improving service excellence on passengers ship in indonesia-IJTGM

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Improving service excellence on passenger ships in Indonesia

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Abstract: This study aims to 1) analyse ship passengers' profiles and their perceptions of service excellence from sea transportation services; 2) analyse the efficiency of passenger ship routes; and 3) measure willingness to accept (WTA) of ship passengers. This research uses sequential mixed methods with ATLAS.ti, data envelopment analysis (DEA) and WTA as the analytical instruments. The results show that the majority of ship passengers were from low economic groups, who chose sea transportation for their convenience and facilities. DEA calculations show that six ship routes were efficient whereas the

other 14 routes were inefficient. WTA of multimodal users reached 14.3%. It can be concluded that the improvement of service excellence for ship passengers is highly dependent on passenger profiles, ship service and facilities, ship efficiency and affordable ticket prices.

Keywords: service excellence; sea transportation; WTA; willingness to accept; DEA; data envelopment analysis; ATLAS.ti.

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1 Introduction

International trade is one of the determinants of economic success and increased prosperity for the entire world community. Global trade crosses continents and most of the oceans separated by thousands of miles. In the last few centuries, international trade has driven quite rapid progress in maritime. International shipping lines have reorganised the worldwide port system (Gouvernal et al., 2010). The maritime organisation system divides ports into deep sea shipping (DSS) and short sea shipping (SSS). DSS focuses on large ports that connect oceans and continents, whereas SSS involves terminals with relatively small traffic bases, so they are often referred to as secondary ports.

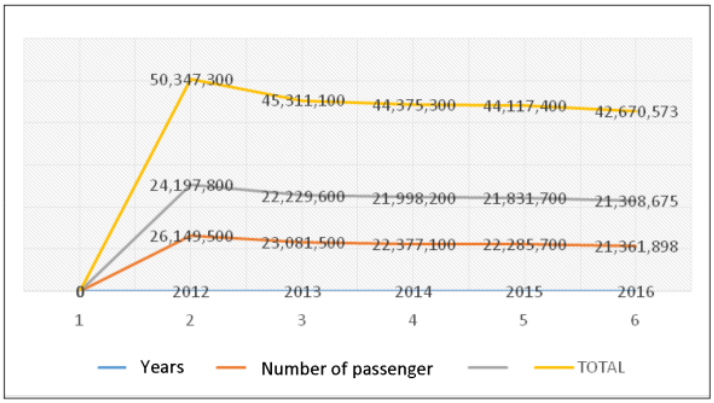
Secondary ports have an important role in island nations with territories separated by oceans and rivers. Shipping is the main alternative in transportation and distribution

chains, so the ports arrangement as hubs is very important. Some of the main problems in port reorganisation and maritime system include: Who are the actors in the shipping? What is the port scale and what type of service is provided? What is the mechanism? How is it set up? Port services are distinguished by ship types: cargo ships and passenger ships. This study reviews the service improvement of passenger ships in Indonesia.

Indonesia consists of 17,504 large and small islands separated by 12 seas and 47 straits, with a total waters of 5.8 million km^2 consisting of 2.8 km^2 of inland waters, 0.3 million km^2 of territorial sea and 2.7 million km^2 of exclusive economic zone with coastline that extends approximately 95,181 km. As a result, maritime becomes a very strategic sector for Indonesia because it covers economic, legal, defence and security, environment, social and cultural aspects. The fragmented condition of the archipelago requires sea transportation facilities to support inter-island traffic of people, goods and commodities that promotes regional, national and international economic growth (Yudhistira and Sofiyandi, 2017).

