

CONSUMER EVALUATION OF NUTMEG PRODUCTS IN BOGOR REGENCY, INDONESIA

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ABSTRACT

Development of nutmeg (*Myristica fragrans* Houtt.) food and beverage home industry business in Bogor Regency has played an important role to the enhancement of the local economy and provides employment opportunities for women in neighboring areas. However, despite its existence as one of the local products, the current trend of nutmeg consumption seems to be decreasing due to the emergence of more fruit-based product varieties in the regency. This paper sought to clarify consumption trends of nutmeg food and beverage products in Bogor Regency and evaluate consumers' preferences in order to formulate measures to improve sales of nutmeg food and beverage products. A questionnaire survey was conducted in 2014 to 117 respondents in Bogor Regency, including 46 households and 71 university students. Despite the decreasing trend in nutmeg consumption, especially in young generation, there still seems to be potential of consuming and purchasing nutmeg products by people who come from outside Bogor Regency. In general, consumers attached importance to taste, appearance, and price in buying nutmeg products. Improving the packaging is vital for product development. Consumers who like to consume nutmeg will potentially continue to buy regardless of some degree of increase in the selling price without neglecting quality. In the future, offering samples of nutmeg products can be effective to let consumers know its actual taste, especially for those who have not consumed or bought nutmeg products.

Keywords: consumer survey, Price Sensitivity Models, Quantification Theory Type I

INTRODUCTION

Bogor Regency is one of the major producing areas of nutmeg in Indonesia. The nutmeg industry of the regency has expanded from producing raw materials only to processing several nutmeg products (Juwita and Tsuchida 2017). Unlike most nutmeg producing areas in eastern Indonesia popularly known for processing nutmeg spices, the regency is famous for the development of nutmeg food and beverage products (e.g. nutmeg sweets and nutmeg syrup). These products are sold in many places around the regency, such as local markets, bus terminals, train stations and tourism areas. Locals have recognized nutmeg sweets as one of their traditional foods. Development of nutmeg food and beverage industry has played an important role in the local economy. Not only nutmeg fruit farmers, nutmeg food and beverage home industry businesses also provide employment opportunities for women in neighboring areas. Moreover, besides its food culture and economic value, Lestari et al. (2012) proved that nutmeg also has health benefits, such as potential for anti-diabetic treatment. However,

despite its functions and values, consumption of nutmeg food and beverage in Bogor Regency seems to be decreasing in the recent years. With the variety of more attractive food and beverages available (e.g. taro brownies, pumpkin short cakes, baked sweet potatoes, and many fruit-based beverages), consumers, especially the young people, tend to choose other options over nutmeg products. Furthermore, the number of nutmeg food and beverage producers have decreased by half in the past five years. Nevertheless, although there have been studies conducted to understand about market and purchasing behavior of other agricultural products in Bogor Regency, such as goat milk (Santoso et al. 2012) and organic vegetables (Slamet et al. 2016), as well as study on consumer behavior towards agricultural products with Geographical Indication (GI) in Indonesia (Dewi et al. 2017), there has been no research that specifically focused on the consumption trends for nutmeg food and beverage products. Thus, this study aimed to clarify the consumption trends for nutmeg food and beverage products and to evaluate consumers' preferences in order to formulate measures to improve sales of nutmeg food and beverage products in Bogor Regency.

METHODOLOGY

Survey area. Bogor Regency in West Java Province is located around 60 km from Jakarta. As one of the closest regencies to the national capital, Bogor Regency plays an important role as satellite city to the capital (Nas 1986). Surrounded by mountainous areas, Bogor Regency has not only become the residential area for working people in Jakarta but has also been one of the main tourism areas for the local community. With its suitable environment and convenient access to the capital, development of nutmeg processing industry in Bogor Regency has been rapidly expanded in the past ten years with variety of nutmeg products known as one of main local commodities.

