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Environmental vs. labor issues: evidence of influence on intention to purchase ethical coffee in Japan

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Two main issues in ethical consumption attract attention: environmental and labor issues. However, few studies have compared the conditions and effects that contribute to ethical purchasing behavior. To fill this gap, we conducted two studies targeting the Japanese food industry. In Study 1, we examined consumers who are accustomed to ethical consumption and clarified the product characteristics valued by consumers with high awareness of ethical issues. In Study 2, we conducted a randomized controlled trial to examine the effects of product concepts of environmental and labor issues on coffee purchase intentions. Study 1 confirmed that environmental and labor issues are emphasized for coffee, whereas recycling is emphasized for tea. This difference is due to the difference in production countries (coffee: developing countries, tea: Japan) and packaging materials (coffee: paper cups, tea: PET bottles). Study 2 showed that labor issues had a greater impact on purchase intention and willingness to pay than that of environmental issues owing to the adoption of producers' photographs. This study complemented existing literature by comparing the conditions and effects of environmental and labor issues on ethical purchasing behavior. Considering the limited resources of companies and limited ability of consumers to process information, understanding predictive factors is extremely crucial.

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Introduction

The growth of modern capitalism has caused a wide range of environmental and social ills (Carrington et al., 2016; Stringer et al., 2020). To achieve sustainable economic development, governments in most developed countries have made ethical consumption a priority issue (Kossmann and Gómez-Suárez, 2018). Ethical consumption is defined as conscientious consumption that considers personal and moral beliefs concerning health, society, and the natural environment (Oh and Yoon, 2014). Similarly, global companies have aimed to build a positive brand image by developing ethical products (Chatterjee et al., 2021). In response to this social demand, consumers are beginning to consider the ethical validity of their purchasing behavior (Yoon and Park, 2021). Purchasing behavior based on this set of values is called ethical consumption and is defined as "conscientious consumption that fulfills consumers' civic responsibility by voluntarily engaging and helping socially responsible firms based on personal and moral beliefs" (Yoon, 2020). Younger consumers, such as millennials (Johnson and Chattaraman, 2019) and Generation Z (Robichaud and Yu, 2022), have especially strong ethics attitudes. In the backdrop of social media, criticism and boycotts of brands with unethical businesses are conspicuous (Djafarova and Foots, 2022). Consequently, 43% of global consumers stated that they chose products based on sustainability and environmental and ethical factors (Global Data, 2021).

In terms of products, the two main issues in ethical consumption that attract attention are environmental and labor issues. Such moral issues are no longer confined to the realm of politics but also permeate marketing (Park, 2018). In other words, consumers demand products from companies that address these issues. For instance, the food industry is increasing its focus on sustainability (Bangsa and Schlegelmilch, 2020), particularly regarding coffee. A growing number of roasters are aiming to increase product value while improving the environment of origin and the treatment of workers (Vicol et al., 2018). In academic research, the existing literature on ethical consumption has mainly focused on environmental (Ghali, 2021; Konuk, 2019; Kumar et al., 2022; Kushwah et al., 2019; Lee and Lim, 2020; Mohd Suki, 2016; Newton et al., 2015; Sreen et al., 2021; Yue et al., 2020) and labor issues (Balasubramanian and Soman, 2019; Gillani et al., 2021; Koos, 2021; Ladhari and Tchetgna, 2017; Lee et al., 2015; Nicholls and Opal, 2005; O'Connor et al., 2017; Wang et al., 2021). This indicates that both industry and academia recognize these two issues as the cornerstones of ethical consumption. Ideally, to solve both problems concurrently and with limited resources, prioritization is essential, as the time and costs incurred in dealing with ethical issues place a heavy burden on companies. Moreover, extreme ethical emphasis hinders a positive customer experience; thus, it is important to determine which factors are particularly effective (Davies and Gutsche, 2016). However, few studies have compared the conditions and effects that contribute to ethical purchasing behavior (Balasubramanian and Soman, 2019; Ghali, 2021; Gillani et al., 2021; Koos, 2021; Konuk, 2019; Kumar et al., 2022; Kushwah et al., 2019; Ladhari and Tchetgna, 2017; Lee et al., 2015; Lee and Lim, 2020; Mohd Suki, 2016; Newton et al., 2015; Nicholls and Opal, 2005; O'Connor et al., 2017; Sreen et al., 2021; Wang et al., 2021; Yue et al., 2020).

