

Article

Evaluation of Corporate Social Responsibility by Consumers: Use of Organic Material and Long Working Hours of Employees

Makiko Nakano

Graduate School of Environmental Studies, Nagoya University, Nagoya 464-8601, Japan;
nakano-m@cc.nagoya-u.ac.jp; Tel.: +81-52-789-4749

Received: 23 August 2019; Accepted: 19 September 2019; Published: 24 September 2019



Abstract: Many previous studies on consumer choice have examined consumers' willingness to pay (WTP) for attributes related to environmental issues. In Japan, long working hours have caused many problems, including death through overwork. However, to the best of the author's knowledge, there are no previous studies examining WTP for the attribute related to long working hours in Japan. Therefore, this study aims to examine whether consumers prefer products without involving employees' working long hours and to demonstrate the difference in WTP between the attribute of environmental issues (the product is made from organically grown raw cotton) and the attribute of long working hours in order to reveal Japanese consumers' preference. The research methodology is a choice experiment using a questionnaire survey in Japan. The results indicate that the use of organically grown raw cotton can increase the WTP by JPY (Japanese yen) 121 on average. When an overworked employee who works more than 80 h of overtime per month is present, the WTP decreases by JPY 230 on average. The contribution of this study is to reveal WTP and show that consumers are interested in employees' working hours in addition to the environmental issue. Preference heterogeneity is also examined.

Keywords: long working hours; organic cotton; choice experiment; consumer

1. Introduction

Many companies pay attention to corporate social responsibility (CSR). For example, in 2000, the United Nations Global Compact released 10 principles relating to human rights, labor, the environment, and anti-corruption (United Nations Global Compact, [1]). As of August 2019, 13,674 companies and organizations are participating in the program (United Nations Global Compact, [2]). In 2010, ISO 26000 was published by International Organization for Standardization, which is a guidance on social responsibility that can be used by all types of organizations, including companies. Its core subjects are organizational governance, human rights, labor practices, the environment, fair operating practices, consumer issues, and community involvement and development (ISO, [3]). In 2012, 10YFP (10-Year Framework of Programmes on Sustainable Consumption and Production) was adopted. 10YFP aims to accelerate the shift toward sustainable production and consumption, create decent job and economic opportunities, and decouple economic growth from environmental degradation and resource use (United Nations Environment Programme: UNEP, [4]). There is a consumer information program in 10YFP that urges consumers to obtain the relevant information and to participate in sustainable consumption (UNEP, [4]). Thus, consumers are also expected to contribute to sustainability.

In terms of Japanese consumers' preferences regarding CSR issues, Nakano and Tsuge [5] conducted a questionnaire survey in Japan in February 2015. They examined consumers' preference rankings of 13 CSR issues using a best–worst scaling approach. The results revealed that issues

that generated private benefits for consumers, such as product safety, were ranked high. However, preference heterogeneity was observed, and respondents were classified into four classes. Some issues obtained high rankings even though they offered no private benefits to consumers. One such issue was “Preventing pollution of water, air, and soil, preventing health damage to local people and preserving the local biodiversity, at the same level as in Japan, even when conducting business activities abroad”. This issue was most evaluated by one of the four classes. “Providing decent working conditions for employees by avoiding excessively long working hours and increasing the rate of taking vacations. Respecting the employees’ domestic responsibilities considering work/life balance” was most evaluated by another class. The results of this survey mirror the current movement toward working style reforms in Japan. The other two classes evaluated “Product safety and immediate recall in the case of defects” most highly. Thus, among the CSR issues that do not generate private benefit for consumers, “environmental and health problems abroad” and “long working hours in Japan” are of particular interest to Japanese people. Therefore, the issues related to these two areas are addressed in this study.

To examine consumers’ preference, this study conducts a choice experiment in which consumers are asked to choose their most preferred towels from a choice set. The towels are assumed to be made of 100% cotton. The reason why cotton towels are chosen is that cotton towels are relatively simple products and it is easy for respondents to imagine this purchase setting. In addition, cotton towels are related to the CSR issues discussed in this study.

According to the Organization for Small & Medium Enterprises and Regional Innovation [6], many pesticides and chemical fertilizers are used to grow raw cotton. These damage both farmers’ health and the environment; organic cotton therefore has been attracting attention. However, even in the case of the former type of cotton, the chemicals are removed at the crop-growth stage through organism depuration and through washing following the harvest stage. Therefore, when raw cotton is processed into a cotton product, it is difficult to find a difference in the amount of chemical residue between an organic and conventional cotton product (Organization for Small & Medium Enterprises and Regional Innovation, [6]). Growing raw cotton organically improves both farmers’ health and the environment, but it does not change the amount of chemicals in towels. In addition, almost no raw cotton is grown in Japan (Food and Agriculture Organization: FAO [7]), which means that consuming cotton products produced from organically grown raw cotton contributes to improving health and environmental issues outside of Japan.

Regarding labor and human rights issues, many labels such as Fairtrade focus on these issues in developing countries. However, these issues are not limited to developing countries alone; the labor system in Japan is also experiencing serious problems. Many employees cannot avoid working long hours, which has led to many problems including deaths caused by overwork. According to the Ministry of Health, Labor, and Welfare [8], the annual number of approved workers’ compensation claims due to cerebrovascular disease and ischemic cardiac disease caused by overwork was in the range of approximately 250 to 400 from 2008 to 2017. Among them, approximately 90 to 150 workers died each year due to overwork. In 2008, the number of approved workers’ compensation claims due to mental disorders caused by intense psychological burdens at work was approximately 270. This number gradually increased to over 400 cases in 2012, and to approximately 500 in 2017. Among them, from 2008 to 2017, the number of suicides, including attempted suicides, was approximately 60 to 100 per year. The law of Promotion of Preventive Measures for Death by Overwork came into effect in 2014. In addition, the Outline of Preventive Measures for Death by Overwork decided by the Japanese Cabinet in 2015 mentions that the term ‘karoshi’, which literally translates to ‘overwork death’ in English, is known internationally. Based on the above, it can be concluded that there are serious problems in Japan’s labor environment.

Therefore, even if a Japanese company appears to address environmental issues, the company may still have problems in the working environment within Japan. In evaluating a Japanese company from a social responsibility standpoint, we have to consider labor issues in addition to environmental

issues. However, to the best of the author's knowledge, there are no previous studies examining WTP for the attribute related to long working hours in Japan. Thus, the research questions of this study are as follows:

Research Question 1: What is the WTP for a product when there is an overworked employee?