Data collection. This study used two types of respondents namely, households and students. Household-respondents lived in three locations of residential areas, specifically: (1) the center of Bogor City; (2) border areas between Bogor City and regency; and (3) outer areas of the regency. Household-respondents were selected through snowball sampling method. First, the three residential areas were chosen to represent different types of living environments in Bogor Regency. Second, consumers in each residential area were randomly visited according to introduction from local authorities. Third, the survey was mainly conducted in one block of neighborhood in each area, depending on the available time of the respondents. Specifically, household-respondents were targeted to husbands or wives who were assumed to make buying decisions in the family. However, due to place and time constraints, food tasting was not conducted to household-respondents. Therefore, only respondents who have knowledge about nutmeg products in Bogor Regency were selected. Meanwhile, student-respondents were selected from those who study in IPB University, a public university with students coming from different areas across the country. Student-respondents were randomly met in the university's food court and were requested to participate in the food tasting. Three types of nutmeg food and beverage products (fresh sweets, dried sweets, and syrup) that were bought from local stores in Bogor Regency were prepared in small-sized serving. Students who had available time were asked to enter the classroom nearby the food court and participate in the survey as respondents.

The consumer survey was conducted from the 15 August to 19 September 2014 in Bogor Regency. Data from a total of 117 respondents, consisting of 46 households and 71 university students were collected. The questionnaire consisted of 22 multiple choice and open-ended questions which mainly focused on four aspects of nutmeg products, such as product, price, place and promotion (McCarthy's 4P). Specifically, the questionnaire had three main sections: (1) details of survey respondents (sex, age, hometown, and current residency); (2) trend in purchasing and consuming nutmeg products (buying place, provision of products information, and frequency and amount of purchase); and (3) consumers' preferences for nutmeg products (taste, price, and product appearance).

Data analysis

Tests of Statistical Significance. Averages or ratios were calculated in order to grasp the characteristics of consumers' behaviors. *T-Test* and *Chi-square Test* were used to estimate the significance for the differences between the analysis results. In terms of the price preference, related data were analyzed using Price Sensitivity Models and Quantification Theory Type I.

Van Westendorp Price Sensitivity Models. To analyze consumer preferences for price (IDR/kg) of nutmeg products, respondents were asked to answer the following questions based on Van Westendorp (VW) Price Sensitivity Models. The VW Price Sensitivity Models is a set of survey questions that are used to work out how to set prices for products. It is specifically focused on finding an acceptable price as a quality indicator. VW approach is based on the assumption that reasonable prices exist for consumers in every category and for each perceived level of quality within a category. Data elicited in the VW approach answers the following four indirect questions to calibrate price from different perspectives (Price A to D).

Price A: At what price would you begin to consider the product is getting expensive, but you still would consider purchasing it?

Price B: At what price would you consider the product to be too expensive to purchase it?

Price C: At what price would you consider the product to be priced low – the best buy for the money?

Price D: At what price would you consider the product is so cheap that you would doubt its quality?

Thus, for each of the four price questions, the cumulative frequencies are plotted against the current price on the same graph. The intersection of Price A curve with Price D curve according to VW is called the point of “marginal cheapness”. The intersection point of Price B curve with Price C curve is called “marginal expensiveness”. The range between these two points shows the area of the price acceptable for most consumers. The intersection of the Price A and the Price C curves also correspond to the “indifference price” point, where there are an equal number of respondents for both these questions. The intersection of the Price B and Price D curves defines the point of “optimal pricing” (Lipovetsky et al. 2011; Ceylana et al. 2014).

Quantification Theory Type I. To clarify the potential determinants of the price levels showed by consumers in the Price Sensitivity Models, Quantification Type I Analysis is utilized according to Hayashi's First-Fourth Methods of Quantification Theory. Hayashi's Quantification Type I is a method to predict the quantitative external criterion or criterion variable on the basis of the information concerning the qualitative attributes of each subject and to analyze the influence of each attribute to the criterion variable (Tanaka 1979).

The following were considered related to the price level (Price A): (1) taste evaluation score, (2) purchasing experience, (3) consuming experience, (4) age, and (5) sex. Hence, the correlation between the external criterion (Y) of Price A and five of the qualitative factors was estimated using Hayashi's Quantification Theory Type I as follows: $Y = a_0 + \sum b_i \cdot X_i$

Where Y: price A at which consumers begin to think the product is getting expensive

X: dummy variables

X₁ – X₅: taste evaluation score (very bad, bad, average, good, and very good)

X₆ – X₇: purchasing experience (no and yes)

X₈ – X₉: consuming experience (no and yes)

X₁₀ – X₁₁: age (age 20-39 and age 40-69)

X₁₂ – X₁₃: sex (male and female)

a₀: constant term

b_i: category score

The category score (b_i) and constant term (a_0) were calculated by the same method used to calculate coefficients in multiple linear regression analysis using dummy variables. The category which exhibits the largest score from among the factors causes the external criterion to be larger, and therefore, it can be assumed that the category with the largest score is the most potential determinants of the price levels (Price A) (Matsumura 2004).

