

Consumer Preferences for Coconut Shell Charcoal in Suburban Indonesia

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ARTICLE INFO

Keywords:
Restaurants,
SME's,
Street Food,
Barbequed Menu,
Fishbein Model

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ABSTRACT

Suburbs in Indonesia are not only characterized by the presence of residential areas, but also trading activities. These activities exist in order to support the needs of residents for goods and/or services. The complicated process that involves pull and push factors causes the suburbs to be well-known as economically potential areas, especially for micro, small, medium and large enterprises. One example of the trading subsectors is restaurants, both micro enterprises with traditional management and franchises patterns with professional management. Most of these restaurants provide barbequed menus which consume shell coconut charcoal. Then the question arises, is the quality of those commodity is the only reason for the restaurants in using it? This paper presents the elaboration of the research on consumer preferences in a suburban area of the consumption of coconut shell charcoal. By using the Fishbein Model, it is concluded that the aspect of belief and price attribute are in the first rank, which shows that those commodity is an expensive fuel, while the second rank is quality. The rest are models and after-sales service, respectively. From the aspect of evaluation, the respondents believe that quality is in the first rank that should be improved in the future. The second is price and the rest are after-sales service, packaging and models, respectively.

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INTRODUCTION

In a literature review about suburban, Hinchcliffe in Vaughan (2009) argues, *“The literature of the suburb is extensive, yet the subject always seems elusive. For some the suburb is a geographical*

space; for others, a cultural form; while for others still it is a state of mind”. Indrizal (n.d) is to give an understanding of the suburb as follows; the concept of suburban or rurban is often translated as outskirts. More precisely, the suburb is an

intermediate form between rural and urban. Seen as environmental areas, suburbs are areas that lie between or in the middle of rural and urban areas. Suburbs in the sense of the outer limits of a municipality are called urban fringe or country side.

In Indonesia, suburbs are not only characterized by the conversion of land from agricultural to residential/housing as defined by Fitriani and Harris (2011), Rustiadi *et al.*, (2011) and Harini *et al.*, (2012), but also trades and services activities. These activities certainly support the needs of residents for commodities (goods or services). The complicated process that involves pull and push factors causes the suburbs to be well-known as economically potential areas, especially for micro, small, medium and large enterprises.

One suburban area, which was established six years ago, is South Tangerang Municipality. The region was instituted by the Act. No. 51/2008 on the Establishment of South Tangerang Municipality, and it has been well-known as a fast-growing region. Data of Local Statistical Bureau shows that the population is steadily increasing over time. In 2010, two years after its administrative proliferation, the population in this region reaches 1.2 million people. Three years later, the population increases to 1.4 million. The region's population growth rate is 2.8% during the last 4 years. Compared to other suburban areas, South Tangerang Municipality's population growth rate is the third highest after Depok Municipality (5.62%) and the Bekasi Municipality (2.10%), which is followed by the Tangerang Regency (2.7%) and Tangerang Municipality (2.05%).

Geographically, South Tangerang Municipality is one of the municipalities in Banten Province. The region is located in the eastern of Banten Province and administratively consists of 7 districts and 54 sub-districts with an area of 147.19 km². The region also connects Banten Province and Jakarta Province. South Tangerang Municipality is also

one the areas that connects Banten to West Java Province (Figure 1).

It is the particular geographic and demographic conditions that gives further effect to high demand of goods and services. The condition seems to be the logical answer and a causative phenomenon as to why the suburbs are growing rapidly in trade and services sectors. One of that trade subsectors is restaurants, both micro enterprises with traditional management and franchises patterns with professional management.

The fact is, most of these restaurants provide barbequed menu which consumes shell coconut charcoal. One of the reasons why shell coconut charcoal is used because it is more durable than wood charcoal. This is consistent with the description reported by Wibisono (2011) which states that shell coconut charcoal gives a higher combustion heat and less smoke than wood charcoal. Other experimental studies using a variety of instrument conducted by Heruwati (2009), Hanandito and Willy (n.d) and Jamilatun (2011) also prove that coconut shell charcoal has a good combustion quality.