Figure 1 shows national data on the number of seafaring passengers at major ports in Indonesia during the period of 2012–2016:

Figure 1 The number of seafaring passengers, 2012–2016 (see online version for colours)



Source: BPS data, processed (Central Bureau of Statistics, 2016)

Figure 1 shows that there is a continuous decline in the number of passengers, although the average number of seafarers each year reaches 18% of the total population. These data suggest that sea transport still has an important role in the inter-island population mobility. In addition to internal development, Indonesia's marine potential also has a strategic role in international trade. *Global Trade Flow and Indonesia Context* stated that Indonesia has high potential of marine resources owing to borderless economic and marketing activities especially between Europe, Africa and Asia Pacific regions so that transportation becomes the main requirement to support global trade chain (Hanouz et al., 2014).

Some studies have found that

1 the market share of marine transportation ranks the lowest compared with other modes of transportation

2 market share growth in sea transportation is also the lowest, although its development tends to be positive

3 Indonesia's economic growth leads to increased purchasing power

4 the shift of public transportation preferences to air transportation, which is considered to have higher values

5 the potential of national and international policies that encourage the development of sea transportation.

If associated with the potential, opportunities and characteristics of the Indonesian region, sea transportation should have great potential to be developed. On the basis of the existing conditions of sea transportation, Indonesia needs a new breakthrough in the form of integrated, effective and efficient transportation infrastructure development that takes into account internal and external factors. Planning for sea transportation routes, sea transportation subsidies, revitalisation of popular shipping and development of regional commodity-based industries are important things to be realised (Dewa et al., 2018).

Issues in the development of sea transportation in Indonesia include:

1 The global rank of port infrastructure is still low, i.e., at position 77, which is below Malaysia in 19th position and Thailand in 54th position. Nationally, the rank of sea transport is also lower than that of both inland transport in 41st and air transport in 64th position.

2 The number of ports in Indonesia is 1241, which means that 1 port serves 14 islands; this ratio is well below other island countries such as Japan with 1:3.6 and Philippines with 1 : 10.1.

3 Long travel time.

4 Old and inadequate ships (National Development Planning Agency, 2017).

Data show that about 75% of Indonesian ships sailing in the country's waters are old, though still sail-worthy. This condition resulted in long travel time. For example, Lawit ship serving Semarang-Sampit-Kumai-Surabaya route runs at about 10 knots per hour. With the wave current reaching 2 knots per hour, inter-harbour journeys take longer time and thus late arrival. In comparison, the more modern Kelimutu ship runs at 15 knots per hour so travel time becomes shorter. In addition, the port infrastructure in Indonesia has not been able to serve modern vessels with the latest technology, as most ports in Indonesia are shallow so that the Indonesian National Shipowner Association (INSA) has not been able to use the newest vessels, which require deeper ports (Indonesian Marine Council, 2012).

On the basis of this background, improvement of service excellence on passenger ships is a top priority in the development of maritime and marine transportation systems in Indonesia because marine vessels are an important factor in addition to port infrastructure. This improvement needs to consider three factors:

1 the size of the ships, adjusted to both the depth and the width of the docks, geographical and topographic conditions such as weather and sea area

2 access from and to the pier

3 efficiency in ship management and administration.

These three factors are related to the number of passengers and the level of convenience. This study aims to

1 analyse the seafarers' passenger profiles and their perceptions of service excellence

2 analyse the efficiency of passenger ships

3 measure the WTA of the seafarers' passengers.

2 Literature review

Redda et al. (2017) stated that customer satisfaction is influenced by various factors such as

1 the quality of services that involve multidimensions including efficiency related to the availability of system, attributes or service features

2 customer value, where services carried out using online facilities will offer better convenience and lower costs compared with traditional services

3 customer satisfaction, which is based on the ability to provide excellent service that will be useful for building customer commitment in the long term, and thus will bring up the last factor, namely

4 customer loyalty, which is the main determinant in both profit and business growths (Redda et al., 2017).

The maritime service system consists of three main concepts, namely service at the port, service on ships and service to customers. The three concepts are interconnected.