Profile of respondents. Table 1 shows the profile of survey respondents. In this survey, number of female respondents are observed to be slightly dominating both groups of respondents. The interview to household-respondents also confirmed that female members of the family were the ones who usually purchase nutmeg products in the market. The ages of household-respondents varied from 20 to 69 years old with an average of around 40 years old. On the other hand, all student-respondents were in their 20s.

Table 1. Profile of survey respondents (Unit: %)

	Household-respondents (H) (n = 46)	Student-respondents (S) (n = 71)
Gender		
Male	45.7	46.5
Female	54.3	53.5
Age (years)		
20~29	30.5	100
30~39	13.0	-
40~49	15.2	-
50~59	26.1	-
60~69	15.2	-
Estimated Average	42.8	-
Hometown		
Bogor Regency (Including Bogor City)	71.7	26.8
Outside Bogor Regency	28.3	73.2

Source: Consumer survey in 2014

In terms of hometown, 71.7% of household-respondents (hereafter, H-respondents) originated from regency. Meanwhile, 73.2% of student-respondents (hereafter, S-respondents) came from outside the regency. Although 28.3% of the H-respondents came from outside the regency, most of them have lived in Bogor for some years which are generally longer than those of the S-respondents from outside the regency.

H-respondents were divided into two groups (H1-respondents: people under 40 years old, H2-respondents: people aged 40 years old and above), and S-respondents were divided into two groups (S1-respondents: people from the regency, S2-respondents: people from outside the regency), in order to analyze consumption trends of nutmeg products and preferences by varying age and difference in hometown.

For S-respondents, the classification was based on difference in hometown. It is because all respondents are in the same group of age. Meanwhile, group classification for H-respondents was based on ratios of respondents in terms of group of age (Table 1). Classification by age is chosen instead of difference in hometown, because H-respondents who are from outside Bogor Regency have resided longer in Bogor Regency compared to those of S-respondents. Hence, by dividing ratios of H-respondents into two big groups, the total ratios of H1-respondents are 43.5%, while H2-respondents are 56.5%. Although the exact average age of respondents is unclarified because respondents were only asked to choose their age group instead of stating their actual age (estimated average age was 42.8 years

old), the in-depth interview showed different perspectives between those who are under or above 40 years old. Thus, the H-respondents were divided into two groups with 40 years old as the border line.

PURCHASING BEHAVIOR OF NUTMEG PRODUCTS’ CONSUMERS

Table 2 shows the experience of consuming nutmeg products by group. In the H-respondents, ratios of consuming nutmeg products of H2-respondents were significantly higher than those of H1-respondents. In the case of S-respondents, more than 70% of S1-respondents had experience of consuming nutmeg fresh and dried sweets products, while only 40.4% and 65.4% of S2-respondents have consumed the same, respectively. People who are originally from and residing in the regency have significantly consumed more nutmeg products compared to those who come from outside the regency. Furthermore, it is also clarified in the in-depth interview to H-respondents that those who have been residing in Bogor Regency for longer period have more information about nutmeg products as they frequently encounter nutmeg products in their daily lives (e.g. in stores at the bus terminal, train station, or traditional market). Although they have not been purchasing by themselves, some of them had the chance of consuming nutmeg products while visiting friends, neighbors or relatives in the regency. However, the interview also clarified that the difference of ratios of consuming nutmeg products between H1-respondents and H2-respondents have been affected by the shift of nutmeg products’ consumption trend in the regency. Not only the number of nutmeg producers was said to be decreasing, nutmeg products are currently acknowledged as traditional products of Bogor regency while in the same time there are also many other varieties of food and beverages products that are more attractive for younger consumers.