Then the question arises, is the quality of the coconut shell charcoal the only reason for the restaurants in using it? In a microeconomic perspective and the science of marketing, Wibisono (2011) believes that it is certainly not enough to be a satisfactory answer. Therefore, this paper presents the elaboration of research on consumer preferences in a suburban area of the consumption of coconut shell charcoal.

Theoretically, consumer behaviour is about how to maximize utility. Furthermore, individual behaviour questions individual choice expressed by a group of postulates that characterize rational behaviour. This is then referred to as a "preference or axioms of rational choice". These preference relations are usually assumed to have five basic properties: completeness, transitivity, continuity,

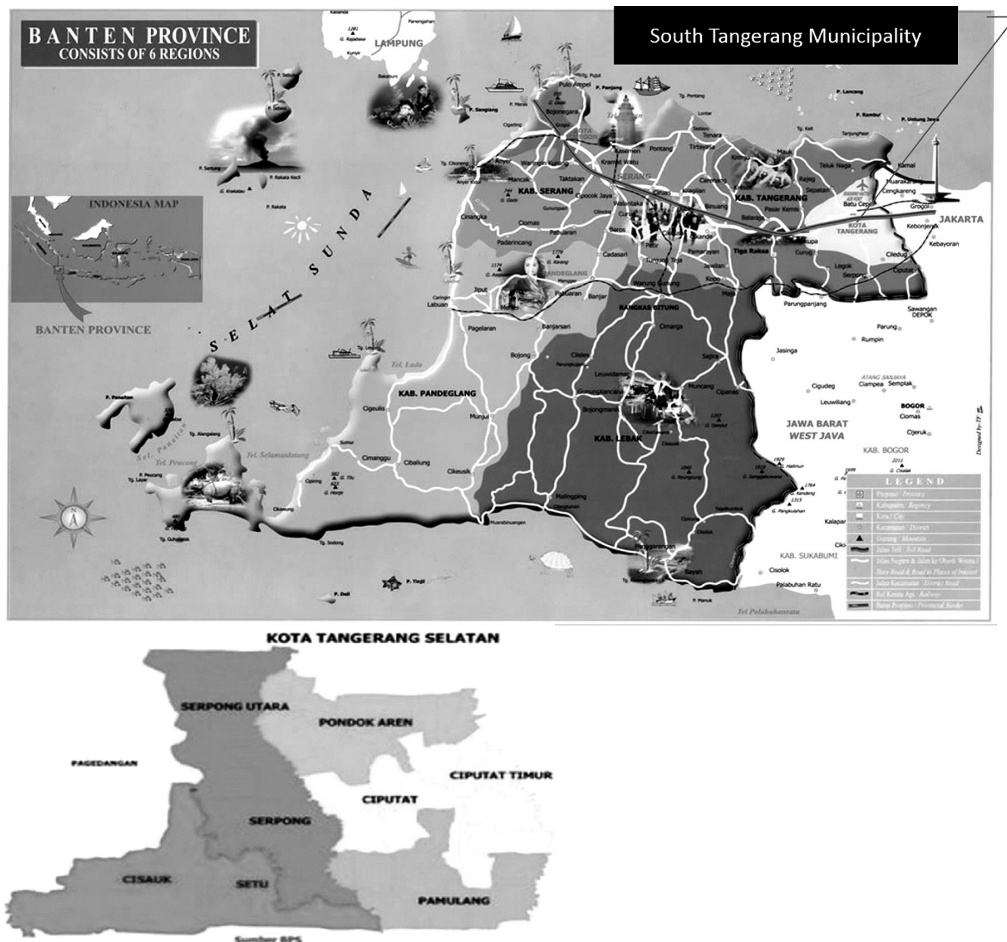


Figure 1. South Tangerang Municipality Map

the-more-the-better and convexity (Nicholson, 1995).

This theory is then developed rapidly and widely used by other specific sciences in the field of economics. One subject of sciences that develops and uses this theory is the science of marketing that later finds the concept of “consumer behaviour”. Schiffman and Kanuk (2014) state that consumer behaviour is the behaviour exhibited by consumers in finding, buying, using, evaluating and stopping the consumption of products, services and ideas.

