailed. The fifth part is the conclusion and the sixth is the list of texts cited.
2. SATISFACTION: ANALYTICAL DIMENSIONS AND CATEGORIES

The literature shows that satisfaction is a complex and comprehensive theme, because it is linked to the pursuit of supplying human expectations, which is linked to relational, infrastructural and product / service factors. Lizote, Verdinelli, Nascimento (2017) show that satisfaction is present in organizational behavior. Satisfaction would be consumers' confidence in a certain well-being demanded, which generates a pleasant feeling in the individual. Satisfaction and organizational competitiveness would be related, materialized in the work performed with excellence, involving its employees and often even individuals who seek to meet their needs during the execution of services, such as river transportation services, where the passenger himself ties his network, for example.

Pereira and collaborators (2018) relate satisfaction to the expectation of the individual arising from experience that he has or had to do, about which he had to perform, produce or make some valuation. If expectation is large and achievement small, the positive difference between expectation and achievement is likely to be satisfaction. This requires taking into consideration aspects that can make all the difference in achieving one's satisfaction.

For Vieira (2016), satisfaction is related to the feeling of pleasure. It lies in the vision that results from at least satisfactory performance of what is expected. When the expectation is reached, the individual is satisfied with the service provided, which generates a feeling that the result of their expectation has been achieved, and the main concepts of feelings of pleasure are positive. Oliveira, Sales and Brandão (2017) say that satisfaction means contentment with the service provided in relation to the expectations of the result obtained. It is a feeling of approval and satisfaction. Satisfaction is user satisfaction with the product and services provided.

Lima, Silva and Roman (2017) consider that satisfaction is related to and driven by the need of each individual in relation to their goals. People are always looking for improvements and for that they seek to achieve their goals. But things do not always go the way they want, as there may be disappointments with procedure or service that was in line with what was expected of them. The study by Godinho et al. (2017) shows that satisfaction can be defined based on people's expectations. The
reason for this is that customers fear that their expectations will be met or dealt with by other means or products they do not want, as they expect benefit that will make their lives easier with quality and satisfaction.

Lizote, Verdinelli and Nascimento (2017) explain that satisfaction is the consequence of having achieved certain goals. This does not mean, however, that there are always results within the expectation of individuals and organizations. It is known, however, that the degree of satisfaction is fundamental for improving the efficiency of service delivery to society, which represents some expectation for a result, not disappointment, but pleasure. This confirms the study by Pereira and collaborators (2017), which shows that satisfaction can be identified with the emotional and pleasurable state of the individual.

Vale and collaborators (2017) also relate satisfaction with human expectations. But these expectations play a kind of principles and norms, which aim to plan, coordinate, and control individuals' efforts to achieve their goals. Being satisfied represents being in tune with the goals achieved. For Santos and collaborators (2017), satisfaction is linked to evidence, to produce confidence in the performance of services that have been tried and evaluated positively. It is this trust that will determine whether a service (or product) has quality, since quality conforms to expectations.

Satisfaction is a form of pleasure that takes into consideration human needs (Martins et al, 2017). And the supply of needs involves both the process itself, in which there are several factors, characteristic of the services, as the delivery of the demanded product. For this reason, attributes such as quality of care and relationship experiences provide pleasure and allow, for example, to establish lasting relationships, commonly called loyalty.

Satisfaction can also be fulfillment (Kruger et al, 2017), as an affective response (Vieira et al, 2017). As a result, when there is no fulfillment or when the affectivity does not manifest as expected, the results can be even disastrous, such as the appearance of dissatisfaction or even depression, an advanced stage of dissatisfaction. As a consequence, for this study, satisfaction is a multidimensional psychological phenomenon that appears when the difference between expectation and reality about an individual's needs supply is too high to be supported. The
phenomenon is therefore linked to a feeling of pleasure in relation to a certain expected result (Rodrigues et al, 2017; Rodrigues, 2017).

The study by Bastos and Fasolo (2013) found three variables that influence satisfaction. Two of them maintained a directly proportional relationship with the satisfactory phenomenon (ease of access to medical services and the care received) and one was inversely associated, the waiting time to receive care. These variables represent belonging to infrastructural (ease of access to the service and waiting time) and relational (attendance) aspects. Infrastructural aspects may be all those arising from environment activities that facilitate or delay service delivery, while relational aspects represent the direct intervention of people and their relationships so that service can be provided.

