Analysis of Bus Station Services with Importance-Performance Analysis: Empirical Results of Gerbangkertosusila Region

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Abstract. Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan (Gerbangkertosusila) areas serve as National Activity Centre in East Java Province especially in export-import activities regionally, nationally, and internationally. Because of its strategic position, in order to develop industries, the supporting factors such as the availability of infrastructure particularly in transportation should be well prepared. There are many problems emerging in transportation including congestion, a number of private vehicles, public transport facilities, and transportation development policies. The transition of land transportation modes, especially from private vehicles to mass transportation (buses, trains, etc.) becomes an alternative problem-solving. The study aimed to analyze passenger satisfaction who experienced the services in the provincial bus stations in the area of Gerbangkertosusila. Performance level and customer expectations of customers were examined and analyzed using Importance-Performance Analysis (IPA). There were 139 respondents interviewed. The result showed the customer satisfaction index for the best bus station was Gresik, followed by Sidoarjo, Lamongan, Surabaya, Mojokerto, Bangkalan, and Mojokerto (district). Passengers (customers) have different expectations especially for the services of each station in every region, so local governments need to create new policies and breakthroughs in order to increase consumer interest in mass transportation facilities.

1. Introduction

According to the World Bank, in many countries, efforts to increase the basic budget for infrastructure in rural areas are economic priorities significantly contributing to reduce poverty. In addition, many studies provided data indicating that infrastructure variables (highways and railways) and communications correlate to the growth in developing countries [1].

Highway has a strategic role in supporting the economy. Because of the increasing number of vehicles in each year, its loads become higher that resulting in increasing cost of transportation, as the land mode is the only way to distribute products in current time. In export sectors, the total cost of shipping and domestic land transportation is more than 40% of the total logistics costs that becomes one of the reasons of business competition in Indonesia reduced as well as encourages high-cost economy. The cost of land transportation in Indonesia is higher than in other countries. For example,
delivering products from Warsaw to Hamburg with a distance of 750 kilometers cost a half of delivering products from Makassar to Enrekang in Sulawesi with only 240 kilometers [2,3].

Transportation issues need comprehensive thinking and handling in order to improve the efficiency and effectiveness of infrastructure as well as to optimize the limited resource of transportation systems in regional developments. The increasing road traffic causes serious congestion, delays, accidents and environmental problems which commonly emerge in major cities as well as in industrialized and developing countries [4]. A study conducted in Istanbul Turkey [5] showed that one of the reasons of traffic congestion in the city was a poor public transportation system. Minibuses and old buses cannot run faster and need longer time, thus causing an increasing queue of vehicles. Government especially for rapid transit area should carry out renovation as well as improvement of facilities such as installing Wi-Fi and providing comfortable seats. According to a study conducted by Ali and others [6], bus passengers were satisfied with the security and ticket prices. There are five dimensions in measuring quality of service widely applied, namely tangibles, reliability, responsiveness, assurance, and empathy [7]. These five dimensions were used to measure the quality of public transportation services [8,9]. A highly efficient model was built to manage bus traffic at Taipei Bus Station in order to reduce congestion [10]. Importance-performance analysis (IPA) is helpful to evaluate consumer acceptance; to facilitate data management interpretation; as well as to improve its usefulness in designing strategic marketing [11]. Therefore, the analysis classified the attributes into four quadrants, namely concentrate here, keep up with the good work, low priority, and possible overkill.

The study aimed to analyze passenger satisfaction who experienced the services in the provincial bus stations in the area of Gerbangkertosusila.

2. Methods
Quantitative analysis is a scientific approach for managerial decision making [12]. In business studies, quantitative research usually measures consumer behavior, knowledge, opinions, or attitudes where answer “how much, how often, how many, when, and who”. The method used for survey was the dominant method [13]. Data was collected in numbers and analyzed using available descriptive and inferential statistics [14]. Data was collected through questionnaires and interviews to people who use mass transit services (bus) at the Gerbangkertosusila regional stations as well as to related institutions including the Highway Transportation/Transportation Department. Data collection technique was sampling with 20 respondents of each region in Gerbangkertosusila. There were 140 questionnaires distributed, yet 139 were analyzable. The criteria of respondents were aged over 20 years, more than twice using transportation services in the same bus station.

Importance-Performance Analysis (IPA) was used to examine and analyze the customer satisfaction and expectations. The importance of service quality (customer expectation) was on how significant the variables of service for customers. The performance level scaled the service quality provided by the bus station. The 5-level Likert scale was used to measure the performance level as “very important/very good, important/good, important enough/good enough, less important/unsatisfactory, and not important/not well”. These five levels are scored using 5, 4, 3, 2 and 1. The performance and expectation levels attributes are:

**Tangible** - (1) availability of 24-hours customer service, (2) cleanliness and green, (3) availability of no smoking area, (4) availability of other facilities (mosque, toilet, ticket locker, shopping area, cafeteria, health room, and parking).

**Reliability** - (5) accessible location of bus station, (6) availability of bus schedule information, (7) efficiency of departure schedule, (8) accessible information.