Research Question 2: What is the WTP for a product made from organically grown raw cotton?

Research Question 3: How is the preference heterogeneity?

By answering these questions, this study contributes to increase the knowledge accumulated by the previous studies on consumers' preference introduced in the next section.

To answer these research questions, a choice experiment was conducted and WTP is estimated. The results of a conditional logit model indicate that when a towel is made from organically grown raw cotton, its purchasing probability is likely to increase. The use of organically grown raw cotton can increase the WTP by JPY (Japanese yen) 121 on average. On the other hand, when there is an overworked employee, the towel's purchasing probability is likely to decrease. The WTP decreases by JPY 230 on average. The results of latent class models indicate that there is a preference heterogeneity.

The structure of this paper is as follows. Section 1 introduces the research background. Section 2 is a literature review. Section 3 describes materials and methods. Sections 4 and 5 outline the results and discussion, respectively. Finally, Section 6 presents concluding remarks.

2. Literature Review

There are many studies on consumers' preference for organic cotton. Casadesus-Masanell et al. [9] used internal company data on approximately 9000 customers of Patagonia Inc. The results indicated that customers were willing to pay US\$6.58 more for organic cotton sportswear compared to conventional items. Lin [10] conducted interviews and collected data from 262 residents in Hawaii. The results revealed that the willingness to pay (WTP) for products made from organic cotton was related to environmental shopping attitude and behavior. Ha-Brookshire and Norum [11] conducted telephone surveys and collected data from 500 respondents in the US. They analyzed the WTP for shirts made from organic cotton, sustainable cotton, and US-grown cotton. More than half of the respondents were willing to pay a premium for these attributes. For a shirt with a US\$30 retail value, the WTP was approximately US\$5 on average. Gwozdz et al. [12] conducted online surveys and collected data from 1000 respondents in Germany, Poland, Sweden, and the U.S. They asked respondents about their behavior with respect to purchasing, washing, and disposing of clothing. Respondents were asked whether they bought new clothes, used clothes, or clothes made from organic or conventional materials. The results classified the respondents into several groups. The group of respondents who bought more clothes than the average, and who did not purchase the cheapest clothes, tended to prefer new clothes made from organic material. Kaoru [13] examined the WTP for bath towels made from organic cotton using data collected from 202 respondents in Japan. In the study, organic farming practices, as well as an organic textile manufacturing process that met the criteria of GOTS (Global Organic Textile Standard), were used as an explanation of organic cotton. The results indicated that the average WTP for organic bath towels was JPY 1147 (the price of conventional bath towels was JPY 1000).

Regarding labor and human rights issues, researchers have studied child and forced labor. For example, Hertel et al. [14] examined the relationship between people's attitudes toward human rights and ethical consumption by estimating the WTP for sweatshop-free clothing and fair-trade coffee. They collected data from 508 respondents in the US via a telephone survey. Around 60% of respondents were willing to pay at least an additional US\$5, and more than one-third were willing to pay an additional US\$10 to purchase an approximately US\$20 sweater that was sweatshop-free. When coffee carried a fair-trade label, more than 75% of respondents were willing to pay at least an additional US\$0.50 per pound, and more than 50% were willing to pay an additional one dollar or more per pound. Rode et al. [15] examined the WTP to prevent child labor in an experiment conducted in Spain. The study assumed an international company whose production facilities were located in a region

where child labor was prevalent. They then examined whether consumers were willing to pay more for products made by a company that meets the requirements of a label certified by an internationally recognized NGO that tackled child labor. The results revealed that consumers were willing to pay a price premium. Basu and Hicks [16], Dider and Lucie [17], and Carlsson et al. [18] examined consumers' evaluations of fair-trade products, which are also related to labor issues. Howard and Allen [19] investigated working conditions in the US. They estimated US consumers' WTP for strawberries embodying a living wage and safe working conditions for US farm workers. The results showed that the median WTP was US\$1.02 over the base price of US\$1.50. Neumann et al. [20] explored consumers' demand for products produced under good working conditions. The study broadly defined good working conditions by examining safety, repetitive strain disorders, toxic chemical exposure, and other issues that affected employee well-being, in addition to sustainable work practices. They collected the data through face-to-face questionnaire surveys conducted in shopping malls in Sweden and Canada. Their results indicated that shoppers preferred goods made under good working conditions.

Some studies examined the relationship between environmental effort and CSR and found a positive relationship between them. For example, Ferri and Pini [21] examined the relationship (i.e., complements, substitutes, or unrelated) between green investments and social responsibility using data from Italian manufacturing firms. They measured a firm's CSR intensity as the average of the six dummy variables indicating relationships with stakeholders, such as employees, other firms, universities and research centers, institutions, banks and trade associations, non-government organizations (NGOs), and consumers. They found complementarity in the relationship between green investments and social responsibility. Kesidou and Demirel [22] also showed a positive relationship between CSR and environmental investment. They showed that a parent or owner company's CSR policy affects the decision of undertaking eco-innovation, while it does not affect the level of investment of eco-innovation.

In Japan, from the viewpoint of long working hours, environmentally friendly companies do not necessarily have healthy working hours. Nikkei Inc. have conducted a questionnaire survey known as the Nikkei Environmental Management Survey every year. Each company is given scores depending on its environmental effort, and the ranking of companies are released every year. Some companies with top scores in this ranking have labor-management agreements that make employees work long hours. One of the criteria of long working hours is '80 h of overtime per month'. The reason is as follows. According to the criteria for approving workers' compensation claims, if a person works more than 100 h of overtime during a one-month period before the onset of a disease (cerebrovascular disease or ischemic cardiac disease), or works more than 80 h of overtime per month in the 2-to-6-month period before the onset of the disease, the connection between work and the disease's onset is regarded as strong (Ministry of Health Labor and Welfare, Prefectural Labor Bureau, Labor Standards Inspection Office [23]). For example, in 2016, the first place company among the 396 manufacturing companies based on the Nikkei Inc. [24] had a labor-management agreement with overtime work of 80 h per month. The third place company in the ranking had an agreement with 280 h (sum of three months) of overtime. The information on overtime work described in these labor-management agreements was available in the Asahi Newspaper [25]. Therefore, even if they are environmentally conscious companies, some of them do not have healthy labor-management agreements.