González (2005) sought to understand loyalty with hosting services. Loyalty is a consequence of customer satisfaction with certain products and services, so that the higher the satisfaction, the greater the propensity for customer loyalty. The results showed that staff friendliness, cleanliness, security, restaurant service and internet service behaved above expectations to explain the loyalty phenomenon, while room quality, staff friendliness, restaurant quality and price paid explained 56% of satisfaction with the hosting service.

Here again the participation of factors related to the human relationship in the provision of the service come into play, such as the friendliness of the hotel staff and the friendliness of the restaurant staff, related to the infrastructure, such as the internet service and the restaurant service, as with the hosting service itself, such as room quality, hotel security and hotel cleanliness. Thus, it seems that satisfaction is due to factors related to service/product, infrastructure and human relations.

Esperidião and Trad (2006), studying the satisfaction of users of health services, show that there are at least four groups of factors that explain the satisfaction of individuals. The first (but not the most important) is the sociodemographic characteristics of individuals, as well as expectations about the medical appointment and the patient's health status. The second is the characteristics of the professionals who will provide the service, which include personality traits, technical quality and caring skills. The third would be due to the individual-professional relationship of the service and the fourth would be structural
and environmental factors, including price, time, form of payment and so on. It is noted that these four groups are contained in the classification proposition that we proposed in this study, synthesized in human relational factors, infrastructural and inherent in the product / service.

Ferreira (2004) studied the relationship of satisfaction and customer loyalty. These researchers recognize that fidelity is affected by lived experiences, emotions, feelings, expectations, perceptions and other subjective variables; however, to deal with loyalty, his studies focused on studying what affects customer relationships, which means saying what causes satisfaction. Thus, they studied the characteristics and qualities of the product, the personal experience of the customer, the quality of sales, after-sales service and the added services to the product and the company's image and attributes associated with the product brand. Again, the factors analyzed here could also be grouped into relational, infrastructural, and product / service related factors.

Similar procedure was adopted by Rodrigues (2003) to analyze the relationship between satisfaction and loyalty, whose constructs studied were the perceived value by customers in relation to the services demanded, perceived quality, customer expectation, complaints management, company image, commitment. (affective and calculated) and customer loyalty. Again, the trilogy here repeats itself.

Costa and collaborators (2018) analyzed the satisfaction of individuals regarding pharmaceutical care services in a northeastern state based on three-dimensional variables: infrastructure, location and operation; pharmaceutical care; and importance of service. The first dimension represents what we call the infrastructural factor, which is support services that enable services to be delivered appropriately or the product to be delivered / requested promptly; Pharmaceutical care is an example of an individual-professional human relationship, essential in the materialization of all types of services and which is increasingly incorporated into product processes; and the importance of service touches on specific issues of the service or product.

The research by Santos and Sardinha (2017) focused on user satisfaction with the services provided by nurses. This study was performed with the help of an
instrument containing 25 items (called the Patient Satisfaction Instrument) grouped into three analytical dimensions. The first were variables that sought to explain the professional's mastery of techniques and knowledge considered essential for the provision of the service; the second was called educational, in an effort to measure the ability to provide the service; while the third focused on aspects of patient interaction, appropriately titled “trust domain,” which is what every relational effort seeks.

Another study on health service quality assessment measured user satisfaction with services provided by general laboratories in a city located in southern Brazil (Beckhauser, 2018). Several variables were studied, but those that reached the explanatory value considered superior were the dimensions facilities, communication, confidentiality and access to services. On the other hand, the available complementary services, availability of medications, promptness and health outcomes kept the evaluative average between 3 and 4, from a scale ranging from 1 to 5.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Influencing Factors and Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bastos and Fasolo (2013)</td>
<td>Easy access to service, service received and waiting time</td>
</tr>
<tr>
<td>González (2005)</td>
<td>Friendliness of staff, cleanliness, security, restaurant service, internet service, room quality and service price</td>
</tr>
<tr>
<td>Esperidião and Trad (2006)</td>
<td>Sociodemographic characteristics, expectations and health status of the individual; professional characteristics; individual-professional relationship; and structural and environmental factors</td>
</tr>
<tr>
<td>Ferreira (2004)</td>
<td>Characteristics and quality of service, personal customer experience, quality of service, company image and service attributes</td>
</tr>
<tr>
<td>Rodrigues (2003)</td>
<td>Perceived value, perceived quality, customer expectation, complaints management, company image, commitment and loyalty</td>
</tr>
<tr>
<td>Costa et al (2018)</td>
<td>Infrastructure, location and operation; care provided;</td>
</tr>
</tbody>
</table>
service and importance of service

| Santos and Sardinha (2017) | Professional domain, educational domain, trusted domain |
| Beckhauser (2018) | Services rendered, confidentiality, attendance, location, public transportation, communication, facilities, access to services, availability of medicines, complementary services, readiness of attendance, attendance and result of the service |