1 The port as the centre in service for ships, crew, management and passengers must implement service quality standards to provide satisfaction to each stakeholder (Yeo et al., 2015). The main port indicator is port service quality (PSQ), which involves the availability of information on port procedures and mechanisms, information on port activities, ships, port management, port costs, efficiency, convenience and service to stakeholders and affordability. These factors relate to location, infrastructure and costs to borne. Calculation of efficiency has been widely carried out in the industrial world, but so far it is still relatively limited to the maritime industry. The results of a study of 15 ports in Indonesia showed that 11 ports had reached efficiency while 4 ports had not been efficient. Inefficiency occurs because of the less optimal utilisation of inputs to meet output (Dewa et al., 2018).

2 Ships are the second major factor in the development of marine transportation systems. Ship service indicators include safety, security, convenience, timeliness and efficiency. Safety of sea transportation is in the spotlight in many countries, one of which is China, because of the many marine accidents that occur so they conduct formal safety assessment (FSA) activities (Hu and Zhang, 2012). The FSA is seen as a new tool in risk management. The risks faced include systematic risks – risks that can be estimated using statistical and mathematical assistance, namely probability – and unsystematic risks – risks that are difficult to predict so often referred to as force majeure. Indonesia is also one of the countries with the highest sea accident rates.

The application of passenger services is influenced by the captain and crew. Excellent service will provide its own opportunity to increase the use of marine transposition.

3 Customer service, with satisfaction as the main indicator. Satisfaction is an intrinsic variable that explains customer behaviour after consuming goods/services that they have paid. In general, satisfaction in transportation is driven by several main variables including

   a Speed and timeliness, with very diverse responses given by customers. Some customers choose to pay a higher price to get a faster travel time, but some other customers enjoy travel time so they choose a slower mode for various reasons.

   b Safety is a variable that is currently one of the main measures, even though there are customers who for cost reasons will ignore it.

   c Security is a variable inherent in transportation services and is the main responsibility of the crew.

   d Convenience and facilities relate directly to the costs that must be paid by the customers, where the better the level of comfort and facilities, the more expensive the costs to pay.

   e Cost is the main determinant variable in choosing a mode of transportation, especially ships.

A Greek study of 436 passengers at the Port of Piraeus found that passengers wanted excellent service with five key dimensions divided into two main aspects: physical and service. The results show that passengers prefer physical improvement compared with interactive services (Pantouvakis et al., 2008). This result is in line with the results of a study by Liu and Liddawi (2015) on public attitudes towards sustainable public transport facilities conducted in four cities in Sweden. The results show that people tend to choose mass transportation because the facilities offered include aspects of convenience, accessibility or ease of obtaining transportation, security and, most importantly, timeliness (Liu and Liddawi, 2015). The safety and security aspects of sea travel are one of the main requirements. Goerlandt and Montewka (2015) found that marine risk is often caused by natural factors so that the readiness of risk-monitoring applications is an important factor (Goerlandt and Montewka, 2015).

Fathurachman (2012) who conducted a study on ship passengers in Indonesia found that one of the weaknesses of sea transportation is the security aspect, which is influenced by the passengers' characteristics. Low education levels and poor economic conditions lead to low awareness of safety and security. The discrepancy in the number of passengers between the manifest and its actual count and the limited number of safety equipment has made the sea travel particularly vulnerable to accidents (Faturachman and Mustafa, 2012).

3 Material and method

This study uses sequential mixed method, which combines quantitative and qualitative analyses. Qualitative analysis is used to identify passengers' profile and perception

through an in-depth interview with passengers, ticketing agents, merchants and labour suppliers. They are chosen as informants because they directly or indirectly connect with the passengers and understand their characteristics. This study uses DEA and ATLAS.ti as analytical instruments.

The first objective of this research is to map the condition of ship passengers based on demography, economy and perceptions of the expected service excellence. The analytical tool used was ATLAS.ti, a qualitative analysis that is quantified by coding and classification in accordance with real conditions in the field. Data are obtained from informants who are considered qualified as a key person. This study used 25 key person passengers. The mapping consists of three major criteria, namely

1 characteristics of passengers from both demographic and economic aspects

2 ship preference compared with other modes of transportation

3 perception of the facilities expected by the passengers.

