



Consumer Behavior Towards Ethical Bananas in Japan

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Abstract Japan imported over 1 million tons of bananas in 2021, 76% of which were from the Philippines. Meanwhile, in banana production fields including in the Philippines, there are problems such as unfair contracts between banana producers and companies and bad working conditions. Although consumers' interest in ethical consumption is growing in Japan, the market of ethical bananas, including bananas certified under the Fair Trade (FT), Rainforest Alliance (RA), and organic¹ standards that are the focus of the current study, is still small. Therefore, this study aimed to identify consumer behavior toward ethical bananas and the possibility of expanding the market for ethical bananas in Japan. An online questionnaire survey using Google Forms was conducted throughout August 2021, and 279 valid answers were obtained. Factor Analysis and Cluster Analysis revealed that the respondents were segmented into three clusters, which are "quality-conscious," "ethical-possible," and "unconcerned". In addition, Conjoint Analysis clarified that when the respondents purchased bananas, consumers attached the highest importance to the "price" attribute, followed by the "appearance," "ethical", and "cultivation method" attributes. Furthermore, the perceived utility for consumers of RA and organic bananas was as high as that of non-ethical bananas, while that of FT bananas was low. As such, the results suggested that there is significant potential for an increase in the demand for organic and RA bananas, while the potential for an increase in demand for FT bananas is low. Meanwhile, the "ethical-possible" cluster, which accounted for over 50% of the respondents, displayed the highest utility scores towards FT bananas among the three clusters. To expand the market for ethical bananas in Japan, the authors recommend increasing consumer recognition and comprehension of FT and issues in the banana production field and promoting the sale of RA and organic bananas in supermarkets.

Keywords consumer segmentation, ethical consumption, fair trade, rainforest alliance, organic

INTRODUCTION

Bananas are the most consumed fruits in Japan (Statistics Bureau of Japan, 2022). Japan imported over 1 million tons of bananas in 2021 76% of which were from the Philippines (Ministry of Agriculture, Forestry and Fisheries Japan, 2021). In the production field, there are problems caused by multinational companies. One of the problems is the unfair contract between banana producers and the company. Long-term agreements and low purchase prices are regulated in the contract. Besides, several expenses are deducted automatically from the producers' sales amount. Thus, the producers usually resort to borrowing some money from the company to continue producing bananas. This situation strengthens the company's domination. The other problem is bad working conditions. The company forces the workers to work long hours and does not make suitable payments to them.

¹Fair Trade products are produced and exported in a way that seeks greater equity in international trade. Products with Rainforest Alliance certification is produced in an environmentally-friendly way that mainly aims to conserve forest. Lastly, organic agriculture is a production system that sustains the health of soils, ecosystems, and people (IFOAM, 2008).

In addition, pesticide spraying causes health damage to the workers and residents around the production area. It also causes environmental damage (Ishii et al., 2020).

Meanwhile, consumers' interest in ethical consumption is growing according to the survey by Watanabe in 2020. This survey also clarified that while “organic” is a well-known term, the degrees of recognition of labels of fair trade (FT) and rainforest alliance (RA) are increasing in Japan.

On the other hand, the market for ethical bananas is still small in Japan. For this study, ethical bananas refer to FT, RA, and organic bananas. The market share of multinational companies' bananas exceeds 90% in the current situation (Ishii et al., 2020). One company imports FT bananas with an FT label, but these bananas are from Ecuador and Colombia. Thus, there seems to be no bananas with an FT label from the Philippines in Japan. A Japan-based trading company has been importing *barangon* bananas. Grown naturally in the Philippines, these bananas are cultivated without agrochemicals and are imported as non-labeled FT bananas to Japan. However, the share of these bananas accounts for only 0.1% of total imported bananas (Alter Trade Japan, Inc., 2021). For the improvement of the harsh situation in the production field, there is a need to expand the ethical banana market in Japan.

For market expansion, grasping consumer perception for the purchasing of ethical bananas seemed to be vital. However, past studies discussing consumer behavior towards ethical bananas are limited in Japan. Kishimoto et al. (2021) studied consumer preferences for FT bananas. Their study focuses on discussing the relationship between providing information and willingness to pay. Consumers' utility and importance of each factor when they purchase FT bananas are not clarified. Besides, this study has discussed organic and FT bananas. As of now, RA bananas are sold more than FT bananas in the Japanese banana market. Considering the market situation, consumer behavior towards RA bananas is also better to be clarified. Therefore, this study includes RA in addition to FT and organic.