For providing environmental information to consumers, environmental labels are often used. There are many environmental labels, including both labels with third party certifications and labels with simple self-declaration by the company (for a detailed classification of labels, see UNOPS [26]). However, there are not large labelling initiatives in terms of human rights and workers right (UNOPS [26]). Therefore, labor issues have not been discussed much in the context of consumers, except for fair trade products related to developing countries. However, Kang and Hustvedt [27] showed that if consumers perceive that a company makes an effort to be transparent about its labor conditions, the consumers' trust was directly affected and purchasing intention indirectly increased.

Information on labor tends to be disclosed in a CSR report, sustainability report, or as a part of an environmental report (the names of these reports vary between companies). Kaneya and Miyakoshi [28] examined the content of the environmental reports of Japanese companies in six industries (food, chemicals, electrical appliances, machinery, construction, trading). They found that the amount of information related to social information—including the health and safety of workers, human rights, and employment—is notably increasing in the booklets for environmental reports. Kim et al. [29] examined factors associated with the disclosure of non-financial information. Using the data of listed companies on the Korea Stock Exchange, they showed that excess human resources and financial flexibility could be used for additional non-financial information disclosure, such as the publication of CSR, sustainability, and integrated reports. Information processing capabilities of executives was investigated in Ceptureanu et al. [30].

3. Materials and Methods

3.1. Survey Design

Table 1 shows the attributes and levels used in the choice experiment.

Table 1. Attributes and levels.

Attribute	Level
The raw cotton used as material is organically or conventionally grown	Organically grown, Conventionally grown
The company that produces and sells the towels has an employee who works more than 80 h of overtime per month	Yes, No
Price (JPY)	300, 400, 500, 600

Respondents considered a hypothetical situation in which they had to purchase towels. They considered purchasing a 30 by 30-centimeter towel made of 100% cotton, and of average quality in terms of thickness, durability, and so on. Attributes not described in Table 1 were the same for all the towels in the choice set. The respondents chose the towel they most preferred to buy from among three hypothetical towels, created by combining the given attributes' levels.

Respondents read explanations of cotton farming practices before answering the choice questions. Growing raw cotton uses many agricultural chemicals and pesticides that damage the health of farmers and the global environment. The definition of organically grown raw cotton used in the study was “non-genetically modified raw cotton grown without using pesticides or chemical fertilizers, in soil that had not been exposed to pesticides or chemical fertilizers for at least three years”. This definition was based on Organization for Small & Medium Enterprises and Regional Innovation [6]. Agricultural chemicals are removed when raw cotton is processed into towels; therefore, there is no difference in the amount of chemical residue between towels made from organically grown raw cotton and non-organically (or conventionally) grown raw cotton. In addition, Japan imports most of its cotton as almost none is grown in Japan. These facts were explained to the respondents before their choice tasks.

Respondents were also given the necessary information on overwork as follows before the task. They read that overwork may cause cerebrovascular disease and ischemic cardiac disease. According to the criteria for approving workers' compensation claims, if a person works more than 100 h of overtime during a one-month period before the onset, or works more than 80 h of overtime per month in the 2- to 6-month period before the onset of the disease, the connection between work and the disease's onset is regarded as strong (this is according to the Ministry of Health, Labor, and Welfare, Prefectural Labor Bureau, Labor Standards Inspection Office [23]). In Japan, efforts are being made to reduce working hours.

Prices were set to four levels: JPY 300, 400, 500, and 600. The levels of price were decided on the basis of the actual prices of major retail companies in Japan.

Hypothetical towels A and B were created by combining the attribute levels based on the orthogonal array method. In this method, each attribute is combined orthogonally using a given orthogonal array. Owing to the orthogonality, we can avoid the problem of multicollinearity in the estimation and the effect of each attribute can be estimated independently. For details on design of a choice experiment, see Louviere et al. [31] and Hensher et al. [32]. For details on the orthogonal array method, see Lorenzen and Anderson [33]. Thus, the attribute levels including those of price vary across the alternatives. In addition to the two alternatives (towel A and towel B), a third alternative (towel P) was created. Towel P was made from conventionally grown raw cotton, there was an overworked employee, and the price was JPY 300. Towel P was created as a base for comparison; it was the cheapest towel and did not consider environmental or social aspects. The attribute levels of Towel P were fixed. For example, Cai and Aguilar [34] and Aguilar and Cai [35] also include a profile with fixed attribute levels instead of a ‘not purchasing’ alternative. Table 2 displays an example of a choice set. Each respondent answered eight choice questions.

Table 2. Example of a choice set.

	Towel A	Towel B	Towel P
The raw cotton used as material is organically or conventionally grown	Conventionally grown	Organically grown	Conventionally grown
The company that produces and sells the towels has an employee who works more than 80 h of overtime per month	No	Yes	Yes
Price	600 JPY	500 JPY	300 JPY

Note: This is an example of the eight choice questions. In the other seven questions, the levels of attributes of towels A and B are different from those shown in this table.

After a preliminary survey from 1–6 February 2018, the choice experiment survey was conducted online from 15–20 March 2018. Nikkei Research Inc., a research company in Japan, extracts respondents from people who are registered in the Nikkei Research Access Panel. In this study, the survey aimed to sample respondents whose age and gender were, as far as possible, representative of the population. The number of respondents in the choice experiment survey was 611. Among these, 48.6% were men and 51.1% were women. The age of the respondents ranged from 20s to 60s. 15.4% of respondents were in their 20s; 17.2% were in their 30s; 25.2% were in their 40s; 18.5% were in their 50s; and 23.7% were in their 60s. On the other hand, as of March 2018, among the population aged from 20 to 69 years, 50.3% were men and 49.7% were women. Among the population aged 20 to 69 years, 15.7%, 18.7%, 23.7%, 19.9%, and 21.9% were in their 20s, 30s, 40s, 50s, and 60s, respectively (Statistics Bureau, Ministry of Internal Affairs and Communications, [36]).

3.2. Models

This study uses a conditional logit model to analyze average consumer preference. In addition, latent class models are used to consider the heterogeneity of preference. The explanation of the conditional logit model and latent class model in this section is based on Kuriyama and Shoji [37].