The second objective of this research is to analyse the ship efficiency: how the efficiency of each vessel is seen from the input variables and output variables.

In general, there are two approaches to measure efficiency levels: parametric and non-parametric (Saaty, 2008). Stochastic frontier approach (SFA), thick frontier approach (TFA) and distribution free approach (DFA) are parametric approaches, whereas DEA and free disposable hull (FDH) are non-parametric approaches. DEA is a non-parametric approach based on Linear Programming assisted with software efficiency packages such as Banxia frontier analysis (BFA) and Warwick for data envelopment analysis (WDEA) (Charnes et al., 1994).

DEA was used to measure the efficiency of an economic activity unit. There are three benefits obtained from using DEA, namely:

a A benchmark for obtaining relative efficiency, which is useful to facilitate comparisons among economic units.

b Measuring variations of efficiency among economic units to identify factors

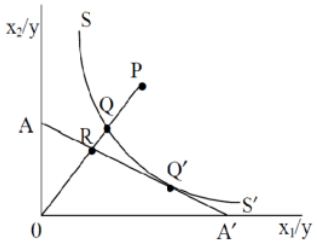
c Determine policy implications to increase the efficiency level.

Coelli et al. (2005) illustrates a simple idea involving companies that use two inputs ($x1$ and $x2$) to produce one output (y). The assumption used in the illustration is constant return scale using isoquant curve the fully efficient firm as depicted on the SS' line in Figure 2. Point P describes the use of certain inputs by the company to produce one unit of output. The technically inefficient company in production is described through the distance of QP, which is the amount of input use proportionately reduced without reducing output. This is expressed in percentage by calculating the ratio of $QP/0P$, which states that the input can be reduced. The level of technical efficiency (TE) of a company can be described through ratios:

$$TE = 0Q/0P \quad (1)$$

The value of the equation is equal to $1\text{-}QP/0P$. The values obtained range from 0 to 1 and this is an indicator of the degree of technical efficiency of a company. For example, point Q is a technical efficiency point because it lies in the isoquant curve.

Figure 2 Technical efficiency and allocative efficiency



Source: Coelli et al. (2005)

4 Result and discussion

4.1 Ship passengers' characteristics

To analyse the passengers' profile and their perception on service excellence, in-depth interviews were conducted on 25 passengers. The interview results show that the passengers' profile is as follows:

1 low-level education; most of them are elementary and junior high school graduates

2 informal workers, especially farmers and factory labours, who do not require speed so that long travel time is not a problem

3 originating from rural and mountainous areas

4 travelling with family or in groups; the large number of members is the reason in choosing a ship because the tickets are affordable and communication is easy and intensive

5 low-level economy; ticket prices are relatively affordable for passengers from lower economic groups.

The above-mentioned characteristics affect the passengers' preferences in choosing sea transportation.

The in-depth interviews and ATLAS.ti analysis reveal that sea transport is chosen because of, first, the convenience factor. Convenience includes four areas, namely

a comfortable passenger cabins

b clean toilets

c spacious rooms

d easy socialisation or interaction.

One of the advantages of travelling with ships is the wide space and the freedom for passengers to perform activities throughout the ship. In addition, long travel time allows passengers to socialise more intensively.