Chart 1. Satisfaction influencing factors and variables

These studies seem to confirm the possibility of grouping all the variables that somehow affect the satisfaction of customers and users of products and services of any type of organization into three groups: relational factors, factors related to the product/service and factors related to infrastructure, as the data in Table 1 show. It seems that this triad is still present in every needs supply system, which is what characterizes modern organizations.

Relational factors account for activities such as care, providing information, attitudes of understanding and comfort, among all kinds of dialogue between an individual in need of need to be met and one or more individuals who volunteered to meet the perceived need. Infrastructural factors encompass all types of means necessary for the provision of the service or supply of need to be effective in accordance with the expectations of both the demander and the supplyer. Factors related to products and services refer to all characteristics and attributes of what makes up the supply demanded by the customer or user concentrated in the requested product or service contracted.

Satisfaction, therefore, is a result of the degree of approximation between the attributes of each of these factors effectively delivered by the individual or contracted organization in relation to the customer or user expectations for each of these attributes. Thus, the further away, the less satisfaction, and the less distant, the greater the satisfaction. To evaluate customer or user satisfaction is to qualitatively or quantitatively measure each variable (also called analytical category) directly, so that one can indirectly measure the satisfaction of each set of variables (constructs,
factors or analytical dimensions of the phenomenon), which will allow, by association, to measure the phenomenon under investigation.

3. RESEARCH METHODOLOGY

The aim of this study was to evaluate if the users of the vessels that make up the river passenger transportation system that dock at the port of Manaus Moderna are satisfied with the level of service offered to them. For this purpose, the strategy specified here was designed and operationalized.

3.1 Study hypotheses

The overall hypothesis of this study, which corresponds to its null hypothesis, is that boat users are satisfied with the level of service offered to them. From this global hypothesis, four secondary hypotheses were elaborated:

Hypothesis 1: There is no difference in satisfaction with the level of service when analyzed from the perspective of marital status.
Hypothesis 2: There is no difference in satisfaction with the level of service when comparing age groups.
Hypothesis 3: There is no difference in satisfaction with the level of service when considering the gender of users.
Hypothesis 4: There is no difference in satisfaction with the level of service when studied from the perspective of personal income.

3.2 Study Features

This is a type of quantitative study, which used the survey method, and is characterized by the search for answers to research questions involving many members of a population. Its concern is to understand the behavior of a given phenomenon from a sample to allow its generalization through inference processes, especially with the use of statistical tools.
The unit of analysis was individual, since individuals who have ever used vessels to transport from a certain city to Manaus or vice versa provided information for the study. The level of analysis was organizational, as we sought to understand the level of satisfaction in relation to all vessels that dock in the port of Manaus Moderna, treated as a fluvial passenger transport system in this research. The perspective of analysis was synchronic, meaning that the intention of the researchers was to make a kind of photograph of reality, whose results are valid only to explain the phenomenon at this moment, unlike the diachronic perspective, which seeks to explain its dynamics in various moments of the course. Historical.

3.3 Population and sample

The population consisted of every individual who ever used a vessel that docked at the port of Manaus Moderna as a means of transport to get from Manaus to some inner city or vice versa. This means that, in statistical terms, the population was considered infinite, since probably no one knows for sure how many individuals fall into this category (Silva et al., 2018; Dallazen et al., 2018; 2018; Mondo, Hallmann, and Burg, 2018), probably consisting of tens and perhaps hundreds of thousands of people, as boats are the main means of regional transport.

The sample was calculated based on the formula \( TA = \frac{1}{E^2} \), where \( TA \) is the sample size and \( E \) is the maximum allowable margin of error for the study, based on the significance level of 95%. The application of the formula resulted in the need to collect data from 400 individuals. However, a percentage of 20 additional questionnaires, corresponding to 5% of the total, was established for precautionary purposes if any of them had to be discarded for any reason, such as incorrect filling, erasures and markings that were not in conformity with the questionnaire protocol. Of the 420 questionnaires submitted, 408 were considered valid for the analysis and generation of results.