3.2.1. Conditional Logit Model

U_{ki} denotes the utility an individual k receives by choosing alternative i . U_{ki} is comprised of the observable V_{ki} and the unobservable ε_{ki} .

$$U_{ki} = V_{ki} + \varepsilon_{ki} \quad (1)$$

The probability P_{ki} that individual k will choose alternative i from the choice set C is described as follows.

$$P_{ki} = \Pr[U_{ki} > U_{kj}, \forall j \in C, j \neq i] = \Pr[V_{ki} - V_{kj} > \varepsilon_{kj} - \varepsilon_{ki}, \forall j \in C, j \neq i] \quad (2)$$

ε_{ki} and ε_{kj} are assumed to be distributed independently and identically with a type I extreme value distribution. In a conditional logit model, P_{ki} is expressed as (McFadden, [38])

$$P_{ki} = \frac{\exp(\lambda V_{ki})}{\sum_{j \in C} \exp(\lambda V_{kj})} \quad (3)$$

The scale parameter λ is assumed to be 1. The parameters of the attributes are estimated using the maximum likelihood method (Train, [39]). The observable part of the utility is assumed to be linear.

$$V(x) = \sum_n \beta_n x_n \quad (4)$$

x_n is the vector of attributes and ASC (Alternative Specific Constant). β_n is the vector of parameters. In this study, $V(x)$ is assumed to be as

$$V(x) = \beta_1 \text{Organic} + \beta_2 \text{Longwork} + \beta_3 \text{Price} + \beta_4 \text{ASC} \quad (5)$$

The variables *Organic* and *Longwork* were created with effect coding. For effect coding, see Louviere et al. [31]. *Organic* took the value 1 when the material was made from organically grown raw cotton and took the value -1 when the material was made from conventionally grown raw cotton. The variable *Longwork* took the value 1 when the company had an overworked employee, and -1 if it did not. The variable *Price* took the values of attribute levels. ASC was the constant specific to Towel P.

3.2.2. Latent Class Model

McFadden [40,41] developed the latent class approach, and Kamakura and Russell [42] and Swait [43] applied it to logit models. There are assumed to be S classes in the population, and individual k is assumed to belong to one of the classes s ($s = 1 \dots S$). When individual k chooses an alternative i , the utility is described by

$$U_{k|s} = \beta'_s x_{ki} + \varepsilon_{k|s} \quad (6)$$

The choice probability in class s is

$$P_{k|s}(i) = \frac{\exp(\mu_s \beta'_s x_{ki})}{\sum_{j \in C} \exp(\mu_s \beta'_s x_{kj})} \quad (7)$$

where β_s and μ_s are class-specific parameters to class s and class-specific scale parameters to class s , respectively.

In latent class membership function M^* , individuals are classified into classes via explanatory variables z_k (Swait, [43]; Boxall and Adamowicz, [44]). In the case of an individual k belonging to class s ,

$$M^*_{ks} = \gamma'_s Z_k + \varsigma_{ks} \quad (8)$$

where γ_s and ς_{ks} are the parameter and the error term, respectively. ς_{ks} is assumed to be distributed independently and identically with a type I extreme value distribution. The probability P_{ks} that individual k belongs to class s is

$$P_{ks} = \frac{\exp(\lambda \gamma'_s Z_k)}{\sum_{s^*=1}^S \exp(\lambda \gamma'_{s^*} Z_k)} \quad (9)$$

where λ is a scale parameter, s is a specific class, and s^* is class. In the estimation, the parameters of the base class are set to zero.

The probability $P_k(i)$ that an individual k chooses alternative i is

$$P_k(i) = \sum_{s=1}^S \left[\frac{\exp(\lambda \gamma'_s Z_k)}{\sum_{s^*=1}^S \exp(\lambda \gamma'_{s^*} Z_k)} \right] \left[\frac{\exp(\mu_s \beta'_s x_{ki})}{\sum_{j \in C} \exp(\mu_s \beta'_s x_{kj})} \right] \quad (10)$$

In the estimation, all scale parameters (λ and μ_s) are set to 1 (Boxall and Adamowicz, [44]).

4. Results

This study used NLOGIT (Version 6, Econometric Software, Inc., Plainview, NY, USA) for the estimation. Table 3 presents the results of the conditional logit model.

Table 3. Results of conditional logit model.

Attributes	Coefficient	Standard Error
Organic	0.3261 ***	0.0279
Longwork	−0.6221 ***	0.0309
Price	−0.0054 ***	0.0003
ASC	0.4114 ***	0.1064
Sample size	4888	
Log-likelihood	−4257.8212	
Pseudo R-squared	0.1833	

Note: *** indicates significance at the 1% level.

Organic is positive and significant, while *Longwork* is negative and significant. Therefore, the use of organically grown raw cotton has a positive influence on purchasing probability. On the other hand, the existence of an overworked employee who works more than 80 h of overtime per month has a negative influence on purchasing probability.

Next, latent class models are used to consider preference heterogeneity. In the estimation of latent class models, the data were treated as panel data as each respondent was required to answer eight choice questions.

In latent class model 1, the membership function was not estimated. Respondents were classified into three classes based on AIC and BIC. Table 4 displays the estimation results of model 1.

Table 4 shows that each class evaluates organically grown raw cotton positively. Classes 1 and 3 evaluate long working hours (80 h of overtime per month) negatively, while Class 2 does not significantly evaluate the long working hours. *Price* was negative and significant for all classes.

Next, in latent class model 2, we considered the membership function in addition to the utility function. In this model, the explanatory variables of the membership function are *Income*, *Age*, and *Male* (*Male* is a dummy variable that takes the value 1 when a respondent is ‘male’, and 0 otherwise) since the variables related to income, age, and gender are often used as control variables in analyzing environmental behavior (Aguilar and Cai [35], Cai and Aguilar [34]) and attitude toward human right issues (Hertel et al. [14]). See Table A1 in the Appendix A for the descriptive statistics of the explanatory variables in the membership functions.

Table 4. Latent class model 1.

Attributes	Class 1	Class 2	Class 3
Organic	0.6800 *** (0.1822)	0.1714 *** (0.0442)	1.3301 *** (0.1468)
Longwork	−0.3094 * (0.1610)	0.0469 (0.0613)	−2.3682 *** (0.1720)
Price	−0.0207 *** (0.0013)	−0.0040 *** (0.0006)	−0.0111 *** (0.0014)
ASC	1.1687 *** (0.3480)	−2.3954 *** (0.2276)	0.5004 (0.3057)
Probability	0.404	0.227	0.370
Sample size	4888		
Log-likelihood	−2920.7620		
Pseudo R-squared	0.4397		

Note: Numbers in parentheses are standard errors. *** indicates significance at the 1% level, * indicates significance at the 10% level.