METHODS

Types of data used were primary data. Primary data collection was conducted by using a questionnaire. Respondents were given five options to answer questionnaire as recorded in

Table 1. Measurement of consumer preferences was done using Fishbein Model.

Fishbein Model states that consumer behaviour will be determined by the attitude against various attributes possessed by such object such. Fishbein model is used to measure consumer behaviour towards a particular product (Simamora, 2002). Fisbein Model can be written as follows:

Where:

- A_0 : the overall attitude towards object o
- b_i : the strength of the belief that object o has some particular attribute i
- e_i : the evaluation of the goodness or badness of attribute i
- N : number of attributes of the object

Table 1. Respondent's Answer Options

Options		Weight
Strongly Agree (SA)	Very Important (VI)	5
Agree (A)	Important (I)	4
Neutral (N)	Neutral (N)	3
Disagree (D)	Not Important (NI)	2
Strongly Disagree (SD)	Not Very Unimportant (NVU)	1

The necessary frameworks in Fishbein Model are:

1. Determining salient belief.
2. Formulating questions for measuring belief with Likert Scale questions (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree).
3. Formulating questions for measuring evaluation with Likert Scale questions (Not Very Unimportant, Not Important, Neutral, Important, and Very Important).
4. Measuring attitudes toward the object.

RESULTS AND DISCUSSION

By using purposive sampling, the survey obtained 44 restaurants in several districts in South Tangerang Municipality. Central Limit Theorem stated that if X_1, X_2, \dots, X_n is a random variable of the population (in this case, the probability distribution) by any mean μ_x and variance σ_x^2 , then the mean of the sample tends to be normally distributed with mean μ_x and variance $\frac{\sigma_x^2}{2}$ when the sample size is increased to infinity. If X_1 is assumed comes from a normal population, the sample mean will follow a normal distribution regardless of the sample size.

Table 2. Respondents Distribution by Districts in South Tangerang Municipality

	n
Pamulang	12
Pondok Aren	2
Ciputat	10
Ciputat Timur	19
Serpong	1
Σ	44

Source: survey

Fishbein Model questionnaire is grouped into two main components, namely the salient beliefs and evaluations. Salient beliefs are consumers' confidences that a product has a variety of attributes, often referred to as beliefs object-attribute; meanwhile, evaluations are the assessments of the merits of attributes, which illustrate the importance of attributes for consumers. In this study, salient beliefs and evaluations components were grouped into five (5) component attributes, namely price, quality, packaging, model, and after-sales service. Then, we would break these five attributes down into the questions/statements contained in the questionnaire. Here is an illustration on the frequency distribution of salient beliefs' components that consist of 12 statements.

Table 3 shows that as many as 47.7% of respondents stated Strongly Agree (SA) and 38.6% stated Agree (A) that the price of coconut shell charcoal is more expensive than wood charcoal. This was certainly due to the coconut shell charcoal is considered to be of higher quality than wood charcoal. This was confirmed by 38.6% and 50.0% of respondents stated that the price of expensive coconut shell charcoal is consistent to its quality.

Specifications quality acknowledged by respondents was its combustion is longer than wood charcoal. This was approved by 34.1% of respondents, and even as much as 22.7% of respondents expressed the Strongly Agree (SA) opinion. In addition to that advantage, as many as 43.2% of respondents also stated Strongly Agree (SA) that coconut shell charcoal combustion is