3.4 The data collection instrument
In accordance with the theoretical framework, the questionnaire was the instrument chosen to collect data from this study, mainly because it is the most viable and fastest way to consult a large sample in the shortest possible time. The instrument was divided into two parts: the first concerned the sociodemographic aspects of respondents, while the second focused on the dimensions and categories of study analysis.

Five sociodemographic categories were chosen for study, according to the study's secondary working hypotheses: marital status, age, gender and monthly personal income. It is noteworthy that the questionnaire started with a control question, which sought to make sure that the respondent had already used a vessel to move from one city to another, a necessary condition to be part of the study population.

<table>
<thead>
<tr>
<th>Analytical Dimensions</th>
<th>Analytical Categories</th>
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<tbody>
<tr>
<td>Relational</td>
<td>Service by employees</td>
</tr>
<tr>
<td></td>
<td>Quickness of staff in problem solving</td>
</tr>
<tr>
<td></td>
<td>Friendliness of Employees</td>
</tr>
<tr>
<td></td>
<td>Access to master / person in charge of the vessel</td>
</tr>
<tr>
<td>Infrastructural</td>
<td>Easy ticket purchase</td>
</tr>
<tr>
<td></td>
<td>Security on boarding / unloading</td>
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<tr>
<td></td>
<td>Safety while traveling</td>
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<td></td>
<td>Ease of getting to boat in port</td>
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<td></td>
<td>Departure Time Fulfillment</td>
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<td></td>
<td>Arrival Time</td>
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<tr>
<td>Service Related</td>
<td>Boat acclimatization</td>
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<tr>
<td></td>
<td>Shipowner / cabin quality</td>
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<tr>
<td></td>
<td>Ticket price</td>
</tr>
<tr>
<td></td>
<td>Baggage allowance</td>
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</tbody>
</table>
Feed Quality
Cleanliness of the sleeping place
Bathroom cleaning
Cleaning the feeding place

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<th>Chart 2. Categories and analytical dimensions of the study</th>
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</table>

The explanatory questions were organized into three dimensions: relational, infrastructural and service-related, as shown in Table 2. Thus, 4 relational categories, 6 infrastructural and 8 concerning passenger transport were chosen. The categories were chosen based on a previous survey of a small sample of passengers, whose purpose was to identify what they considered important that a vessel needed to present so that they could be considered satisfied or dissatisfied with transport services.

3.5 Data collection strategy

Data were collected for 10 consecutive days, starting on a Friday and ending the following Sunday. This decision took into account the fact that the days from Friday to Sunday are the chosen days for vessels to depart from Manaus towards the cities of destination of passengers, at which time passengers would be more available to be approached. In addition, it would be possible to consult passengers from vessels that would not be available in the first week, as there are destinations that take 15 days for the vessel to depart to the destination city and return to the port of Manaus Moderna.

Data were collected at the perimeter that runs from the Educandos neighborhood bridge to the start of the Manaus Port, known as Rodway, approximately 1.5 kilometers. Every day, researchers approached arriving or departing passengers until the total number of questionnaires provided for in the sampling calculation was completely exhausted, which coincided, as scheduled, with the tenth day of data collection.
Potential informants were approached when the reason for the study was explained to them, what the completion procedure should be, and whether they would like to participate. If so, the questionnaire was passed to it, waiting for completion and completion, and when the respondent could not read, the researchers read and marked the answer provided.

3.6 Data organization and analysis procedure

Once completed, the questionnaires analyzed, item by item, to find out if the answers had no erasures, more than one mark or were blank. In this procedure 12 questionnaires were discarded. Then, the rest were transcribed into a spreadsheet, where each answer was transformed into number, in accordance with the answer marked by the respondent. Answer where the first alternative was marked corresponded to number 1; if the third alternative was checked, the number noted in the spreadsheet would be 3; and so on.

Spreadsheet data was exported to the Statistics Package for Social Sciences (SPSS). First, summary statistics were generated, contained in tables, concerning the sociodemographic aspects of the sample. Then the normality test was performed, using the Kolmogorov-Smirnov and Shapiro-Wilk tests, always with a significance level of 95%, to know whether or not the data could be considered parametric, normal, which would imply if they were not normal, the rejection of the mean as a measure of central tendency and its replacement by the median. The standard deviations of each analytical category were also calculated, so that the level of satisfaction of the respondents in relation to the level of service practiced by the vessels could be measured.