The results are presented in Tables 5 and 6. Respondents were classified into three classes based on AIC and BIC. According to Table 5, *Organic* was positive and significant in every class, while *Longwork* was not significant in Class 2.

Table 5. Latent class model 2 (utility function).

Attributes	Class 1	Class 2	Class 3
Organic	0.6932 *** (0.2006)	0.1767 *** (0.0469)	1.2538 *** (0.1378)
Longwork	−0.2998 * (0.1767)	0.0684 (0.0641)	−2.2742 *** (0.1635)
Price	−0.0208 *** (0.0014)	−0.0043 *** (0.0006)	−0.0113 *** (0.0014)
ASC	1.2291 *** (0.3825)	−2.3327 *** (0.2378)	0.2881 (0.2999)
Probability	0.400	0.229	0.371
Sample size	4368		
Log-likelihood	−2614.1894		
Pseudo R-squared	0.4380		

Note: Numbers in parentheses are standard errors. *** indicates significance at the 1% level, * indicates significance at the 10% level.

Next, latent class model 3 includes *Knowledge* and *NEP* as explanatory variables of the membership function, in addition to *Income*, *Age*, and *Male*. *Knowledge* takes the value 1 when a respondent chose “I knew that there were many deaths related to overwork in Japan, but I did not know the definition of *karoshi*, the number of deaths, or other details” or “I knew that there were many deaths related to overwork in Japan, I also knew the approximate deaths and the definition of *karoshi*” when asked about their knowledge of *karoshi*. If a respondent chose “I did not know that there were many deaths related to overwork in Japan”, the variable takes the value 0. Uchida et al. [45] found that information provision affects WTP. Murakami et al. [46] revealed that consumers’ knowledge had an impact on the effect of information provision. Therefore, consumers’ knowledge may influence WTP. Although their study focused on organic labels, their implications may be applied to the knowledge on overwork.

Table 6. Latent class model 2 (membership function).

Variables	Class 1	Class 2	Class 3
Constant	0.3771 (0.4238)	−0.3402 (0.5297)	0
Income	0.6267D-04 (0.0003)	0.0007 ** (0.0003)	0
Age	−0.0152 * (0.0078)	−0.0216 ** (0.0099)	0
Male	0.8184 *** (0.2195)	0.9029 *** (0.2631)	0

Note: Numbers in parentheses are standard errors. *** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level.

NEP refers to the new ecological paradigm scale developed by Dunlap et al. [47]. The NEP scale measures environmental concerns; a larger value shows that the respondent is more likely to be environmentally conscious. In previous studies examining environmental behavior, NEP is used to capture the degree of environmental concern (Kotchen and Reiling [48], Mizobuchi and Takeuchi [49], [50]). Our study uses 10 items used in Clark et al. [51] among 15 original items to create the variable NEP. Clark et al. [51] excluded five items based on low item-total correlations reported in Dunlap et al., [47] and Kotchen and Reiling [48]. The reliability and validity are shown in Table A2 in the Appendix A.

The results are presented in Tables 7 and 8. Respondents were classified into three classes based on AIC and BIC. Table 7 reveals that *Organic* is positive and significant in all three classes. However, *Longwork* is negative and significant only in Class 3, while it is not significant in Classes 1 and 2.

Table 7. Latent class model 3 (utility function).

Attributes	Class 1	Class 2	Class 3
Organic	0.7125 *** (0.2086)	0.1478 ** (0.0593)	1.2105 *** (0.1248)
Longwork	−0.2853 (0.1858)	0.1058 (0.0683)	−2.1411 *** (0.1544)
Price	−0.0212 *** (0.0015)	−0.0043 *** (0.0006)	−0.0102 *** (0.0013)
ASC	1.2402 *** (0.3935)	−2.3486 *** (0.2471)	0.3275 (0.2857)
Probability	0.397	0.215	0.388
Sample size	4368		
Log-likelihood	−2582.4815		
Pseudo R-squared	0.4448		

Note: Numbers in parentheses are standard errors. *** indicates significance at the 1% level. ** indicates significance at the 5% level.

Table 8. Latent class model 3 (membership function).

Variables	Class 1	Class 2	Class 3
Constant	3.7284 *** (0.9298)	6.8106 *** (1.4278)	0
Knowledge	−1.0927 *** (0.4022)	−1.6972 *** (0.4642)	0
Income	−0.1302D-04 (0.0003)	0.0005 (0.0004)	0
NEP	−0.0713 *** (0.0208)	−0.1835 *** (0.0419)	0
Male	0.7222 *** (0.2230)	0.7489 ** (0.2914)	0
Age	−0.0095 (0.0080)	−0.0046 (0.0114)	0

Note: Numbers in parentheses are standard errors. *** indicates significance at the 1% level, ** indicates significance at the 5% level.

Table 9 shows the WTP calculated from the above results with expression (11) and (12).

$$WTP_{Organic} = -\frac{\beta_1}{\beta_3} \times 2 \quad (11)$$

$$WTP_{Longwork} = -\frac{\beta_2}{\beta_3} \times 2 \quad (12)$$

Based on the results, the WTP is JPY 121 for organically grown raw cotton and JPY −230 for the presence of an overworked employee working more than 80 h of overtime per month. The results of the conditional logit model revealed the average preference.

Table 9. Willingness to pay.

Conditional Logit Model			
<i>Organic</i>	121		
<i>Longwork</i>	−230		
Latent Class Model 1	Class 1	Class 2	Class 3
<i>Organic</i>	66	86	240
<i>Longwork</i>	−30	-	−427
Probability	0.404	0.227	0.370
Latent Class Model 2	Class 1	Class 2	Class 3
<i>Organic</i>	67	83	222
<i>Longwork</i>	−29	-	−403
Probability	0.400	0.229	0.371
Latent Class Model 3	Class 1	Class 2	Class 3
<i>Organic</i>	67	70	236
<i>Longwork</i>	-	-	−418
Probability	0.397	0.215	0.388

Note: The unit of WTP is JPY.