Table 2. Percentage of people who have consumed nutmeg products by group (Unit: %)

Type of Nutmeg Products	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total H	S1	S2	Total S
	Age 20-39 (n = 20)	Age 40-69 (n = 26)	(n = 46)	Bogor (n=19)	Outside Bogor (n=52)	(n = 71)
Fresh Sweets	85.0	96.2	91.3 ^c	78.9 ^c	40.4 ^d	50.7 ^f
Dried Sweets	55.0	76.9	67.4	73.7	65.4	67.6
Syrup	15.0 ^a	46.2 ^b	32.6 ^e	5.3	9.6	8.5 ^f

Source: Consumer survey in 2014

Notes: 1) a and b in the same row denote ratios of H1 and H2 are significantly different at 5% level.

2) c and d in the same row denote ratios of S1 and S2 are significantly different at 1% level.

3) e and f in the same row denote ratios of Total H and Total S are significantly different at 1% level.

4) Results of test of significance for the differences were estimated using chi²-test.

To clarify the conditions of consumers’ actual purchasing of nutmeg products, only respondents who have ever purchased nutmeg products were asked about their purchasing behavior, such as purchasing place and provision of information related to nutmeg products.

Place of purchasing nutmeg products. Many kinds of nutmeg products are sold in many places around the regency, including stores inside local markets or nearby bus terminals, and tourism areas (Table 3). Thus, more than 45% of H-respondents purchased nutmeg products at the local market that they frequently visited and commonly perceived to offer nutmeg products at a cheaper price. Moreover, it is also noticed that around 30% of H-respondents purchased nutmeg products directly from producers. Some of them mentioned that they became regular customers of specific producers after purchasing from them for several years.

Table 3. Place of purchasing nutmeg products (Unit: %).

Place of Purchase	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total H ^a	S1	S2	Total S ^b
	Age 20-39 (n = 18)	Age 40-69 (n = 24)	(n = 42)	Bogor (n = 11)	Outside Bogor (n = 23)	(n = 34)
Local Market	50.0	45.8	47.6	36.3	21.8	26.5
Bus Terminal	-	4.2	2.4	9.1	4.3	5.9
Souvenirs Store	22.2	16.6	19.0	36.4	60.9	52.9
Tourism Area	-	4.2	2.4	9.1	8.7	8.8
Producer	27.8	29.2	28.6	9.1	4.3	5.9

Source: Consumer survey in 2014 (only respondents who have purchased nutmeg products until 2014)

Notes: 1) a and b denote purchasing place patterns of Total H and Total S are significantly different at 1% level.

2) Results of test of significance for the differences were estimated using chi²-test.

On the other hand, S-respondents showed different patterns in terms of purchasing place. S-respondents purchased nutmeg products at souvenir stores or local markets, where 60.9% of S2-respondents purchased at souvenir stores. Compared to stores inside the local market, souvenir stores are usually located near bus terminal or train station where consumers from outside the regency can easily visit. Meanwhile, 36.4% and 36.3% of S1-respondents purchased nutmeg products at souvenir stores and local market, respectively.

Source of information on nutmeg products. Promotion of the nutmeg products plays an important role in spreading the information and expanding the sales of the products. Table 4 shows the source of information on nutmeg products. A total of 47.6% of H-respondents knew about nutmeg products from their families/relatives, while 40.5% of them received information from their friends. These can be attributed to the long tradition of producing and consuming nutmeg products in the regency. Meanwhile, 63.6% of S1-respondents answered that they received information from their own family or relatives. Most of them purchased at the same place where their family usually buy. On the other hand, 39.2% of S2-respondents had information about stores from their friends. They usually asked their friends who are from the regency for recommended stores. About 7.1% of H-respondents and 20.6% of S-respondents received information from pamphlet/flyer. Although other sources of information (e.g. pamphlets and flyers) were identified, there seemed to be a need to develop innovative ways to promote and increase nutmeg consumption.

Table 4. Source of information on nutmeg products (Unit: %).