Since the median is the measure that synthesizes the behavior of the category, the calculated standard deviation for each variable explains whether that behavior can be considered consensual or not, depending on its approximation or distance from zero. With the median and standard deviation, the overall situation of the service level of the surveyed vessels was analyzed.
Then we sought to know whether or not that result was associated with the chosen sociodemographic categories. To test the hypothesis that there is no difference in satisfaction with service level according to marital status, age and income, the Kruskal-Wallis test of independent samples was used, while to test the hypothesis that satisfaction is not associated with the gender of the respondents, the Mann-Whitney U test was used. Significance with a margin of error of 5% was analyzed for the interpretation of the results.

4. RESULTS

This study analyzed whether users of the river passenger transport system are satisfied with the level of service offered to them by vessels. The results are organized here in two blocks. The first block presents a detail of the sample used, while the second focuses on the hypotheses that guided the empirical studies, based on the theoretical framework built specifically for this purpose.

4.1 Demographic Characteristics

Most users of transport services offered by the surveyed vessels are single, with 44.7%. In second place are married, with 32.2%. The widowers, those who maintain a stable union relationship and other marital states made up, respectively, 7.6%, 8.1% and 7.4%, of the sample used. These last three states represented 23.1% of the total users surveyed in this investigation.

There is a predominance of users who do not have a marital relationship, if added single and widowed, with a total of 52.3%, compared to 40.3% married and maintaining a stable relationship. This means that, from a logistical point of view, the composition of the transport service level items should favor single users. As many users of the system maintain marital relationships, it would be important to consider the possibility of composing service items also with their needs, so that it can cover the four categories of marital status.
When analyzed from the point of view of age, vessel-supplied transport system users have a nearly uniform distribution. Individuals under 30 represent 45.8% of all travelers, with 21.3% under 20 years of age. If youth (under 30 years) and young adults (between 30 and 40 years) are added, the total is 69.1% of all users. Full adults and other strata represent the remaining 30.1%, almost one third, and those who said they were 50 or older represent only 12.5% of the total respondents in the study.

These results are significant for the composition of the service level because, given the balanced distribution among the most frequent strata, it forces vessel managers to contemplate and meet different needs. As practically 70% are young and young adults, the most recommended would be to direct their efforts towards this contingent, knowing, however, that practically one third of users would be out of focus.

Women represent the largest contingent of users of the vessel passenger transport system surveyed. The female contingent reached 52.7%, against 47.3% of male users. From a statistical point of view, however, the difference is within the margin of error, which is 5%.

There is a balance between men and women in boat trips between vessels that use the port of Manaus Moderna. Because users use this transportation system for a variety of reasons, this diversity may be part of the present reality of men and women, unlike the more distant past in which men predominated. Perhaps female users are gradually overwhelming male supremacy in the demand for this type of transportation.

One of the interesting findings of this empirical study was the finding that two thirds (67.4%) of vessel users said they had a personal income of less than $ 1,000 reais and 85.3% had a personal income of less than $ 1,500, 00, as shown in table 4. In fact, 94.4% of all passengers surveyed earn less than $ 2,000 per month and only 5.6% said they earn more than that.

The poor or less financially sound population is the one that uses the passenger transport services by boat. Perhaps it is this population that seeks the capital of Amazonas in search of health services, for example, which are extremely precarious or even nonexistent in the small towns of the interior, since even the
medium-sized cities these services are disabled. Likewise, they are likely to land in
the city seeking to sell products they bring with them in small quantities or,
conversely, to buy products for resale in their inner cities. Socioeconomic needs may
explain the predominance of the poor as predominant demanders of these services.

4.2 Reliability and normality tests

Every questionnaire, as a measuring instrument of a given phenomenon,
needs to have its measurement capacity measured. Instruments need to ensure
validity and reliability. Validity is the ability to measure what the instrument has
actually committed to measuring (a tape measure is valid for measuring length but
invalid for measuring motivation), while reliability is its power to measure in the same
way. In the case of this study, the reliability test performed was Cronbach’s alpha,
which reached 0.880, but with the standardized items, reached the value of 0.913,
considered highly capable of guaranteeing the confidence that the study requires.