In addition to the conditional logit model, the latent class models were estimated to examine preference heterogeneity.

Class 3 has a higher WTP for organic cotton than the other classes and places more priority on avoiding long working hours than organically grown cotton. This class accounts for 37–39% of the

respondents. Based on the results of the membership function, there tend to be fewer males in this class than in the other two classes. In addition, the respondents in this class are more environmentally conscious and have more knowledge of death by overwork.

Class 1, which includes approximately 40% of the respondents, evaluates long working hours significantly and negatively. However, the absolute values of the WTP are smaller than those in Class 3. Moreover, in model 3, *Longwork* is not significant. The absolute value of the WTP for organically grown raw cotton is smaller in Class 1 than in Class 3, although the estimates are significant in all the three models.

Class 2, which includes approximately 20% of respondents, has larger WTP for organically grown raw cotton than Class 1, while *Longwork* is not significant in any of the models.

5. Discussion

According to ISO [3], “Consumers play an important role in sustainable development by taking ethical, social, economic and environmental factors into account based on accurate information in making their choices and purchasing decisions (p.56)”. This study revealed that consumers are interested in employees’ working hours as well as the environmental issue. These are consistent with the results of Nakano and Tsuge [5] that revealed the issues of “environmental and health problems abroad” and “long working hours in Japan” are of interest to Japanese people although we cannot make the direct comparison since the research methods are different.

In the Japanese context, Kaoru [13] examined the WTP for towels made from organic cotton and showed that the purchasing probability of towels increases by using organic cotton. Therefore, the results of our study are consistent with Kaoru [13] since the results of our study indicate the increase in purchasing probability by using organic cotton.

According to the results of latent class models, all three classes evaluate organic cotton positively. However, the variable of long working hours was not estimated significantly in Class 2. This shows that respondents in Class 2 tend not to consider long working hours when making purchasing decisions. One of the reasons could be that some people regard working long hours as a virtue (Ono, [52]) and therefore do not perceive working long hours as a problem. A second reason could be that the consumers are not familiar with considering labor issues when purchasing products because there are no labels to disclose working hours on products, in contrast to environmental labels for organic cotton. When organic cotton is used, some companies have third-party certified labels for organic cotton in their products, although other companies just make a self-declaration that organic cotton is used in their product.

The implications of this study are as follows. First, according to the estimation results of the membership function, people with more knowledge about death by overwork tend to have a larger negative WTP regarding long working hours. Therefore, there is a possibility that increasing the knowledge of death by overwork will influence WTP. However, when we discuss the effects of providing information on death by overwork, we need to examine how and why people who were knowledgeable obtained such knowledge.

Second, people who are more environmentally conscious, measured by NEP, tend to have a larger positive WTP for organic cotton. Kotchen and Reiling [48] obtained the results that people who had larger score of NEP tend to pay money for species protection fund in the survey of contingent valuation. Our results are consistent with their results in the sense that people having higher NEP score tend to pay higher price. According to Table 8, the NEP scores in Classes 1 and 2 are significantly smaller than those in Class 3. According to the latent class model 3 in Table 9, the WTP for organically grown raw cotton in Class 3 is JPY 169 and JPY 166 larger than that in Class 1 and Class 2, respectively. Therefore, there is a possibility that increasing environmental awareness will influence WTP. However, this study did not examine the factors that influence the environmental awareness and we leave this for future research.

The third concerns information disclosure. There are consumers who are unwilling to purchase products related to long working hours; however, in reality, information about working hours is not available to consumers. Therefore, consumers cannot reflect their preference in purchasing decisions. The government and companies should consider measures on disclosure of information. In June 2019, the Ministry of Health, Labor, and Welfare [53] announced that the employers of companies with more than or equal to 301 workers will be required to disclose information on at least one of the 14 items listed by the ministry. In these 14 items, information on overtime working hours, the rate of men and women taking child care leave, the rate of taking paid holidays, the percentage of female employees, the percentage of female managers, and so on are included. The details on how and what information should be disclosed will be indicated in the future. Although a company does not necessarily have to disclose information on overtime work, there is a possibility that the information on working hours will become more readily available than it currently is. This study might provide useful information on companies' choice of issue to disclose information on by highlighting consumers' interest in these subjects.

Fourth, the proportion of consumers who do not consider long working hours robustly (i.e., the variable of long working hours is not significant in any of the models) is 20%. Therefore, companies should try to implement appropriate working hours. How to achieve the appropriate working hours is left for future researches that investigate the issue of working hours from the viewpoint of companies.

6. Conclusions

This study conducted a choice experiment to analyze consumers' evaluations of hypothetical towels. We focused on whether the raw cotton was grown organically, and whether there was an employee who worked more than 80 h of overtime per month. The data obtained from the questionnaire survey was analyzed using a conditional logit model and latent class models.

According to the results of the conditional logit model, the use of organically grown raw cotton can increase the WTP by JPY 121 on average. When an overworked employee who works more than 80 h of overtime per month is present, the WTP decreases by JPY 230 on average.

When latent class models were used to investigate preference heterogeneity, respondents were classified into three classes. Although the WTP for organically grown raw cotton varied among the classes, all three classes evaluated it positively. On the other hand, at least 20% of the respondents did not consider long working hours when purchasing towels. Further, about 37–39 % of respondents accorded greater priority to avoiding long working hours than to organically grown raw cotton. If there are two towels, the first one having the attributes “there is an overworked employee, made from organically grown raw cotton” and the second one having the attributes “there is no overworked employee, made from conventionally grown raw cotton”, 37–39% of respondents, other things being equal, tend to choose the second one.

Companies should keep in mind that, even if they use organically grown raw cotton, the negative WTP for long working hours outweighs the positive WTP for organically grown raw cotton for over one-third of the consumers. However, in reality, information on working hours is not easily available. Therefore, we should consider measures for information disclosure of the working hours of a company.

This study has some limitations. First, since this study is based on a choice experiment in a hypothetical setting, real purchasing decisions may differ from the hypothetical decisions. We have to remember that the WTP in this study may be biased due to the hypothetical setting. Second, this study compares WTP for long working hours in Japan and environmental issues abroad but does not examine severe problems with working conditions abroad. Therefore, issues of working conditions abroad should also be considered in future research. Third, the expression for the attribute of overwork “The company that produces and sells the towels has an employee who works more than 80 h of overtime per month” is simplistic. In future research, the expression can be elaborated to reflect the real impact of overwork.