Source of Information	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total H	S1	S2	Total S
	Age 20-39 (n = 18)	Age 40-69 (n = 24)	(n = 42)	Bogor (n = 11)	Outside Bogor (n = 23)	(n = 34)
Pamphlet / Flyer	11.1	4.2	7.1	18.2	21.7	20.6
Friends	38.9	41.6	40.5	18.2	39.2	32.4
Family /Relatives	44.4	50.0	47.6	63.6	34.8	44.1
Others	5.6	4.2	4.8	-	4.3	2.9

Source: Consumer survey in 2014 (only respondents who have purchased nutmeg products until 2014)

Annual purchasing frequency and quantity of nutmeg products. Overall, H-respondents have significantly purchased much more nutmeg products than S-respondents (Table 5). H2-respondents buy more frequently, specifically 1.3 times and 1.8 times per year more than H1-respondents for fresh and dried sweets, respectively. Meanwhile, S-respondents tend to buy fewer nutmeg products. On the

average, S-respondents purchase nutmeg products once a year and there is no significant difference between those of S1-respondents and S2-respondents. However, the mean purchasing quantity of S1-respondents for dried sweets was 1.9 times more than S2-respondents. These findings are found to be related with the in-depth interview conducted to H-respondents. As mentioned previously, H2-respondents tend to have consumed more nutmeg products than H1-respondents (Table 2). Thus, confirming the decreasing trend of nutmeg products in terms of purchasing frequency by the younger consumers (H1, S1, and S2 respondents).

Table 5. Annual frequency (F) and quantity (Q) of purchased nutmeg products.

Type of Nutmeg Products	Household-respondents (H)						Student-respondents (S)					
	H1		H2		Total H		S1		S2		Total S	
	Age 20-39		Age 40-69				Bogor		Outside Bogor			
	F	Q	F	Q	F	Q	F	Q	F	Q	F	Q
Fresh Sweets												
n	14	14	17	17	31	31	4	4	5	5	9	9
mean	3.9	1,950	5.1	2,426	4.6 ^a	2,221 ^c	1.0	750	1.0	750	1.0 ^b	750 ^d
S.D.	5.9	1,903	4.3	1,976	5.0	1,926	0.0	289	0.0	707	0.0	530
Dried Sweets												
n	8	8	9	9	17	17	5	5	6	6	11	11
mean	2.6	1,500	4.6	1,444	3.6 ^a	1,471	1.4	1,050	1.2	542	1.3 ^b	773
S.D.	1.3	1,126	4.4	1,391	3.4	1,234	0.9	570	0.4	485	0.6	564

Source: Consumer survey in 2014 (only respondents who have purchased nutmeg products until 2014)

Notes: 1) F = Frequency (Unit: times/year); Q = Quantity (Unit: gr/time)

2) a and b in the same row denote means of frequency (F) of Total H and Total S are significantly different at 5% level.

3) c and d in the same row denote means of quantity (Q) of Total H and Total S are significantly different at 5% level.

4) Results of test of significance for the differences were estimated using t-test.

IMPORTANT FACTORS AFFECTING CONSUMERS PURCHASING BEHAVIOR

In order to expand consumption of nutmeg products, there is a need to discuss important factors to be considered and improvements to be done for future development of nutmeg products. Table 6 shows that both H-respondents and S-respondents mentioned taste, product appearance and price as the major factors, conveying that these three factors should be initially assessed and improved to suit the quality requirements of consumers for nutmeg products.

Table 6. Factors considered important in purchasing nutmeg products (Unit: %)

Items	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total H	S1	S2	Total S
	Age 20-39	Age 40-69		Bogor	Outside Bogor	
	(n = 20)	(n = 26)	(n = 46)	(n = 19)	(n = 52)	(n = 71)
Taste	80.0	57.7	67.4	52.6	67.3	63.4
Product Appearance	10.0	26.9	19.6	31.6	17.3	21.1
Quantity	-	-	-	-	-	-
Packaging	-	3.9	2.2	-	3.9	2.8
Labeling	5.0	-	2.2	-	-	-
Price	-	7.7	4.3	15.8	9.6	11.3
Others	5.0	3.8	4.3	-	1.9	1.4

Source: Consumer survey in 2014

Taste. Table 7 shows the evaluation results of the taste of nutmeg products based on 5-point Likert Scale (1 very bad taste, 3 average taste, and 5 very delicious). In case of the S-respondents, nutmeg fresh sweets, dried sweets and syrup were provided as samples because not all respondents have consumed nutmeg products. S-respondents were asked to give a score to each of nutmeg products after food tasting. However, since the food tasting was not conducted for H-respondents due to limitation of tasting place, scores were taken from H-respondents who have actual experience tasting nutmeg products but none of them have purchased and/or consumed nutmeg syrup.