The second test to which the sample used in this study was submitted was
that of normality. The reason is quite simple: knowing what kind of hypothesis testing
should be used to achieve the objectives of this research. The normality test lends
itself to this: knowing whether the data collected show normal behavior. If the
behavior is normal, it is recommended to use statistical tests centered on the
average; If the data do not present normal behavior, the tests to be used will be
centered on the median, the so-called nonparametric ones.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Kolmogorov-Smirnov(^a)</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>df</td>
</tr>
<tr>
<td>Service by employees</td>
<td>0,219</td>
<td>407</td>
</tr>
<tr>
<td>Fast problem solving</td>
<td>0,203</td>
<td>407</td>
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<tr>
<td>Friendliness of Employees</td>
<td>0,162</td>
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<td>Commander / guardian access</td>
<td>0,308</td>
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<tr>
<td>Boat acclimatization</td>
<td>0,330</td>
<td>407</td>
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<tr>
<td>Shipowner / cabin quality</td>
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<td>Ticket price</td>
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<tr>
<td>Baggage allowance</td>
<td>0,163</td>
<td>407</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>0,155</td>
<td>407</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>0,150</td>
<td>407</td>
</tr>
</tbody>
</table>
The results in table 1 show that all variables showed non-normal behavior. This means that the hypothesis tests to be applied should have the median as a reference, which will play the same role as the average, except that it will divide the data set into two exact groups of the same size. Thus, the higher the median, the higher the respondents’ evaluation in relation to each item evaluated; Conversely, the lower the median, the lower the evaluation and, therefore, for the purpose of this study, the lower the degree of satisfaction.

### 4.3 Global user satisfaction analysis

Table 2 summarizes the satisfaction of users of the river transport system studied. It was found that all variables surveyed found a high degree of satisfaction on the part of respondents, highlighting the evaluation of care provided by employees, which obtained a median equal to 9 and standard deviation (SD) equal to 0.1, which means, in practice, consensus that the service received is excellent.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Median</th>
<th>SD</th>
<th>Median -2SD / +2SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service by employees</td>
<td>9</td>
<td>0.1</td>
<td>8.8 / 9.2</td>
</tr>
<tr>
<td>Fast problem solving</td>
<td>8</td>
<td>0.1</td>
<td>7.8 / 9.2</td>
</tr>
<tr>
<td>Friendliness of Employees</td>
<td>8</td>
<td>0.1</td>
<td>7.8 / 9.2</td>
</tr>
<tr>
<td>Commander / guardian access</td>
<td>8</td>
<td>0.1</td>
<td>7.8 / 9.2</td>
</tr>
<tr>
<td>Variable</td>
<td>Median</td>
<td>Standard Deviation</td>
<td>Rating</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>--------</td>
<td>--------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Boat acclimatization</td>
<td>8</td>
<td>0,3</td>
<td>7,4 / 8,6</td>
</tr>
<tr>
<td>Shipowner / cabin quality</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Ticket price</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Baggage allowance</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Bathroom cleaning</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Meal cleanliness</td>
<td>7</td>
<td>0,1</td>
<td>6,8 / 7,2</td>
</tr>
<tr>
<td>Easy ticket purchase</td>
<td>8</td>
<td>0,3</td>
<td>7,4 / 8,6</td>
</tr>
<tr>
<td>Security on boarding / unloading</td>
<td>8</td>
<td>0,1</td>
<td>7,8 / 9,2</td>
</tr>
<tr>
<td>Safety while traveling</td>
<td>8</td>
<td>0,1</td>
<td>7,8 / 9,2</td>
</tr>
<tr>
<td>Easy to get to the boat</td>
<td>8</td>
<td>0,1</td>
<td>7,8 / 9,2</td>
</tr>
<tr>
<td>Departure Time Fulfillment</td>
<td>8</td>
<td>0,1</td>
<td>7,8 / 9,2</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>8</td>
<td>0,1</td>
<td>7,8 / 9,2</td>
</tr>
</tbody>
</table>

*Table 2. Global User Satisfaction*

In addition, 10 other variables reached the median 8 and seven reached 7 as a global assessment. It is noteworthy, however, that the standard deviation has always been extremely low, around the value 0.1, except for the variable “climate control of the vessel”, which had the value 0.3, yet a very low value. The lower the standard deviation, therefore, the greater the degree of consensus that the median value actually represents the assessment of the degree of satisfaction with the measured variable.

These results show that the population that demands transport services is very satisfied with the level of service offered to them. In practical terms, the lowest score one could give for the variables researched would be 6.8, on a scale from 0 to 10. In this study, the 6.8 scores were precisely on the quality of the shipowner or cabin, the ticket price, and the transportation of luggage, the quality of food and cleanliness (of
the sleeping place, toilets and the meal place). But this lower grade is still a very high grade, which demonstrates the high degree of satisfaction of these users.