To fill this gap, in this study, we conducted two studies targeting the Japanese food industry. This study aimed to clarify the effects and conditions of environmental and labor issues on ethical consumption, targeting the food—particularly coffee—industry. In Study 1, we targeted consumers who are accustomed to ethical consumption and clarified the product characteristics valued by consumers with high awareness of ethical issues. Even within the same food industry (i.e., coffee, tea), we focused on the possibility that effective factors for ethical consumption may differ and made comparisons. In the context of ethical consumption, respondents are susceptible to social desirability bias (Yamoah and Acquaye, 2019), causing them to overreact when presented with options. Hence, we adopted a pure recall approach that does not result in bias like the assisted recall approach that presents options (Kato, 2021). Consumers tend to overreact when presented with choices (Kardes et al., 2002). Factors that consumers perceive can be evaluated by not presenting options.

In Study 2, we conducted randomized controlled trials (RCTs) to examine the effects of environmental and labor issues on purchase intentions of coffee products. RCTs are a method wherein multiple groups are created through random assignment, each receiving different treatments, and the resulting differences in outcomes are assessed. RCTs, which are highly reliable in scientific validation, have found delayed application in the social sciences (Torgerson and Torgerson, 2008). However, many researchers have come to recognize the usefulness of RCTs, and the number of articles applying RCTs in the social sciences has recently increased (Cotterill et al., 2013; Merlin et al., 2022; Todd-Blick et al, 2020). While Study 1 equally evaluated all factors based on consumer perceptions, Study 2 focused on environmental and labor issues and directly compared effectiveness. Marketers can enhance product value by adding ethical concepts to traditional factors such as brand and performance (Jayawardhena et al., 2016). This study provides useful suggestions for strategy formulation.

Factors promoting ethical consumption

Factors that promote ethical consumption can be primarily categorized into two groups: consumer and product characteristics. This study focused on examining the latter. The existing documents are presented below.

Factors of consumer characteristics

Values for ethical consumption. The most influential factor in ethical consumption is environment-related intrapersonal values (Testa et al., 2021). Consumers with environmental concerns exhibit higher ethical consumption intentions (Cheung and To, 2019; Kushwah et al., 2019). Values for ethical consumption exhibit high explanatory power for purchase intention in the food industry (Asif et al., 2018; Sadiq et al., 2020). In addition, examining people who use ethical products on a daily basis (Fei et al., 2022) and understanding the mechanisms of consumer purchasing behavior (Quoquab et al., 2019) are important. However, such consumers are a global minority; although consumers acknowledge that environmental considerations play a role in their purchasing decisions, their actual consumption behaviors do not align with these decisions (Chaturvedi et al., 2021; Schäufele and Hamm, 2018).

Price and income. Ethical goods are priced higher than other goods. For example, coffee is purchased at a price approximately 30% higher than the typical transaction price, representing the respect for satisfactory working conditions on coffee farms (Shurvell, 2022). However, ethical consumption's direct benefits are neither readily visible nor readily available (Farjam et al., 2019). Consumers generally make purchasing decisions based on the awareness of wanting to obtain the maximum value for the product price (Frank and Brock, 2018). Therefore, the price of goods eventually becomes a barrier to ethical consumption (Wiederhold and Martinez, 2018), and price burden is a major

barrier, particularly for low-income consumers (Ran and Zhang, 2023; Schäufele and Hamm, 2018).