OBJECTIVE

To identify the possibility of expanding the market for ethical bananas in Japan, this study aims to identify consumer behavior towards ethical bananas. Specifically, this study aims to identify the characteristics of the respondents using Factor Analysis and Cluster Analysis and to analyze consumer behavior towards ethical bananas using Conjoint Analysis.

METHODOLOGY

This study is based on primary data obtained by an online questionnaire survey using Google Forms, throughout August 2021, targeting people who live in Japan. A total of 279 valid answers out of 314 respondents were obtained. Factor Analysis and Cluster Analysis were utilized to segment respondents into clusters based on their purchase behavior of agricultural products. The data utilized for the segmentation was obtained by asking them about the important points when purchasing agricultural products. The respondents chose their answer from five choices which are “important”, “slightly important”, “neutral”, “slightly not important”, and “not important”. Besides, a Conjoint Analysis was conducted to clarify consumers' utility and importance of each attribute regarding the purchase of ethical bananas.

Table 1 Attributes and levels for conjoint analysis

| Attribute | Level |
|--------------------|-------------------------------------------------------|
| Appearance | Yellow, Brown |
| Cultivation Method | Custom (no indication), Organic |
| Ethical | Custom (no indication), FT (label), FT (no label), RA |
| Price (yen)* | 100, 200, 300, 400 |

Notes: Standard: 4-5 banana (700-800g). JPY100=USD0.87 (as of March 2022)

The data used was obtained from 234 respondents' answers to eight questions for the analysis, except for 45 respondents who did not purchase bananas by themselves. The respondents chose their answer from three choices which are “buy”, “do not know”, and “do not buy”. Table 1 shows attributes and levels used in Conjoint Analysis. The data obtained were analyzed using R for Factor Analysis and Cluster Analysis and Microsoft Office Excel for Conjoint Analysis.

RESULTS AND DISCUSSION

Segmentation of the Consumer-respondents

Table 2 shows three factors obtained from Factor Analysis. Factor 1 is composed of "producer information", "cultivation method", "effect on the environment", and "effect on society". Since these items are related to ethical consumption, this factor is regarded as an "ethical" factor. Factor 2 is composed of "place of production" and "brand/company", which are related to the person who produces the product. Therefore, factor 2 is regarded as a "producer" factor. Factor 3, which is composed of "freshness" and "taste" is regarded as a "quality" factor.

Cluster Analysis was applied to the data of factor scores obtained via Factor Analysis. Table 3 shows the result of the segmentation. The respondents were segmented into three clusters. Regarding the first cluster "quality-conscious", the value of the "ethical" factor was very low, and the value of the "quality" factor was high. It indicates that the respondents belonging to this cluster do not care much about the ethical aspect, but quality is their top priority. Over 50% of the respondents belong to the second cluster "ethical-possible". All values were positive for this cluster, especially the "ethical" factor. It implies most consumers have the potential for ethical consumption of agricultural products. As for the last cluster "unconcerned", all values were relatively low, especially the "quality" factor.

Table 2 Results of factor analysis¹

| Items | Extracted factors ² | | | Uniqueness |
|---------------------------------------------------------------|--------------------------------|--------------|--------------|------------|
| | Ethical | Producer | Quality | |
| Producer information | 0.501 | 0.471 | -0.130 | 0.275 |
| Cultivation method | 0.591 | 0.334 | -0.038 | 0.289 |
| Effect on the environment | 0.957 | -0.114 | 0.061 | 0.192 |
| Effect on society (producers, workers, subcontracts, etc.) | 0.971 | -0.114 | 0.028 | 0.183 |
| Place of production | -0.195 | 0.883 | 0.036 | 0.394 |
| Brand / Company | 0.041 | 0.749 | -0.101 | 0.454 |
| Freshness | 0.009 | -0.040 | 0.788 | 0.402 |
| Taste | 0.053 | 0.120 | 0.605 | 0.525 |
| Price | -0.015 | -0.108 | 0.165 | 0.976 |
| Safety | 0.036 | 0.462 | 0.292 | 0.551 |

Notes 1) Method: Maximum Likelihood Method. Rotation: Promax.

2) The numbers are factor loadings. Those in bold represent that the absolute value is over 0.5.

Table 3 Results of cluster analysis¹

| | | Clusters ² | | |
|--------------|----------|-----------------------|------------------|---------------|
| | | Quality-conscious | Ethical-possible | Unconcerned |
| Factors | Ethical | -1.248 | 0.521 | 0.004 |
| | Producer | -0.279 | 0.272 | -0.384 |
| | Quality | 0.414 | 0.305 | -1.181 |
| Cluster size | | 64 | 153 | 62 |

Notes: 1) Cluster method: ward.D. Distance: Euclidean.