Table 3. Frequency Distribution of Salient Beliefs

No	Statements	Frequency Distribution (%)				
		SA	A	N	D	SD
Price						
1	The price of coconut shell charcoal is more expensive than the price of wood charcoal.	47,7	38,6	6,8	6,8	0
2	The price of coconut shell charcoal is consistent to its quality.	38,6	50,0	4,5	6,8	0
3	The price of coconut shell charcoal in each period varies for each purchase.	13,6	27,3	43,2	11,4	0
Quality						
4	The combustion of coconut shell charcoal is longer than wood charcoal.	22,7	34,1	11,4	29,5	0
5	Coconut shell charcoal produces heat better than wood charcoal.	40,9	43,2	6,8	6,8	2,3
6	Coconut shell charcoal produces less smoke than wood charcoal.	40,9	31,8	13,6	4,5	2,3
Packaging						
7	In every period of purchases, coconut shell charcoal is packed in particular packaging.	9,1	34,1	31,8	25,0	0
8	Coconut shell charcoal is packed in strong packaging (waterproof and airtight).	9,1	22,7	36,4	20,5	11,4
9	Coconut shell charcoal is packed in attractive packaging.	4,5	4,5	40,9	40,9	4,5
Model						
10	The purchased coconut shell charcoal uses attractive design.	2,3	2,3	50,0	36,4	9,1
After-Sales Service						
11	Sellers provide certain discounts in every period of purchase.	4,5	31,8	27,3	29,5	6,8
12	Sellers provide home delivery service in every purchase.	20,5	31,8	22,7	22,7	2,3

Source: data proceeded; n = 44

longer than wood charcoal. Moreover, as many as 40.9% of respondents stated that the charcoal produces less smoke than wood charcoal.

However, the respondents admitted that there is no uniformity in the price of coconut shell charcoal in every purchase period. That is, the price of it in the market varies greatly. It was at least agreed (A) by 27.3% of respondents and as many as 43.2% of respondents expressed Neutral (N) opinion.

Meanwhile in the packaging aspect, the majority of respondents answered in the range of Agree

(A), Neutral (N) and Strongly Disagree (SD). The empirical fact showed that charcoal purchased uses simple packaging, such as plastic bags. Therefore, as much as 34.1% of respondents answered Agree (A), 31.8% of respondents answered Neutral (N) and 25.0% of respondents answered Disagree (D).

In line with earlier explanation, as much as 36.4% of respondents answered Neutral (N) when they were asked whether the current charcoal packaging is packaged in a strong packaging (waterproof and airtight), and as much as 20.5% of respondents

answered Disagree (DS). Discouragingly, as many as 40.9% of respondents answered Disagree (D) when they were asked about whether or not the current charcoal packaging is using attractive packaging. It means that the charcoal they buy is not using attractive packaging.

In the aspect of the design of charcoal, as many as 36.4% of respondents answered Disagree (D) on the design of charcoal that they buy today. And as much as 50.0% of respondents answered Neutral (N). This was an indication that the charcoal purchased by the consumer is not designed to be an attractive product. Facts show that they are buying the charcoal in fragments or blocks of irregular forms.

From the aspect of after-sales service, the consumers found that the products they buy sometimes have certain discounts by the manufacturer. This is certainly true if the purchases are made in large quantity. This was confirmed by the opinion of 31.8% of respondents stated that the manufacturers provide certain discounts in every period of purchase. However, there were 29.5% of respondents stated Disagree (D) on this statement.

In addition to the discounts, the manufacturers also provide home delivery in every purchase. A total of 31.8% and 20.5% of respondents stated Strongly Agree (SA) and Agree (A) on this statement. This was an indication that the manufacturer has been providing the best service to its customers. However, there are 22.7% of respondents stated Disagree (D) for this statement. It was also an indication that not all manufacturers provide a delivery service directly to the consumers.

Next, the component evaluation was also composed of 12 questions. Illustration of the frequency distribution of evaluation is shown in Table 4. In the aspect of price, as much as 43.2% of respondents stated Important (I) that a good charcoal has a more expensive price, and even as much as 31.8% of respondents said Very Important

(VI). Linear with it, 47.7% of respondents stated Important (I) that the price of charcoal is in accordance with the quality.