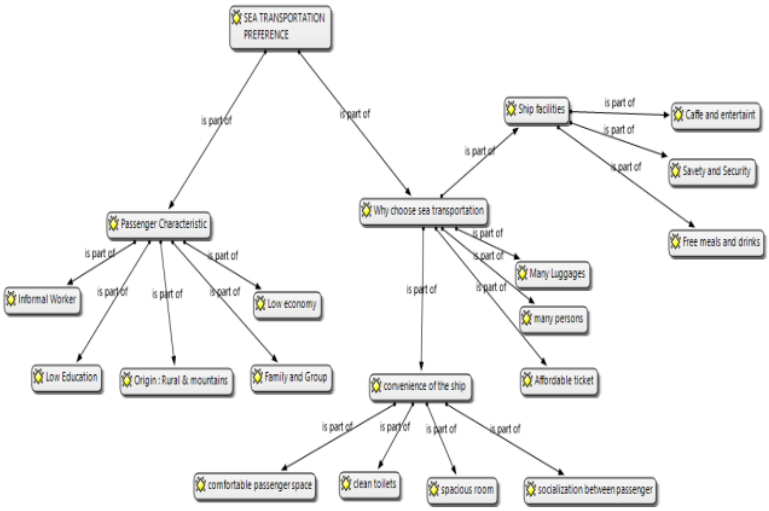
Other factors in the selection of sea transport are the large number of travel group members and the ticket affordability. Both of these factors are closely related to the

passengers' profile of which the majority is from low-level economy, as affordable tickets allow them to travel in large groups. The fourth factor is the large amount of luggage or goods carried by the passengers that are difficult to be accommodated by other modes of transport and can result in significant additional costs.

Sea transport preferences are also affected by on-board facilities. The in-depth interviews show that passengers choose ships because of the café, entertainment especially live music, safety and security and free food and drink.

Figure 3 shows the characteristics of passengers, preference of the ship as a mode of transportation and expected comfort. One of the interesting factors is the opportunity to socialise with other passengers so that the trip with a longer travel time feels shorter. The expected facilities include security and safety, free food and drinks, as well as the availability of cafes to socialise and entertain themselves because of the long travel time.

Figure 3 The preferences of sea transport analysed with ATLAS.ti (see online version for colours)



4.2 Efficiency

To analyse ship efficiency, DEAMAX and decision making unit (DMU) were performed on each route. This study chose four ships with 14 routes. There are five input variables, namely (i) deadweight tonnage (DWT), (ii) ships' length overall, (iii) ships' width, (iv) fuel spent on a single trip and (v) rates set for a single trip and three output variables, namely (i) mileage, (ii) the number of passengers and (iii) port service charge.

Efficiency was measured based on the analysis of four vessels serving the following 14 routes:

1 KM Kelimutu serving Surabaya-Sampit, Sampit-Surabaya, Surabaya-Kumai, Kumai-Semarang, Semarang-Sampit and Sampit-Semarang routes

2 KM Lawit serving Surabaya-Pontianak, Pontianak-Semarang and Semarang-Karimunjawa routes

3 KM Sinabung serving Surabaya-Makassar and Makassar-Baubau routes

4 KM Nggapulu serving TanjungPriok-Surabaya, Surabaya-Makassar and Makassar-Baubau routes.

The following are input and output data used in this study:

Table 1 shows that there are four ships (Kelimutu, Lawit, Sinabung and Nggapulu) that serve the Tanjung Emas Port of Semarang to various other ports with a total of 14 routes with intersecting routes that pass through various other ports.

Table 1 DEA calculations on 14 routes

Ships' names	*DMU*	*Routes*	*Scores*	*Benchmark (Lambda)*
KM Kelimutu	01	Surabaya – Sampit	0.985495	04 (0.482997); 08 (0.323498); 09 (0.193505)
	02	Sampit – Surabaya	0.985495	04 (0.482997); 08 (0.323498); 09 (0.193505)
	03	Surabaya – Kumai	1	03 (1.000000)
	04	Kumai – Semarang	1	04 (1.000000)
	05	Semarang – Sampit	1	05 (1.000000)
	06	Sampit – Semarang	0.990044	03 (0.289593); 04 (0.355546); 08 (0.310223); 09 (0.044639)
KM Lawit	07	Surabaya – Pontianak	1	07 (1.000000)
	08	Pontianak – Semarang	1	08 (1.000000)
	09	Semarang – Karimunjawa	1	09 (1.000000)
KM Sinabung	10	Surabaya – Makasar	0.772727	07 (0.005955); 08 (0.970054); 09 (0.023991)
	11	Makasar – Bau	0.774788	04 (0.045326); 08 (0.410765); 09 (0.543909)
KM Nggapulu	12	TanjungPriok – Surabaya	0.752661	03 (0.311203); 08 (0.688797)
	13	Surabaya – Makasar	0.740393	03 (0.029046); 08 (0.970954)
	14	Makasar – Bau	0.73913	07 (0.090325); 08 (0.324293); 09 (0.585382)