Table 7. Taste evaluation score of nutmeg products

Type of Nutmeg Products	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total H	S1	S2	Total S
	Age 20-39	Age 40-69		Bogor	Outside Bogor	
Fresh Sweets						
n	18	24	42	19	51	70
Mean	4.44	4.38	4.40 ^a	3.42	3.18	3.24 ^b
S.D.	0.70	0.71	0.70	1.12	1.05	1.07
Dried Sweets						
n	14	19	33	19	52	71
Mean	3.43	3.68	3.58	3.63	3.25	3.35
S.D.	1.22	1.11	1.15	1.12	1.01	1.04
Syrup						
n	-	-	-	19	50	69
Mean	-	-	-	2.95 ^a	4.12 ^b	3.80
S.D.	-	-	-	1.27	0.69	1.02

Source: Consumer survey in 2014

Notes: 1) There are 1 to 2 respondents who did not give scores for all products.

2) a and b in the same row denote means are significantly different at 5% level.

3) Results of test of significance for the differences were estimated using t-test.

Price. Figures 1 and 2 show the accepted price curves based on prices A to D and percentage of accumulative respondents based on the VW Price Sensitivity Models. It should also be noted that this analysis only focused on H-respondents due to the large amount of nutmeg sweets purchased and their capacity to appropriately evaluate price of nutmeg sweets. Moreover, in the questionnaire, the current price of each product was provided to give information to respondents who had not purchased any nutmeg product (e.g. 27,000 IDR/kg for fresh sweets and 25,000 IDR/kg for dried sweets). Thus, the following questions is set to graph the accepted price curves.

Price A: At what price would you begin to consider the product (1 kg of nutmeg sweets) is getting expensive, but you still would consider purchasing it?

Price B: At what price would you consider 1 kg of nutmeg sweets to be too expensive to purchase it?

Price C: At what price would you consider 1 kg of nutmeg sweets to be priced low – the best buy for the money?

Price D: At what price would you consider 1 kg of nutmeg sweets is so cheap that you would doubt its quality?

There is a clear difference between H1-respondents and H2-respondents. H2-respondents are willing to pay higher for nutmeg sweets compared to H1-respondents. “Indifference Price” point (the point of intersection of the curve Price A and Price C) of nutmeg fresh and dried sweets for H1-respondents were about 25,000 and 20,000 IDR/kg, respectively. Meanwhile, those of H2-respondents

were about 27,000 IDR/kg for both products. Moreover, the above accepted price curve (especially curve of price A) means that there are some consumers who are willing to continue to purchase nutmeg products regardless of the increase in selling price. Thus, Hayashi's Quantification Theory Type I analysis clarified the potential determinants of the price levels showed by consumers who are willing to continue to buy nutmeg sweets.