2) The values represent the average of each factor of the cluster.

Those in bold represent the absolute value is over 0.3.

Preferred Attributes of the Consumer-respondents

As a result of Conjoint Analysis, the importance of "price" was the highest followed by "appearance" and "ethical" (Fig. 1). The "cultivation method" was the lowest. These results fit with the past survey by the Japan Banana Importers Association (2021), which reported that consumers care about the price the most when purchasing bananas, and the Kishimoto et al. (2021) study reported that "FT" has the highest willingness to pay (WTP) followed by "appearance" and "organic". The "quality-conscious" cluster was sensitive to "price" the most among the three clusters. According to the result of segmentation, this cluster concerns quality the most. However, the importance of "appearance", which is related to the quality of bananas, was relatively low. The "ethical-possible" cluster concerns ethical aspects more than quality. However, the importance of "appearance" was higher than "ethical". Figure 2 shows the result of the part-worth utility. The "non-labeled FT" was negative for all clusters. Although labeled FT was positive for "ethical-possible" and "unconcerned" clusters, the utility was close to zero. On the other hand, RA was positive for all clusters. This finding seems to convey that consumers are more familiar with environmental issues such as global warming than social issues in the production field and are more interested in the improvement of environmental issues. However, it must be mentioned that, even though there is an explanation of RA and FT in the questionnaire, it is unknown how much the respondents understand them. As for the cultivation method, the utility of organic was positive for only the "ethical-possible" cluster.

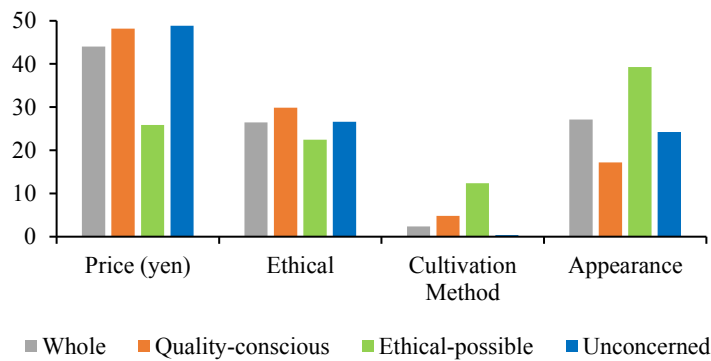
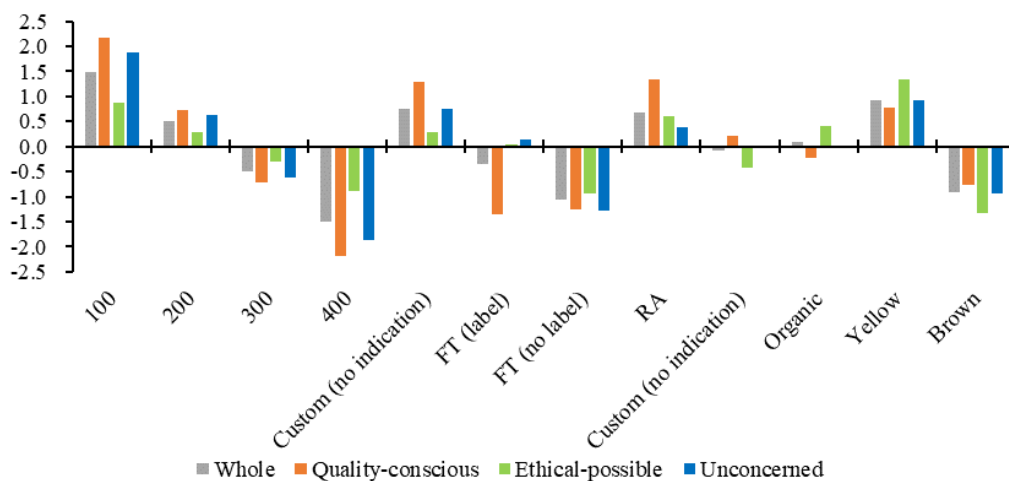


Fig. 1 Relative importance (%) of each attribute



JPY100=USD0.87 (as of March 2022)