Important aspects of quality according to respondents is the duration the combustion. The better a charcoal, the longer the duration of its combustion. In this aspect, as many as 38.6% of respondents considered this Important (I), and even 36.4% respondents considered it Very Important (VI). In addition, a good charcoal is also characterized by heat output, and it was acknowledged Very Important (SP) by 50.0% of respondents. Furthermore, the quality of charcoal is indicated by less smoke. This characteristic refers to the understanding that the thick smoke produced by charcoal shows that the charcoal still saves a lot of water. Therefore, the better the charcoal, the less moisture in it. It was acknowledged Very Important (VI) by 43.2% of respondents and acknowledged Important (I) by 38.6% of respondents.

In the aspect of packaging, respondents considered that the packaging is an important aspect in charcoal pack. It was acknowledged Important (I) by 40.9% of respondents and only 11.4% of respondents considered it Very Important (VI). Therefore, according to the respondents, attractive packaging is not required in the packaging of charcoal. It was considered Not Important (NI) by 31.8% of respondents and the majority of respondents had the Neutral (N). For them, the packaging must be watertight. This was acknowledged Important (I) by 25.0% of respondents and acknowledged Very Important (VI) by 20.5% of respondents. Linear with it, Not Important (NI) for respondents was the packaging's attractive design. It was acknowledged by 31.8% of respondents while 38.6% of respondents gave Neutral (N) opinion.

In the aspect of after-sales service, especially in the aspect of discounts and home delivery, the respondents argued that the discount in the

Table 4. Frequency Distribution of Evaluations

No	Statements	Frequency Distribution (%)				
		VI	I	N	NI	NVU
Price						
1	Good charcoal is more expensive.	31,8	43,2	18,2	4,5	2,3
2	Charcoal price is true to its quality.	36,4	47,7	11,4	2,3	2,3
3	Charcoal price in each purchase period varies.	13,6	29,5	43,2	9,1	4,5
Quality						
4	Charcoal combustion duration should be longer	36,4	38,6	15,9	6,8	2,3
5	Charcoal which generates good heat.	50,0	43,2	4,5	2,3	0
6	Charcoal which produces less smoke	43,2	38,6	13,6	4,5	0
Packaging						
7	Charcoal is packaged in particular packaging.	11,4	40,9	22,7	22,7	2,3
8	Charcoal is packed in waterproof and airtight packaging.	20,5	25,0	31,8	18,2	4,5
9	Charcoal is packaged in attractive packaging	4,5	15,9	38,6	36,4	4,5
Model						
10	Charcoal uses attractive design.	4,5	11,4	38,6	31,8	13,6
After-Sales Service						
11	Certain discounts in every period of purchase	11,4	45,5	31,8	9,1	2,3
12	Availability of home delivery service in every purchase.	25,0	27,3	29,5	13,6	4,5

Source: data proceeded; n = 44

purchase is an important thing (I) and it was acknowledged by 45.5% of respondents, while in the aspect of home delivery, respondents' opinions were spread evenly. This was evident from the 25.0% of respondents who claimed that it is Very Important (SP), 27.3% of respondents answered Important (P) and 29.5% of respondents answered Neutral (N). The results of Fishbein in salient belief and evaluation component in each attribute and query components are shown in the Table 5 and Table 6.

Meanwhile, the summary of calculations from Fishbein Model on salient beliefs and evaluation of each attribute are shown in Table 7. Figures marked with parentheses indicate the order from the greatest to the smallest value. The meaning of the table above is that the weights contained in the column beliefs is the current perception (reality) of the respondents on the coconut shell charcoal, while evaluations are the hope of respondents

to the attributes on the coconut shell charcoal. Two methods were used to interpret the weights contained in each attribute.

The first method was to rank the attributes in both beliefs and evaluations, started from the largest to the smallest. This method was intended as an attempt to see what attributes could possibly describe coconut shell charcoal according to customer beliefs. The second method was to compare the weights of each the same attribute contained in the columns, both beliefs and evaluations in accordance with their respective attributes. If the weights of an attribute in the evaluations column was higher than the beliefs column, the expectations of the respondents to attribute were higher than the reality.