### 4.4 Satisfaction analysis by marital status

The basic premise of the hypothesis tested here is that there is no difference in the satisfaction of users of the passenger transport system, considering the respondents’ marital status. This means that there is no association between marital status and passenger satisfaction. Kruskal-Wallis test of independent samples was used to test the hypothesis. The results, shown in Table 3, show that the null hypothesis is true, that there is no difference in user satisfaction, according to marital status, except for the variable “Access to the commander / guardian” of the vessel.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service by employees</td>
<td>0.051</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Fast problem solving</td>
<td>0.118</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Friendliness of Employees</td>
<td>0.083</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Commander / guardian access</td>
<td>0.037</td>
<td>There is difference</td>
</tr>
<tr>
<td>Boat acclimatization</td>
<td>0.080</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Shipowner / cabin quality</td>
<td>0.276</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Ticket price</td>
<td>0.497</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Baggage allowance</td>
<td>0.121</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>0.097</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>0.308</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Bathroom cleaning</td>
<td>0.286</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Meal cleanliness</td>
<td>0.104</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy ticket purchase</td>
<td>0.182</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Security on boarding / unloading</td>
<td>0.223</td>
<td>There's no difference</td>
</tr>
</tbody>
</table>
Table 3. Satisfaction by marital status

<table>
<thead>
<tr>
<th>Variables</th>
<th>Significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety while traveling</td>
<td>0,572</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy to get to the boat</td>
<td>0,566</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Departure Time Fulfillment</td>
<td>0,202</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>0,584</td>
<td>There's no difference</td>
</tr>
</tbody>
</table>

These results indicate that marital status does not interfere with passenger satisfaction. In practice, single users, married, widowed, with stable union or any other have the same degree of satisfaction, so that their satisfaction is indifferent, is beyond whether or not to maintain a relationship, stable or transient. This naturally influences the composition of the level of service offered by the vessel, which will have less concern in choosing the items it should choose to offer to its customers.

4.5 Satisfaction analysis by age group

We sought to know if there is a difference in passenger satisfaction of the surveyed vessels, according to their age group. The basic assumption was that there is no difference, which provided for the null hypothesis. To test this hypothesis, the Kruskal-Wallis test of independent samples was used. The alternative hypothesis predicted that there would be a difference in the satisfaction of the individuals surveyed. The results are contained in table 4.
<table>
<thead>
<tr>
<th>Service</th>
<th>Satisfaction Index</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipowner / cabin quality</td>
<td>0.775</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Ticket price</td>
<td>0.639</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Baggage allowance</td>
<td>0.972</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>0.272</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>0.723</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Bathroom cleaning</td>
<td>0.492</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Meal cleanliness</td>
<td>0.530</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy ticket purchase</td>
<td>0.420</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Security on boarding / unloading</td>
<td>0.766</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Safety while traveling</td>
<td>0.976</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy to get to the boat</td>
<td>0.979</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Departure Time Fulfillment</td>
<td>0.548</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>0.944</td>
<td>There's no difference</td>
</tr>
</tbody>
</table>

Table 4. Satisfaction by age group

Satisfaction does not vary according to the age of users of the passenger transport system surveyed. Therefore, there is no difference in the satisfaction of the individuals surveyed, according to this demographic category, which also represents a less challenge for vessel managers to maintain the high level of satisfaction that this study detected.

4.6 Satisfaction analysis by gender

Another hypothesis tested was the one that predicted that there was no difference between the satisfaction of men and the satisfaction of women who travel by the vessels under study, configuring their null hypothesis. The alternative hypothesis said the opposite, that there was a difference. The test used was the Mann-Whitney U, whose results are contained in table 5.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service by employees</td>
<td>0.460</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Fast problem solving</td>
<td>0.794</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Friendliness of Employees</td>
<td>0.509</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Commander / guardian access</td>
<td>0.338</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Boat acclimatization</td>
<td>0.023</td>
<td>There is difference</td>
</tr>
<tr>
<td>Shipowner / cabin quality</td>
<td>0.103</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Ticket price</td>
<td>0.205</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Baggage allowance</td>
<td>0.991</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>0.622</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>0.834</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Bathroom cleaning</td>
<td>0.487</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Meal cleanliness</td>
<td>0.486</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy ticket purchase</td>
<td>0.766</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Security on boarding / unloading</td>
<td>0.571</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Safety while traveling</td>
<td>0.834</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Easy to get to the boat</td>
<td>0.623</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Departure Time Fulfillment</td>
<td>0.860</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>0.677</td>
<td>There's no difference</td>
</tr>
</tbody>
</table>

Table 5. Satisfaction by Gender

There is a difference in satisfaction between men and women only in relation to the variable “climate control of the vessel”. The other variables indicated satisfaction homogeneity between respondents of both sexes. Again, here is the possibility that the services provided by vessel managers have been able to meet the
needs of men and women, so that the high rating holds for each of the gender segments.