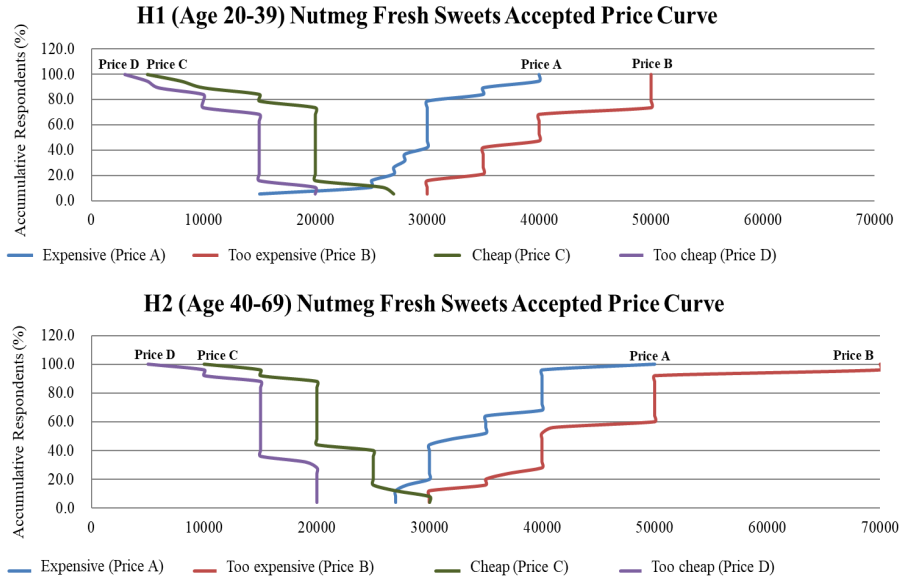


Fig. 1. Nutmeg fresh sweets accepted price curve of H-respondents

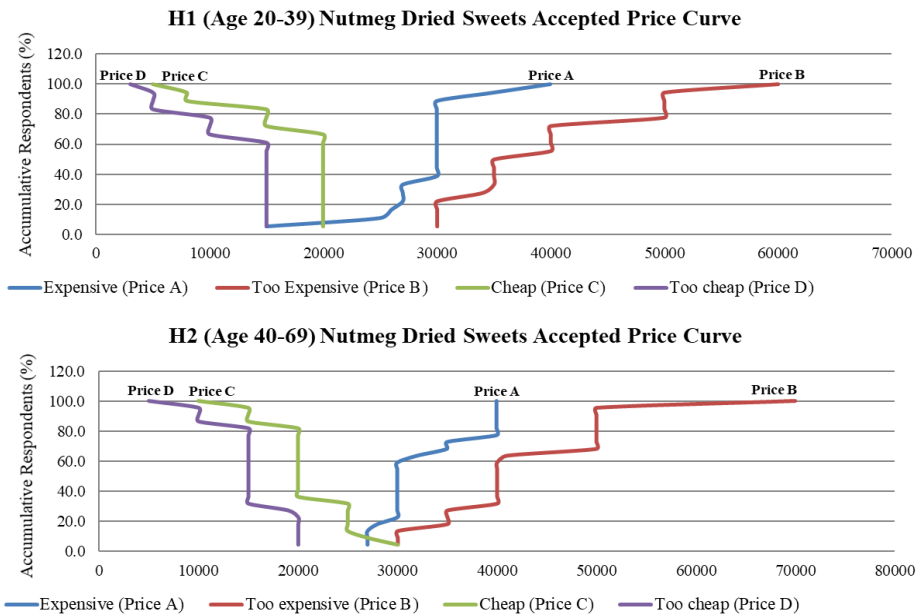


Fig. 2. Nutmeg dried sweets accepted price curve of H-respondents

Consumer evaluation of nutmeg products.....

Factors such as taste evaluation score, purchasing experience, consuming experience, age, and sex influence the accepted nutmeg price of fresh sweets and dried sweets, respectively (Tables 8 and 9).

Table 8. Factors affecting accepted price of nutmeg fresh sweets in H-respondents.

Item	Category	n (n=42)	Category Score (b_i) (Unit: 1,000 IDR)
Taste Evaluation Score	1 point (X ₁)	1	-20.06
	2 points (X ₂)	-	-
	3 points (X ₃)	6	-4.65
	4 points (X ₄)	15	-0.91
	5 points (X ₅)	20	3.08
Purchasing Experience	No (X ₆)	7	5.32
	Yes (X ₇)	35	-1.06
Consuming Experience	No (X ₈)	2	-0.16
	Yes (X ₉)	40	0.01
Age	Age 20-39 (X ₁₀)	19	-2.87
	Age 40-69 (X ₁₁)	23	2.37
Sex	Male (X ₁₂)	17	0.24
	Female (X ₁₃)	25	-0.17
$R^2 = 0.4424$			

Table 9. Factors affecting accepted price of nutmeg dried sweets in H-respondents.

Item	Category	n (n=37)	Category Score (b_i) (Unit: 1,000 IDR)
Taste Evaluation Score	1 point (X ₁)	1	-13.53
	2 points (X ₂)	6	-0.43
	3 points (X ₃)	9	-0.28
	4 points (X ₄)	13	0.16
	5 points (X ₅)	8	2.06
Purchasing Experience	No (X ₆)	11	3.00
	Yes (X ₇)	26	-1.27
Consuming Experience	No (X ₈)	6	-2.58
	Yes (X ₉)	31	0.50
Age	Age 20-39 (X ₁₀)	18	-1.99
	Age 40-69 (X ₁₁)	19	1.88
Sex	Male (X ₁₂)	17	0.12
	Female (X ₁₃)	20	-0.11
$R^2 = 0.4279$			