Based on the calculations, price was a determining factor that gave beliefs for respondents that the coconut shell charcoal is more expensive than

Table 5. Salient Beliefs Attributes

Attribute	Statement	Weight
Price	The price of coconut shell charcoal is more expensive than the price of wood charcoal.	4,27
	The price of coconut shell charcoal is consistent to its quality.	4,20
	The price of coconut shell charcoal in each period varies for each purchase.	3,45
Attribute Average		3,97
Quality	The combustion of coconut shell charcoal is longer than wood charcoal.	3,51
	Coconut shell charcoal produces heat better than wood charcoal.	4,13
	Coconut shell charcoal produces less smoke than wood charcoal.	3,97
Attribute Average		3,87
Packaging	In every period of purchases, coconut shell charcoal is packed in particular packaging.	3,27
	Coconut shell charcoal is packed in strong packaging (waterproof and airtight).	2,97
	Coconut shell charcoal is packed in attractive packaging.	2,61
Attribute Average		2,95
Model	The purchased of coconut shell charcoal uses attractive design.	2,52
Attribute Average		2,52
After-Sales Service	Sellers provide certain discounts in every period of purchase.	2,97
	Sellers provide home delivery service in every purchase.	3,45
Attribute Average		3,21

Source: data proceeded; n = 44

wood charcoal. The beliefs weight of respondents reached 3.97. The empirical data indicated that the price of coconut shell charcoal averages from Rp. 6,000–7,000 per kilogram, while the price of wood charcoal averages from Rp. 3,000–4,000 per kilogram. The issue of the difficulty of raw materials obtained seems to be the only reason why the price of coconut shell charcoal is more expensive than wood charcoal (Yandri, 2014).

If we compared price in evaluations with beliefs,

it would seem that the weight in beliefs is smaller than evaluations. This was a real indication that respondents expecting the price of coconut shell charcoal can be cheaper when compared to the price they buy today.

The respondents' beliefs about the price were parallel with their perceptions that the coconut shell charcoal is of higher quality than wood charcoal. It could be seen on the weight of quality attribute, which was in second rank after price,

Table 6. Evaluation Attributes

Attribute	Statement	Weight
Price	Good charcoal is more expensive.	4,04
	Charcoal price is true to its quality.	4,13
	Charcoal price in each purchase period varies.	3,38
Attribute Average		3,85
Quality	Charcoal combustion duration should be longer	4,00
	Charcoal which generates good heat.	4,40
	Charcoal which produces less smoke	4,15
Attribute Average		4,18
Packaging	Charcoal is packaged in particular packaging.	3,36
	Charcoal is packed in waterproof and airtight packaging.	3,38
	Charcoal is packaged in attractive packaging	2,79
Attribute Average		3,18
Model	Charcoal uses attractive design.	2,61
	Attribute Average	
After-Sales Service	Certain discounts in every period of purchase	3,54
	Availability of home delivery service in every purchase.	3,54
Attribute Average		3,54

Source: data proceeded; n = 44

Table 7. Consumer Preferences on Coconut Shell Charcoal

Attribute	Beliefs	Evaluations
Price	3,97 (1)	3,85 (2)
Quality	3,87 (2)	4,18 (1)
Packaging	2,95 (4)	3,18 (4)
Model	2,52 (5)	2,61 (5)
After-Sales Service	3,21 (3)	3,54 (3)

Source: data proceeded; n = 44

with respondents' beliefs weight of 3.87. With this order, quality in the perception of the respondents was still considered low. When compared to the evaluations, the weight reached 4.18, and this attribute had the highest weight in the evaluations. The high weight in the evaluations was an indication that the respondents expected that the

quality of coconut shell charcoal can be further improved.

The question is, what is the indicator of an otherwise qualified charcoal? In the previous discussion, it has been stated that the quality of the charcoal can be seen from two main indicators, namely

the level of heat and smoke levels generated from combustion. The heat levels that can be generated by charcoal depend on the age of the raw material coconut shell. The older the coconut, the better is the shell. Furthermore, the older the coconut, the water contained will be less. The less water contained therein, the less charcoal will produce smoke. The quality of raw material like this can produce quality charcoal.