Funding: This research was funded by JSPS KAKENHI (Japan Society for the Promotion of Science Grants-in-Aid for Scientific Research), grant number 26380294.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Descriptive statistics

Variables	Number of Respondents	Mean	Standard Deviation	Min	Max
NEP	611	35.60	5.54	18	50
Male	611	0.49	0.50	0	1
Age	611	46.70	13.54	20	69
Income	546	632.42	394.45	200	2000
Knowledge	611	0.87	0.34	0	1

Table A2. Reliability and validity of NEP scale.

Statement	Cronbach's Alpha	CORRi
(1) The balance of nature is very delicate and easily upset.	0.83	0.53
(2) Plants and animals have as much right as humans to exist.		0.54
(3) Humans will eventually learn enough about how nature works to be able to control it.		0.47
(4) The so-called "ecological crisis" facing humankind has been greatly exaggerated.		0.69
(5) If things continue on their present course, we will soon experience a major ecological catastrophe.		0.61
(6) Humans were meant to rule over the rest of nature.		0.53
(7) The earth is like a spaceship with very limited room and resources.		0.45
(8) Human ingenuity will insure that we do not make the earth unlivable.		0.48
(9) We are approaching the limit of the number of people the earth can support.		0.19
(10) The balance of nature is strong enough to cope with the impacts of modern industrial nations.		0.64

Note: The reliability was checked using Cronbach's alpha and the validity was checked using the item-total correlation (CORRi) following Mizobuchi and Takeuchi [49]. This table shows that CORRi varies between 0.19 to 0.69. These are similar to those in Mizobuchi and Takeuchi [49] conducted in Japan.

References

1. United Nations Global Compact. The Ten Principles of the UN Global Compact. Available online: <https://www.unglobalcompact.org/what-is-gc/mission/principles> (accessed on 14 August 2019).
2. United Nations Global Compact. Our Participants. Available online: <https://www.unglobalcompact.org/what-is-gc/participants> (accessed on 14 August 2019).
3. International Organization for Standardization. *ISO 26000:2010 Guidance on Social Responsibility*; International Organization for Standardization: Geneva, Switzerland, 2010.
4. UNEP. *The 10-Year Framework of Programmes on Sustainable Consumption and Production*; The United Nations Environment Programme: Nairobi, Kenya, 2017.
5. Nakano, M.; Tsuge, T. Assessing the heterogeneity of consumers' preferences for corporate social responsibility using the best–worst scaling approach. *Sustainability* **2019**, *11*, 2995. [CrossRef]
6. Organization for Small & Medium Enterprises and Regional Innovation. *Research on Formulation of Guideline on Organic Cotton Labeling*; Organization for Small & Medium Enterprises and Regional Innovation: Tokyo, Japan, 2010.
7. Food and Agriculture Organization of the United Nations. FAOSTAT. Available online: <http://www.fao.org/faostat/en/#data> (accessed on 8 July 2018).
8. Ministry of Health Labour and Welfare. *White Paper on Karoshi Prevention*; Ministry of Health Labour and Welfare: Tokyo, Japan, 2018.

9. Casadesus-Masanell, R.; Crooke, M.; Reinhardt, F.; Vasisht, V. Households' willingness to pay for "green" goods: Evidence from Patagonia's introduction of organic cotton sportswear. *J. Econ. Manag. Strategy* **2009**, *18*, 203–233. [\[CrossRef\]](#)
10. Lin, S.H. A case study in Hawaii: Who will pay more for organic cotton? *Int. J. Consum. Stud.* **2010**, *34*, 481–489. [\[CrossRef\]](#)
11. Ha-Brookshire, J.E.; Norum, P.S. Willingness to pay for socially responsible products: Case of cotton apparel. *J. Consum. Mark.* **2011**, *28*, 344–353. [\[CrossRef\]](#)
12. Gwozdz, W.; Steensen Nielsen, K.; Müller, T. An environmental perspective on clothing consumption: Consumer segments and their behavioral patterns. *Sustainability* **2017**, *9*, 762. [\[CrossRef\]](#)
13. Kaoru, Y. Organic cotton production and environmental certification: Survey of willingness to pay for organic cotton. *Nanzan Keiei Kenkyu* **2018**, *33*, 39–58.
14. Hertel, S.; Scruggs, L.; Heidkamp, C.P. Human rights and public opinion: From attitudes to action. *Polit. Sci. Q* **2009**, *124*, 443–459. [\[CrossRef\]](#)
15. Rode, J.; Hogarth, R.M.; Le Menestrel, M. Ethical differentiation and market behavior: An experimental approach. *J. Econ. Behav. Organ.* **2008**, *66*, 265–280. [\[CrossRef\]](#)
16. Basu, A.K.; Hicks, R.L. Label performance and the willingness to pay for Fair Trade coffee: A cross-national perspective. *Int. J. Consum. Stud.* **2008**, *32*, 470–478. [\[CrossRef\]](#)
17. Didier, T.; Lucie, S. Measuring consumer's willingness to pay for organic and Fair Trade products. *Int. J. Consum. Stud.* **2008**, *32*, 479–490. [\[CrossRef\]](#)
18. Carlsson, F.; García, J.H.; Löfgren, Å. Conformity and the demand for environmental goods. *Environ. Resour. Econ.* **2010**, *47*, 407–421. [\[CrossRef\]](#)
19. Howard, P.H.; Allen, P. Consumer willingness to pay for domestic 'fair trade': Evidence from the United States. *Renew. Agric. Food Syst.* **2008**, *23*, 235–242. [\[CrossRef\]](#)
20. Neumann, W.P.; Dixon, S.M.; Nordvall, A.C. Consumer demand as a driver of improved working conditions: The 'Ergo-Brand' proposition. *Ergonomics* **2014**, *57*, 1113–1126. [\[CrossRef\]](#) [\[PubMed\]](#)
21. Ferri, G.; Pini, M. Environmental vs social responsibility in the firm: Evidence from Italy. *Sustainability* **2019**, *11*, 4277. [\[CrossRef\]](#)
22. Kesidou, E.; Demirel, P. On the drivers of eco-innovations: Empirical evidence from the UK. *Res. Policy* **2012**, *41*, 862–870. [\[CrossRef\]](#)
23. Ministry of Health Labour and Welfare, Prefectural Labour Bureau, Labour Standards Inspection Office. *Approval of Industrial Accident of Brain and Heart Disease: Karoshi and Industrial Accident Insurance*; Ministry of Health Labour and Welfare: Tokyo, Japan, 2015.
24. Nikkei Inc. *Nikkei Environmental Management Survey*; Nikkei Inc.: Tokyo, Japan, 2017.
25. The Asahi Newspaper. *Upper Limit of Overtime Work of 225 Companies*; The Asahi Shimbun Company: Tokyo, Japan, 2017.
26. UNOPS. *A Guide to Environmental Labels for Procurement Practitioners of the United Nations System*; United Nations Office for Project Services: Copenhagen, Denmark, 2009.
27. Kang, J.; Hustvedt, G. Building trust between consumers and corporations: The role of consumer perceptions of transparency and social responsibility. *J. Bus. Ethics* **2014**, *125*, 253–265. [\[CrossRef\]](#)
28. Kanaya, K.; Miyakoshi, H. Present conditions and reasons of selections on publication media and the change of contents on environmental reports in companies. *Environ. Syst. Res.* **2006**, *34*, 327–334. [\[CrossRef\]](#)
29. Kim, S.-I.; Shin, H.; Shin, H.; Park, S. Organizational slack, corporate social responsibility, sustainability, and integrated reporting: Evidence from Korea. *Sustainability* **2019**, *11*, 4445. [\[CrossRef\]](#)
30. Ceptureanu, E.G.; Ceptureanu, S.I.; Popescu, D.I. Relationship between entropy, corporate entrepreneurship and organizational capabilities in Romanian medium sized enterprises. *Entropy* **2017**, *19*, 412. [\[CrossRef\]](#)
31. Louviere, J.J.; Hensher, D.A.; Swait, J.D. *Stated Choice Methods: Analysis and Applications*; Cambridge University Press: Cambridge, UK, 2000.
32. Hensher, D.A.; Rose, J.M.; Greene, W.H. *Applied Choice Analysis: A Primer*; Cambridge University Press: Cambridge, UK, 2005.
33. Lorenzen, T.; Anderson, V. *Design of Experiments: A No-Name Approach*; CRC Press: Boca Raton, FL, USA, 1993.
34. Cai, Z.; Aguilar, F.X. Consumer stated purchasing preferences and corporate social responsibility in the wood products industry: A conjoint analysis in the US and China. *Ecol. Econ.* **2013**, *95*, 118–127. [\[CrossRef\]](#)