Source: The raw data processed using DEAMAX

The ship analysis calculates efficiency per route, because each route has differences, especially from geographical and demographic aspects and thus affecting the ships' efficiency.

Input and output on each vessel per route are calculated using DEA and the results can be seen in Table 2.

Table 1 shows the DEA processing results that there are six efficient routes:

1 Kelimutu: Surabaya-Kumai route

2 Kelimutu: Kumai-Semarang route

3 Kelimutu: Semarang-Sampit route

4 Lawit: Surabaya-Pontianak route

5 Lawit: Pontianak-Semarang route

6 Lawit: Semarang-Karimunjawa route.

Table 2 Ships' input and output for each route

		Input						*Output*		
Ships' names	*Routes*	*DWT (T)*	*Length over all (m)*	*Width (m)*	*Total HR*	*Port-related costs*	*FUEL/ KL*	*Distance (miles)*	*Number of passengers*	*Ticket*
KM Kelimutu	Surabaya – Sampit	1560	99.8	18	79	7,006,033	17	293	162	34,992,000
	Sampit – Surabaya	1560	99.8	18	79	6,968,436	17	293	217	46,872,000
	Surabaya – Kumai	1560	99.8	18	79	6,952,247	17	289	427	92,232,000
	Kumai – Semarang	1560	99.8	18	79	7,170,704	15	265	386	83,376,000
	Semarang – Sampit	1560	99.8	18	79	6,835,012	19	326	352	76,032,000
	Sampit – Semarang	1560	99.8	18	79	7,140,837	19	326	319	68,904,000
KM Lawit	Surabaya – Pontianak	1450	97	17	72	7,512,992	32	547	71	22,791,000
	Pontianak – Semarang	1450	97	17	72	6,893,123	27	467	186	55,056,000
	Semarang – Karimunjawa	1450	97	17	72	5,924,076	4	72	9	1,458,000
KM Sinabung	Surabaya – Makasar	3484	144	22	108	12,139,347	35	458	178	53,578,000
	Makasar – Bau Bau	3484	144	22	108	11,410,740	18	243	93	18,693,000
KM Nggapulu	Tanjung Priok – Surabaya	3559	146.5	23	110	13,435,115	33	396	261	56,841,000
	Surabaya – Makasar	3559	146.5	23	110	13,995,931	38	458	193	55,053,000
	Makasar – Bau Bau	3559	146.5	23	110	14,081,532	20	243	72	13,560,000

The remaining routes have not reached efficiency, namely Kelimutu (Surabaya-Sampit, Sampit-Surabaya and Sampit-Semarang) but the inefficiency level is very low, even only 1% for Sampit-Semarang route. The other Kelimutu route shows an inefficiency level of 1.5%. All Sinabung routes indicate a fairly high inefficiency with 22% and Nggapulu with even higher level of inefficiency with 25%.

The DEA results show that all Lawit routes are efficient, and the three Kelimutu routes are efficient. Although the other three routes are still inefficient, they are of very low inefficiency (1%). Meanwhile, Sinabung and Nggapulu routes are still highly inefficient.

The WTA will be analysed qualitatively. The majority of passengers are people from low-level economic groups so that sea transportation is chosen because it fits best with their financial capabilities. Other modes of transportation, such as air transportation, offer better facilities, but with much higher ticket prices. Affordable sea vessel fares, especially subsidised government vessels, are the most appropriate mode with their income levels.