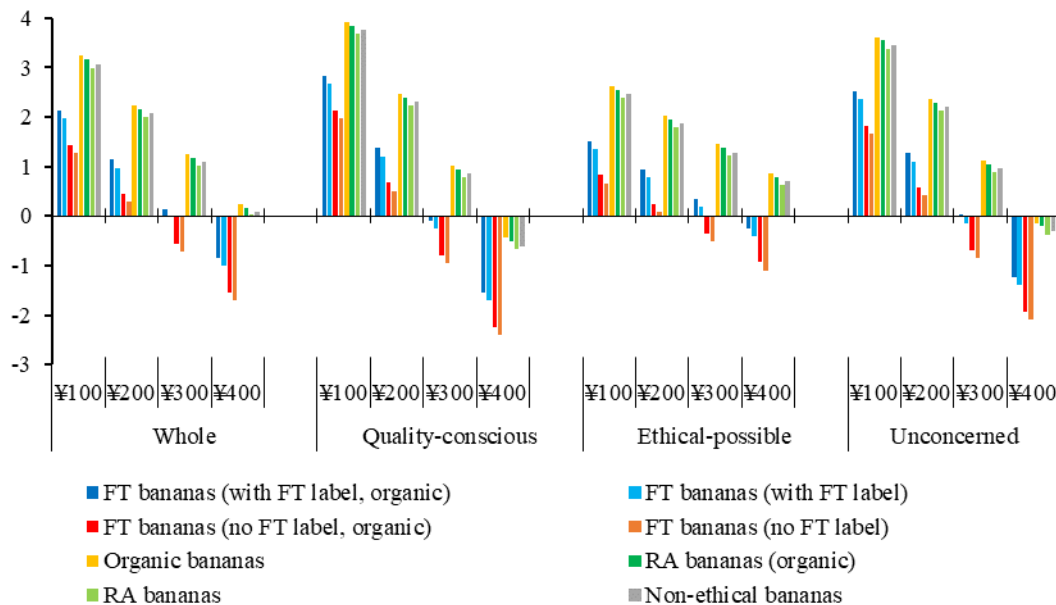
Fig. 2 Part-worth utility of each level

Utility of Ethical Bananas

In the current Japanese market, FT bananas including organic and conventional are usually sold online, and the price is over 400 yen per 500g. Organic and RA bananas are sold not only online but also in supermarkets. The prices of these bananas range from 200 yen to less than 400 yen. Organic bananas are sometimes sold at 200 yen and below.

Figure 3 shows the utility of each banana by each cluster. The utility of RA and organic bananas were almost the same as non-ethical bananas which are not organic and have no ethical label. On the other hand, they had a low utility towards FT bananas, especially non-labeled bananas. Compared to each cluster, the "quality-conscious" cluster had a negative utility to FT bananas including labeled and non-labeled with a price of over 300 yen. Similarly, the "unconcerned" cluster had a negative utility to those FT bananas with the price except FT-labeled organic bananas. The "ethical-possible" cluster had a positive utility to FT-labeled bananas at 300 yen but negative to non-labeled FT bananas at the same price. Concerning organic and RA bananas, "ethical-possible" had a positive utility for those bananas at 400 yen, while the other two clusters had positive utility at 300 yen and below. The bananas that consumers have the highest utility are organic bananas. Therefore, it is considered that organic and RA bananas have a possibility that the demand for those bananas increases but no possibility for FT bananas in the current situation.

A premium price is more effective than a reduced price for the sales promotion of ethical products (Onishi, 2021). In addition, the decrease in the current volume of FT products is a challenge to accomplish FT purposes. Therefore, to increase FT banana purchases, there is a need to increase consumers' recognition and comprehension of FT and issues in the banana production field while keeping the current retail price. Consumers mainly purchase fresh products in supermarkets because of their accessibility (National Supermarket Association of Japan, 2015). Therefore, for RA and organic bananas, it is considered that promoting the sales of these bananas in a supermarket leads to the expansion of the market.



*JPY100=USD0.87 (as of March 2022)

Fig. 3 Utility of each banana by each cluster

CONCLUSION

From the results of Factor, Cluster, and Conjoint Analyses, the respondents have the utility towards RA and organic bananas as high as non-ethical bananas and have low utility towards FT bananas. Therefore, it is considered that organic and RA bananas have a possibility to increase demand while

there seems to be no possibility of an increase in demand for FT bananas in the current situation. Meanwhile, the "ethical-possible" cluster which accounts for over 50% of the respondents has the highest utility towards FT bananas among the three clusters. Hence, to expand the market for ethical bananas in Japan, there is a need to increase the recognition and comprehension of FT and issues in the banana production field and promote the sales of RA and organic bananas in a supermarket.

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