The taste evaluation score which represents whether consumers like or dislike the products is the biggest factor in deciding the price accepted by consumers, conveying that customers who like to consume nutmeg products will potentially continue to purchase regardless the increase of the price provided the products is of suitable quality. The purchasing and consuming experiences also affect accepted price. In terms of consuming experience, respondents who had consumed nutmeg sweets

before tending to continue to purchase the products even if its price becomes a little higher, which consistently conveys same trend with taste evaluation score. Meanwhile, respondents who have no purchasing experience tend to show positive response toward the increase in price, which is contrary to prior expectation. They seem to tend to evaluate the price higher due to lack of actual price information. Moreover, as depicted on Figures 1 and 2, category score of age in Table 8 and 9 also confirmed that H2-respondents are willing to pay higher for nutmeg sweets compared to H1-respondents. On the other hand, the influence of sex on accepted price is small.

Product appearance. Most nutmeg products are being displayed in stores and sold in simple packaging. The fresh sweets products are displayed in glass bins, then weighed and packed in plastic bag when customers buy according to their orders. Meanwhile, dried sweets are packed 250 grams each in plastic bags without proper labelling (e.g. no information on ingredients and product). It should be noted that most of nutmeg products sold in the local markets or small souvenirs stores nearby bus terminals or tourism areas have no brand. Currently there are only one or two brands of nutmeg products in the regency that properly pack and put label on their products, hence these products are usually sold in supermarket or big souvenirs stores with relatively higher price. On the other hand, as the most recently developed product, the packaging of nutmeg syrup seems to be much better than others. Nutmeg syrup is sold in either plastic or glass bottle of difference sizes, i.e. 500 ml or 1 liter depending on the processor. The bottle is properly sealed and labeled with ingredients and product information. Most syrup processors have also created products’ brand for better marketing.

Furthermore, this study identified the following measures are necessary to improve products appearance: 1) improving package seal, 2) providing label with product information, and 3) changing packaging color (Table 10). Improving packaging of nutmeg products can increase consumers’ trust on quality of the products. Especially, by providing label about product’s ingredients on the package, consumers can have more knowledge on how the product is made and what kind of benefits it has. Hence, good packaging can potentially attract more consumers to buy nutmeg products.

Table 10. Necessary improvement on nutmeg products appearance (Unit: %)

Items	Household-respondents (H)			Student-respondents (S)		
	H1	H2	Total	S1	S2	Total S
	Age 20-39 (n = 19)	Age 40-69 (n = 26)	H (n = 45)	Bogor (n = 19)	Outside Bogor (n = 52)	(n = 71)
Improve package seal	47.4	38.5	42.2	42.1	48.1	46.5
Provide label of product information	52.6	57.7	55.6	36.8	36.5	36.6
Change packaging color	-	-	-	15.8	7.7	9.9
Package in small glass bin / bottle	-	-	-	5.3	5.8	5.6
Others	-	3.8	2.2	-	1.9	1.4

Source: Consumer survey in 2014

Note: 1) There is 1 respondent who did not give score for all products.

CONCLUSION AND RECOMMENDATION

This paper has clarified the consumption trends and preferences of households and students for nutmeg food and beverage products (i.e. nutmeg fresh sweets, nutmeg dried sweets, and nutmeg syrup) in Bogor Regency. In general, the differences in consumer age and hometown affected purchasing

behavior of nutmeg products. The older consumers who are originally from and residing in the regency have purchased more nutmeg products compared to younger consumers. On the other hand, despite the decreasing trend of nutmeg consumption in the regency, there is also possibility of consuming and purchasing nutmeg products by people who come from outside Bogor Regency.

Both student-respondents and household-respondents emphasized the importance of taste, products appearance, and price when they purchase the nutmeg products. Hence, it is important to improve the products based on the needs and preferences of target consumers. The following measures can be considered for product improvements: 1) providing products with a little less sugar for aged people who are paying attention on taking too much sweets; 2) developing new products such as nutmeg syrup which can meet the preference of younger generation; 3) labeling of ingredients and expiration date; and 4) packaging that looks delicious and hygienic. Though these measures may increase the production cost of nutmeg products, consumers who have understood the benefits of nutmeg may purchase regardless of slight price increase.

In addition, for further market expansion, offering food tasting when selling nutmeg products can be an effective way to increase consumer awareness, especially for those who are coming from outside the regency and have no experience in consuming or buying nutmeg products.

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