**Responsiveness** - (9) efficiency of officers in providing services to customers to completion, (10) efficiency and accuracy of officer in providing information required by the customer, (11) efficiency of officer responding the emergency conditions in bus station, (12) as well as efficiency of officer responding complaints and customer problems.

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Assurance - (13) security and comfort (such as waiting room) in the bus station and customer issues, (14) hospitality and courtesy of the officers in serving the customers, (15) reliable service guarantee given by officers.

Empathy – (16) honesty and patience of the officers in providing services, (17) no differentiating services (regardless social status), (18) appreciating and prioritizing the service to meet customer needs.

Next, graphics displayed with a two-dimensional grid forming four quadrants was used to examine and analyze the performance level and customer expectations accordingly.

![Figure 1. Importance-Performance Grid with Attribute Ratings [11].](image)

Quadrant A was an area containing items with relatively high importance not according to customer expectations, in which the items need to be improved. Quadrant B was an area containing items with relatively high importance level as well as satisfaction in which those items considered as supporting factor of customer expectation as those help to satisfy the needs of customers. Quadrant C was an area containing items with relatively low importance and not special with low satisfaction level, in which items are relatively low affecting the customer’s advantages. Quadrant D was an area containing items with relatively low importance, but it has relatively high for satisfaction level. The cost used to support the incoming items of this quadrant can be deducted in order to save the spending.

The end of the analysis is to assess customer satisfaction through the calculation of the Customer Satisfaction Index (CSI).

3. Results and discussion

The results of the analysis show the following results. Gresik has the following pattern:

![Figure 2. Cartesian diagram of Gresik's district bus station](image)

The succession of the other six regions:
From figure 2, based on IPA, Gresik has the following characteristics:
Quadrant A - the attributes were considered important, but performance level did not meet customer expectation. The attributes in this quadrant were cleanliness and greens in bus station; efficiency of officers in providing services to customers to completion; efficiency and accuracy of officer in providing information required by the customer; efficiency of officer responding the emergency conditions in bus station; as well as efficiency of officer responding complaints and customer problems.

Quadrant B - the attribute was considered important and its performance level was considered very good, where should be well maintained in order to keep customers satisfied. Attributes in this quadrant were availability of facilities (mosque, toilet, ticket locker, shopping area, cafeteria, health room, parking) and appreciating and prioritizing the service to meet customer needs.

Quadrant C – attribute was considered less important and its performance level was low. Attributes in this quadrant were availability of no smoking area, hospitality and courtesy of the officers in serving the customers.

Quadrant D - attribute was considered less important, but the performance level was very well. Attributes in this quadrant were the availability of 24-hours customer service, accessible location of bus station, availability of bus schedule information, efficiency of departure schedule, and accessible information. Using the same way, analyzing each attribute of other regions was not difficult to be carried out.

Further analysis was the calculation of comparison of performance level & expectations and customer satisfaction index (CSI). Data is seen in Table 1.

| Region             | Mean of Performance | Mean of Expectations | Customer Satisfaction Index |
|--------------------|---------------------|----------------------|-----------------------------|
| Gresik             | 3.62                | 4.56                 | 91%                         |
| Bangkalan          | 3.14                | 4.22                 | 85%                         |
| Mojokerto (district) | 2.67                | 3.98                 | 80%                         |
| Mojokerto (city)   | 3.49                | 4.30                 | 86%                         |
| Surabaya           | 2.72                | 4.31                 | 86%                         |
| Sidoarjo           | 2.91                | 4.49                 | 90%                         |
| Lamongan           | 4.06                | 4.36                 | 87%                         |

Based on the table above, it shows that all regions have smaller performance than customer expectations. When the products or services are able to meet the needs and expectations of customers, the customers would be surely satisfied [15]. Furthermore, when expectations are failed to meet, dissatisfaction on neither products nor services would appear meaning bus station services are failed to satisfy customer. The results of this research were similarly to [16] which determine the performance level of public transport was low in providing services. Local governments were able to improve the service according to the results of IPA analysis as the characteristics of each region as shown in figure 3-8. Based on the customer satisfaction index calculation, Gresik has the highest level of service compared to other regions.

4. Conclusion
Finding solution of land transportation problems, especially among cities, should be comprehensively carried out. One of the problems was persuading people to change transportation modes from private vehicles to mass transportation.

The results showed that the attributes in service quality were not the same among the regions, according to their quadrant placement. In general, the bus station service still has not met the overall customer expectations, though the CSI score was considered high. The customer satisfaction index of bus terminal service was Gresik (91%), followed by Sidoarjo (90%), Lamongan (87%), Surabaya (86%), Mojokerto (86%), Bangkalan (85%), and Mojokerto (district) (80%) meaning that region requires different handling and policies, as customer expectations in bus station were different among
big cities, such as Surabaya had higher service expectations compared to other smaller areas such as Mojokerto. The policy pattern of service quality of inter-regional bus terminal at regional level was interesting to observe, for example by comparing bus terminals among big provincial cities in Java or even Indonesia.

Acknowledgments
Thanks to The Indonesian Directorate General of Higher Education for supporting the research.

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