Subjective norms. Subjective norms refer to social pressures regarding whether to perform certain behaviors (Ajzen, 1991) and have long been recognized as the drivers of ethical consumption (Alsaad, 2021; Liu et al., 2021). Subjective norms such as opinion that organic food has health-promoting effects or expectations of a healthy lifestyle, drive ethical consumption (Sultan et al., 2020). The impact of this factor is particularly pronounced for Generation Z. Younger generations are digital natives, which increases their opportunities to monitor the behavior of others and publish information in real time. Ethical consumption by Generation Z is therefore driven by peer pressure through digital tools (Robichaud and Yu, 2022).

Factors of product characteristics
Environmental issues. Environmental concerns are commonly used as a direct predictor of purchase intention for ethical products (Kumar et al., 2022; Newton et al., 2015; Yue et al., 2020). In the food industry, consumers with environmental concerns tend to have higher willingness to pay (WTP) for ethically sourced and produced products (Konuk, 2019; Kushwah et al., 2019). Moreover, consumers scrutinize companies' products to determine whether they are "really ethical or pretending to be ethical" (Bulut et al., 2021). Companies that continue to destroy the environment are actively pressured by consumers to develop products that meet the requirements of sustainable development (Ghali, 2021). Hence, companies are focusing on spreading awareness of environmental crises (Sreen et al., 2021), their brand image, and product attractiveness by providing ethical information (Mohd Suki, 2016). Product labels are an effective method of providing ethical information. Especially in the food industry, labels are the most used marketing tool by companies to inform consumers of product characteristics and are essential for promoting sustainable product choices (Cerri et al., 2018). Publicizing sustainable supply chains strengthens a company's green image and ultimately influences consumer purchasing behavior (Lee and Lim, 2020).

Labor issues. The boycott of goods manufactured under questionable working conditions has been observed for over a century. For example, in 1899, a "white label" campaign was implemented to reward favorable working conditions in the department store fashion industry (Andorfer and Liebe, 2015). Since then, the emphasis has been on prohibiting illegal child labor and forced labor, improving safe and healthy working conditions, and promoting workers' rights (Nicholls and Opal, 2005). Fair Trade, which has been attracting attention in recent years, is an international social movement that aims to alleviate poverty, mainly in developing countries, by changing the price mechanism of consumer goods by paying producers a premium higher than the market price (Koos, 2021). Even consumers who have never purchased Fair Trade products are willing and interested to learn about this concept (Balasubramanian and Soman, 2019). As such, Fair Trade knowledge provision reinforces intention to purchase ethically correct food (Berki-Kiss and Menrad, 2022). For example, consumers were willing to pay a 31% price premium for apples when they learned that the apples were from poorer areas (Wang et al., 2021). Fair Trade information is also effective in promoting the purchase of coffee (Lee et al., 2018), as Fair Trade purchasing experiences provide consumers with hedonic satisfaction (Ladhari and Tchetgna, 2017). As with environmental issues, adding the producer's name and photo to the product label is an effective way to promote Fair Trade products (Gillani et al.,

2021). Understanding and encouraging consumers to purchase Fair Trade products serves the significant goal of achieving safer working conditions and fair wages for workers globally (Lee et al., 2015; O'Connor et al., 2017).

However, these factors have been partially evaluated, and the magnitude of their effects has rarely been contrasted (Balasubramanian and Soman, 2019; Ghali, 2021; Gillani et al., 2021; Koos, 2021; Konuk, 2019; Kumar et al., 2022; Kushwah et al., 2019; Ladhari and Tchetgna, 2017; Lee et al., 2015; Lee and Lim, 2020; Mohd Suki, 2016; Newton et al., 2015; Nicholls and Opal, 2005; O'Connor et al., 2017; Sreen et al., 2021; Wang et al., 2021; Yue et al., 2020). Therefore, to make effective use of the limited resources of a company, it is important to extract factors from a bird's-eye view, and then compare and verify their effects.