A study conducted by the Ministry of Finance under the title of Sea Transportation Subsidy in the Framework of Strengthening National Logistics found that with an area of 3.9 million km^2 of sea, sea transport in Indonesia becomes a major need and plays a vital role to serve the movement of goods and people. Sea transportation is largely a public transport that can transport goods, people and vehicles in larger quantities than other modes of transport. Many business actors engage in marine transportation services. One of them is PT Pelni (Persero), which receives special assignment from the Indonesian government to provide economy class tickets with subsidised price or referred as Public Service Obligation (PSO).

The objectives of the ministry study were:

1 reviewing and evaluating PT Pelni PSO subsidy policy and government assistance for pioneer vessels

2 assessing the feasibility of alternative subsidy policies and other policies for the sea transport sector

3 assessing the potential revenue of PT Pelni from sea transport services (goods and passengers).

The study used mix methods between qualitative and quantitative. Qualitative method was done through three methods of data collection, namely desk study, focus group discussion (FGD) and in-depth interview. Desk study was conducted at an early stage aiming to study data and documents related to the development of sea transport regulations and policies. The results of the desk study would be used to develop FGD guidelines and design an analytical framework. Meanwhile, the quantitative method is conducted through secondary data collection, i.e., the entire ship operational revenue owned by PT Pelni receiving PSO (non-commercial) subsidies and PSO subsidy revenues for each vessel.

The study discovered some important findings as follows:

i the policy of subsidising sea transportation, especially PT Pelni vessels and the pioneer vessels, is now increasingly needed to improve services and interconnection to the community especially in remote areas

ii the subsidised goods policy for PT Pelni cannot be recommended at this time.

The government has granted PSO to PT Pelni since 2003, with varying amount from year to year. In 2016, the total PSO granted was Rp 2.05 trillion, but then declined by 9.2% in 2017 to Rp 1.86 trillion. The amount was used for 266 economy class sea transport for a year.

PSO is used to provide subsidies especially for pioneer ships that travel along the Indonesian coastline. These routes are not potentially profitable, so the ships must be supported by government subsidies to ensure affordability, improve service quality and provide safety and security facilities for passengers.

Currently, the need for sea transportation services is increasing. Rising fuel prices and rising human resources salaries and facilities and services that need to be improved require PT Pelni to be strategic in using PSO. PSO can be converted into subsidised ticket prices given to each passenger by comparing the ticket price between private ships and PT Pelni ships. On Semarang-Sampit route, the ticket price of Pelni vessel is Rp 215,000, whereas the ticket price of private vessel is Rp 340.000, meaning that there is Rp 125.000 subsidy per passenger. The amount of subsidy can be decreased as a response to the above-mentioned problems, so it is necessary to do a qualitative analysis of demand to know how accepting the passengers on price increases are. The goal is to see the hypothetical price of passenger ship tickets.

To analyse the demand of PT Pelni passenger ships, willingness to pay (WTP) and WTA are used. The WTP measures how much the passengers are willing to pay for the price with the facilities offered. The basic theory used is excess demand as illustrated here:

Figure 4 Demand curve and *willingness-to-pay (WTP)*

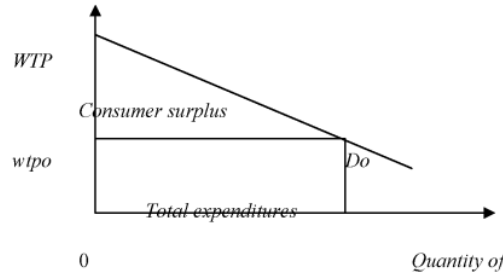


Figure 4 states that excess consumer show how many passengers tolerate the increased price offered to the maximum extent where passengers are no longer willing to pay. Sea transport passengers have unique profiles, including low income, low education, informal workers such as for Sampit-Kumai route many passengers are workers in oil palm plantations. To obtain accurate and honest data, in-depth interviews were conducted in groups that travel together.