35. Aguilar, F.X.; Cai, Z. Conjoint effect of environmental labeling, disclosure of forest of origin and price on consumer preferences for wood products in the US and UK. *Ecol. Econ.* **2010**, *70*, 308–316. [CrossRef]
36. Statistics Bureau, Ministry of Internal Affairs and Communications. *Population Estimation*; Statistics Bureau, Ministry of Internal Affairs and Communications: Tokyo, Japan, 2018.
37. Kuriyama, K.; Shoji, Y. *Economic Valuation of the Environment and Sightseeing: Maintenance and Management of National Parks*; Keiso Shobo: Tokyo, Japan, 2005.
38. McFadden, D. Conditional logit analysis of qualitative choice behavior. In *Frontiers in Econometrics*; Zarembka, P., Ed.; Academic Press: New York, NY, USA, 1974; pp. 105–142.
39. Train, K.E. *Discrete Choice Methods with Simulation*; Cambridge University Press: Cambridge, UK, 2009.
40. McFadden, D. The choice theory approach to market research. *Mark. Sci.* **1986**, *5*, 275–297. [CrossRef]
41. McFadden, D. Economic choices. *Am. Econ. Rev.* **2001**, *91*, 351–378. [CrossRef]
42. Kamakura, W.A.; Russell, G.J. A probabilistic choice model for market segmentation and elasticity structure. *J. Mark. Res.* **1989**, *26*, 379–390. [CrossRef]
43. Swait, J. A structural equation model of latent segmentation and product choice for cross-sectional revealed preference choice data. *J. Retail. Consum. Serv.* **1994**, *1*, 77–89. [CrossRef]
44. Boxall, P.C.; Adamowicz, W.L. Understanding heterogeneous preferences in random utility models: A latent class approach. *Environ. Resour. Econ.* **2002**, *23*, 421–446. [CrossRef]
45. Uchida, H.; Onozaka, Y.; Morita, T.; Managi, S. Demand for ecolabeled seafood in the Japanese market: A conjoint analysis of the impact of information and interaction with other labels. *Food Policy* **2014**, *44*, 68–76. [CrossRef]
46. Murakami, K.; Maruyama, T.; Hayashi, K.; Yukimoto, T. Consumers' knowledge and updating of beliefs: Conjoint analysis of organic labels. *Jpn. Econ. Res.* **2013**, *68*, 23–43.
47. Dunlap, R.E.; Van Liere, K.D.; Mertig, A.G.; Jones, R.E. Measuring endorsement of the New Ecological Paradigm: A revised NEP scale. *J. Soc. Issues* **2000**, *56*, 425–442. [CrossRef]
48. Kotchen, M.J.; Reiling, S.D. Environmental attitudes, motivations, and contingent valuation of nonuse values: A case study involving endangered species. *Ecol. Econ.* **2000**, *32*, 93–107. [CrossRef]
49. Mizobuchi, K.; Takeuchi, K. The influences of financial and non-financial factors on energy-saving behaviour: A field experiment in Japan. *Energ. Policy* **2013**, *63*, 775–787. [CrossRef]
50. Mizobuchi, K.; Takeuchi, K. Replacement or additional purchase: The impact of energy-efficient appliances on household electricity saving under public pressures. *Energ. Policy* **2016**, *93*, 137–148. [CrossRef]
51. Clark, C.F.; Kotchen, M.J.; Moore, M.R. Internal and external influences on pro-environmental behavior: Participation in a green electricity program. *J. Environ. Psychol.* **2003**, *23*, 237–246. [CrossRef]
52. Ono, S. Why do the Japanese work long hours? Sociological perspectives on long working hours in Japan. *Jpn. J. Labour Stud.* **2016**, *677*, 15–27.
53. Ministry of Health Labour and Welfare. Available online: <https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000091025.html> (accessed on 12 September 2019).



© 2019 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).