Empirical investigation
Study 1
Method. In Study 1, we targeted consumers accustomed to ethical consumption and clarified the product characteristics that consumers with high awareness of ethical issues value. An online survey was conducted from 21st to 25th October 2022 with 2132 people in their 20s to 60s in Japan. Participants were informed that this survey does not collect personal information, or information on participants' sensitive thoughts, mental and physical conditions, or body parts, such as blood or cells. An informed consent agreement was signed before the survey started. In addition to age, the target audience included consumers who habitually purchase ethical products, such as food, coffee, and tea. The survey was distributed from a survey collaborators database held by Macromill, Inc., a Japanese research company. Of the 5000 people interviewed, 2868 did not meet the selection criteria and were excluded. As shown in Table 1, the data on gender and age were collected proportionally, and no bias was observed. The survey items consisted of the following nine items: (1) gender, (2) age, (3) marital status, (4) children, (5) annual household income, (6) purchasing habits of ethical products (option: none, food, coffee, tea), (7) awareness of daily ethical consumption (seven-point Likert scale; 1 = not aware of it at all, 7 = very conscious), (8) product features that show consideration for ethical issues (pure recall), and (9) involvement in ethical products (seven-point Likert scale). The objective variable of this study was (6), and the pure recall for extracting product ethical features was (7). There were no missing values, as responses to all survey items were mandatory.

Table 1 Distribution of respondent's attributes in Study 1 (*n* = 2132).

Item	Content	Number of Respondents	Composition Ratio
Gender	Male	1178	55.3%
	Female	954	44.7%
Age	20s	192	9.0%
	30s	449	21.1%
	40s	576	27.0%
	50s	565	26.5%
	60s	350	16.4%
Marital status	Unmarried	830	61.1%
	Married	1302	38.9%
Children	Do not have children	962	45.1%
	Have children	1170	54.9%
Purchasing habits of ethical products	Food	1353	63.5%
	Coffee	522	24.5%
	Tea	257	12.1%

Table 2 Composition and mention rate of each factor in Study 1 (n = 2132).

Factor	Words					Food		Coffee		Tea		Total	
	Word 1	Word 2	Word 3	Word 4	Word 5	Frequency	Ratio	Frequency	Ratio	Frequency	Ratio	Frequency	Ratio
Environment	environment	nature	ecology	sustainable	SDGs	68	5.0%	25	4.8%	16	6.2%	109	5.1%
Labor	labor	human rights	poverty	low wages	Fair Trade	61	4.5%	84	16.1%	4	1.6%	149	7.0%
Materials	materials	ingredient	component	botanical	organic	120	8.9%	7	1.3%	15	5.8%	142	6.7%
Package	package	wrapping	packing	container	plastic	293	21.7%	24	4.6%	72	28.0%	389	18.2%
Production_Area	production area	producing area	place of origin	domestic production	local	98	7.2%	21	4.0%	6	2.3%	125	5.9%
Recycle	recycle	reuse	reduce	refill	reprocess	60	4.4%	20	3.8%	14	5.4%	94	4.4%
Sample Size	—					1353		522		257		2132	

To extract the factors from the product features that show consideration for ethical issues, natural language processing was used. As shown in Table 2, six factors and five words belonging to them were defined based on the frequency of their appearance in the data. The first factor was related to environment issues and the second is related to labor issues. Five of the most frequent nouns and adjectives related to each factor were set as words. Then, when any of these registered words were detected in the text, the mention flag (0/1) of the corresponding factor was added. Therefore, if multiple words belonging to the same factor were mentioned multiple times in one text, the flag remained at 1 (i.e., the number of occurrences was counted as 1). Japanese open-source software MeCab was used for morphological analysis and CaboCha was used for parsing.