4.7 Satisfaction analysis by income

Income was another demographic category used to detect possible differences in satisfaction among users of surveyed vessels. The null hypothesis stated that there would be no difference in satisfaction if analyzed from the perspective of the personal monthly income of the individuals surveyed; the alternative hypothesis stated that there would be difference. Kruskal-Wallis test of independent samples was used to test the hypothesis and the results are shown in table 6.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service by employees</td>
<td>0,000</td>
<td>There is difference</td>
</tr>
<tr>
<td>Fast problem solving</td>
<td>0,000</td>
<td>There is difference</td>
</tr>
<tr>
<td>Friendliness of Employees</td>
<td>0,024</td>
<td>There is difference</td>
</tr>
<tr>
<td>Commander / guardian access</td>
<td>0,004</td>
<td>There is difference</td>
</tr>
<tr>
<td>Boat acclimatization</td>
<td>0,001</td>
<td>There is difference</td>
</tr>
<tr>
<td>Shipowner / cabin quality</td>
<td>0,118</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Ticket price</td>
<td>0,011</td>
<td>There is difference</td>
</tr>
<tr>
<td>Baggage allowance</td>
<td>0,212</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Feed Quality</td>
<td>0,001</td>
<td>There is difference</td>
</tr>
<tr>
<td>Cleanliness of the sleeping place</td>
<td>0,002</td>
<td>There is difference</td>
</tr>
<tr>
<td>Bathroom cleaning</td>
<td>0,041</td>
<td>There is difference</td>
</tr>
<tr>
<td>Meal cleanliness</td>
<td>0,014</td>
<td>There is difference</td>
</tr>
<tr>
<td>Easy ticket purchase</td>
<td>0,399</td>
<td>There's no difference</td>
</tr>
<tr>
<td>Security on boarding / unloading</td>
<td>0,103</td>
<td>There's no difference</td>
</tr>
</tbody>
</table>
This shows that there is a difference in the satisfaction of boat users according to the income demographic category. The study shows that individuals are only similarly satisfied with "shipowner / cabin quality", "baggage allowance price", "ease of purchase of tickets" and "safe boarding / unloading"; in the other variables, therefore, satisfaction is different. This means that people with slightly higher incomes see differently most of the variables that made up the data collection instrument of this research.

These results are very important, from a managerial and logistic point of view, because they signal to vessel managers that variations in the income of individuals who demand their services can migrate to other types of modes, if available, such as airways. Perhaps raising the level of service to address this more demanding segment, while keeping the satisfaction of the most financially well-off segment high could reduce the satisfaction gap detected here.

5. FINAL CONSIDERATIONS

This study showed that the users of the vessels that dock at the port of Manaus Moderna are satisfied with the level of service offered to them. It was also found that this satisfaction is not affected by the marital status, gender and age group of the users, but differences in positions on satisfaction regarding personal income were detected, that is, the higher the income of the individual who uses vessels as a means of transport, the less satisfied it is with the level of service offered to it. The fluctuation of the income level can affect the tourist flow through this mode.
These results seem to indicate that users are sensitive to the price charged by transportation services. It is likely that other modes of transport, such as the waterway, when they are more accessible, will be more attractive as a substitute for inland waterway transport by these vessels or by other competitors, such as those at the Rodway port, which operates near Manaus Moderna.

As a system that meets the needs of the poorest Amazonian populations, boat transport tends to perpetuate a historical tradition, and perhaps the few improvements that have been made over decades, such as air conditioning in the sleeping environment, are sufficient to exceed your expectations with the services offered. But this is probably not enough to maintain the satisfaction of those with a little more income, which explains the higher levels of demand for their satisfaction to be guaranteed.

These results become challenges for ship managers as they need to be able to incorporate or transform the items that make up the current service level to higher levels so that they can keep loyal users loyal and increase satisfaction. from those who have not as high satisfaction and faithful as others. Obviously, these changes and even transformations cannot increase the average cost of services, which could prevent the poorer population from continuing to demand the fluvial transportation of passengers from the Amazon cities to Manaus and vice versa.

6. REFERENCES