The first group is passengers from Pati, which consists of two women and one man, travelling to Sampit to work as a stall waiter. In-depth interviews show that they are willing to accept price increases during peak season, i.e., IdulFitri, Christmas, New Year and school holidays. One of the interviewees, Sudarti (43 years old), said:

> "The increase in prices during Lebaran or school holidays can be understood because the number of passengers is very high. Usually, the price goes up by Rp 15.000, – and we are still willing to pay. In brokers or agents, sometimes the rise reaches as much as Rp 30,000, even I have paid Rp 275.000, – or an increase of Rp 60.000, – But rather than crammed, I am willing to accept, besides the queue is sometimes very long and takes a lot of time; the time is better spent for working. We do not go home every month, sometimes only once in three or four months"

Sudarti's statement was confirmed by Ika (27 years old) who travelled together. The results show that passengers are willing to accept an increase of up to 7% of the normal price, but for purchases through brokers, they are willing to accept an increase of up to 27%. The 27% increase was offset by the ease of getting tickets, which means that the easiness factor can be one of the components that the service provider can offer.

The second group is passengers travelling from Banjarnegara to the plantation in Sampit. In-depth interview results show different situations. The passengers use multimodal transport, but ship becomes their main mode of transportation. The price set by the travel agent covers the full trip from passengers' homes to the destination, so it does not show exactly how much the ship ticket price would be. Passengers only know that the ticket price includes a pickup service at home and a trip to the plantation. One of the interviewees, Wawan (32 years old), said:

> "We pay Rp 700,000 – to be picked up from home and delivered to the plantation. For us, the most important thing is that we get to work safely and easily. Because if we do not use this mode, we have to pay more and spend more time. From Banjarnegara, we use bus, and have to change bus several times to get to terminal. After getting off the boat, we are usually chased by brokers to choose their vehicle. With travel agents, all have been taken care of to the destination. I do not know exactly the ticket price of the boat, but during Lebaran or school holidays the price goes up by Rp 100,000. I do not know whether the price of the travel car or the price of the boat ticket that is up. The price of a plane ticket is much more expensive, because Rp 700,000 is only for tickets. By land transportation, the total cost could reach more than one million".

The in-depth interview results indicate that multimodal transport passengers are willing to accept price increases of up to 14.3%, but the exact increase for each mode cannot be identified. Their main reasons for choosing multimodal, despite the higher prices, are convenience, speed and security. Wawan's statement was confirmed by Syamsul (24 years old), a new multimodal transport user:

> "This is the first time I use a travel agent. I usually go alone. From my house to the port, I changed buses several times. When I got to Sampit, I was raided by brokers and the price became more expensive. About the price increase, I have no problem, just yesterday I joined a work strike to ask for a raise. But the increase should be adjusted to our ability, low-income groups, to pay. Tickets for government vessels should not be compared with private vessel tickets, as facilities on private boats are better. If the price of Pelni tickets is the same as private ticket prices, it would be unfair".

On the basis of the above-mentioned in-depth interview results, travel agents have an important role in the passengers' preference in choosing sea transportation.

5 Conclusion and recommendation

The results of this study indicate that the majority of ship passengers in Indonesia come from low economy, low education (junior high school education), informal workers (in oil palm plantations, restaurants and agriculture) and rural or mountainous areas. They choose ships because they can afford the ticket prices, depart in groups and carry greater amount of luggage. In addition, they feel that ships are relatively convenient because of the spacious room, clean bathroom, comfortable passenger space socialisation opportunity with other passengers and relatively attractive facilities. In terms of efficiency, only six routes are proven to be efficient whereas the other eight suffer from inefficiencies. Furthermore, the WTA from ship passengers reached 14%.

On the basis of these results, it is recommended that the government and stakeholders improve the convenience and facilities of the ships so that the service excellence expected by the passengers can be realised. Convenience, safety and security are important factors in realising service excellence.

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