A further question arises, why the costumers assume that charcoal they use still needs to be improved? The most plausible answer is associated with the no uniformity of raw materials purchased by manufacturer in traditional markets. Raw shell materials are purchased in a 25-kilogram sack of shells without first sorting them. That is, the shells of the “medium-old” coconut are immediately put into sacks and transported to the factory. Once in the plant, coconut shells are directly poured into the combustion drum. However, the manufacturers do not do the sorting of raw materials before being fed into the combustion drum (Yandri, 2014).

The subsequent impact of this action is that the charcoal is not uniform in quality. Therefore, it becomes necessary for the manufacturers to require a certain quality of raw materials to the traders in traditional markets before making a purchase. However, this can be done if the quantity of raw materials is widely available in the market. It is because the problem is that the raw materials that can be bought by consumer are in a limited availability. In this context, it is still considered lucky for the consumers who can obtain raw materials rather than not at all. Thus, economically-rational option for them is to buy all the raw materials they can buy in traditional markets.

After quality, the third rank in beliefs is after-sales service. After-sales service in this study is limited to the discounts and home delivery service provided by the manufacturer to consumers. The weight of this attribute on the component reaches 3.21. This

attribute is also in the third ranks in evaluations with a weight of 3.54. The same rank in both components showed that after-sales service is equally important.

However, the weight of both discounts and home delivery service in evaluations are higher than beliefs. This is an indication that the consumers' expectations for the provision of after-sales service in the manufacturers can be further improved. The consumers' expectations are very rational in the perspective of satisfaction and purchasing decisions. The studies which conducted by Bending *et.al*, (2006), Verhoef *et al.* (2009), Kheng, *et al*, (2010), and Mosahab (2010) for example, confirm that the after-sales service is a decisive factor for the survival of a company.

The fourth rank is the packaging. Based on the calculations, this attribute has the same rank in both beliefs and evaluations. The weight is 2.95 in beliefs and 3.18 in the evaluations. However, the weight in beliefs is lower than evaluations. This means that the respondents expect that the packaging can be made more innovative and attractive.

It is generally known that the coconut shell charcoal packaging uses simple packaging of sacks or plastic bags. Sacks and plastic bags are susceptible to water, so rainy seasons will become a problem. Additionally, there are risks that the charcoal can be wet and unusable. This seems to be the concern of consumers. Therefore, making innovations in airtight and attractive packaging for charcoal is a matter that needs to be done by manufacturer.

The last but not least is the model. The rank of the attribute is the same in both components, both evaluations and beliefs. The weight is 2.52 in beliefs and 2.61 in the evaluations. Apparently, its position-ranked last in this attribute-can be interpreted as a non-urgency. Respondents perceive that charcoal models are less important



Figure 2. Charcoal Briquette

Source: <http://brbiketarang.blogspot.com>, www.ceriwis.com

matter for them. Currently, the models and the forms of charcoal are still in blocks and fragments shaped shell, which are then turned black and serve as charcoal.

However, the weight of both components are different. The weight in evaluations is higher compared to beliefs. It is an indication that respondents expect an innovation in the charcoal model, not in the form of blocks as they are today, but may be formed as attractive briquettes (Figure 2).

MANAGERIAL IMPLICATIONS

The findings of the research became the foundation for the stakeholders with actions: *firstly*, the manufacturer should perform a variety of technological innovations related to the improvement of product quality and packaging methods. *Secondly*, the urgent of involvement of the manufacturer in training activities and economic empowerment, particularly related

to the improvement of product quality and packaging. This can be done by universities to involve various stakeholders, such as the Agency for the Assessment and Application of Technology (BPPT). *Thirdly*, at the level of responsibility of the improving of SMEs, the local government can take the initiative to conduct coaching and empowerment for those industries.

CONCLUSION

From the aspect of faith (beliefs), price is in the first place which indicates that the charcoal is a cheap fuel. The second order after that is quality. Next in sequence are the packaging, models and after-sales service. From the aspect of hope (evaluations), the quality is ranked first by the respondents. It indicates that quality should be improved in the future. The second in order is price and the next are after-sales service, packaging and models, respectively. ■

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