We adopted regression models in which the objective variable was the awareness of daily ethical consumption (No. 1 in Table 3). The control variables were the attribute and psychological variables (Nos. 2–6 and 13), and the explanatory variables were the factor mention dummies (Nos. 7–12). Here, four models were built: Models 1, 2, 3, and 4 for all, food, coffee, and tea products, respectively. All models were variable selected by the stepwise method. The validity of the model was confirmed by R-squared. The analysis environment was the R statistical analysis software.

Results and discussion. As shown in Table 2, the most frequent factor was Package, which was detected in 389 out of 2132 responses. By product type, Package was the most frequently mentioned for food and tea, and Labor was the most frequently mentioned for coffee. Table 4 shows the results of the regression model. Confirming R-square, all models showed values close to 0.2, which was set as the threshold in many studies (Kenanidis et al., 2021; Taghipour et al., 2011); therefore, the models were reasonable. The overall results of Model 1 indicated that factor-mentioned dummies other than Environment and Package were significant at the 5% level. In contrast, product, food, and coffee showed differing results. Materials, Production_Area, and Recycle were significant for food, and Environment and Labor were significant for coffee. For tea, only Recycle was significant, showing a large difference from coffee. Therefore, coffee was the only product for which environmental and labor issues contributed to ethical awareness, and according to this model, the magnitudes of their effects were approximately the same.

We confirmed that even within the same food industry, the factors that promoted ethical consumption differed. The factors for ethical consumption of tea and coffee, which were consumed on a daily basis, were clearly different. Japanese consumers value environmental and labor issues for coffee, and recycling issues for tea, owing to the difference in the production and the packaging material used. Coffee is mainly produced in developing countries, where consumers are concerned about the working conditions (Koos, 2021; Ladhari and Tchetgna, 2017; Lee et al., 2018). Nevertheless, most of the tea is locally produced, and the working conditions on the farms maintain a certain level of quality. In terms of packaging materials, coffee is generally served in paper cups, but tea is served in PET bottles. Accordingly, for tea, there is a tendency to recognize the importance of recycling. The results suggest that it is important to determine the conditions under which the ethical factor exerts its effect.

Study 2
Method. In Study 2, we conducted an RCT to examine the impact of product concepts of environmental and labor issues on coffee purchase intentions. We conducted an online survey from 26th to 30th October, 2022, on 400 people in their 20s to 60s in Japan. Participants were informed that this survey does not collect

Table 3 Variable list in Study 1 ($n = 2132$).

No	Variable	Description	Type	Mean	SD	Median	Min	Max
1	Awareness	Awareness of daily ethical consumption	Seven-point Likert scale	3.508	1.448	4	1	7
2	Female	Gender	0: Male, 1: Female	0.447	0.497	0	0	1
3	Age	Age	1: 20s, 2: 30s, 3: 40s, 4: 50s, 5: 60s	3.203	1.205	3	1	5
4	Married	Marital status	0/1	0.611	0.488	1	0	1
5	Children	Presence of children	0/1	0.549	0.498	1	0	1
6	Income	Annual household income	0: do not like to answer, 1: < 2 m¥, 2: 2–4 m¥, 3: 4–6 m¥, 4: 6–8 m¥, 5: 8–10 m¥, 6: 10–12 m¥, 7: 12–15 m¥, 8: 15–20 m¥, 9: 20 m¥ <	2.898	2.087	3	0	9
7	Environment	Factor mention dummy	0/1	0.051	0.220	0	0	1
8	Labor	Factor mention dummy	0/1	0.070	0.255	0	0	1
9	Materials	Factor mention dummy	0/1	0.067	0.249	0	0	1
10	Package	Factor mention dummy	0/1	0.182	0.386	0	0	1
11	Production_Area	Factor mention dummy	0/1	0.059	0.235	0	0	1
12	Recycle	Factor mention dummy	0/1	0.044	0.205	0	0	1
13	Involvement	Involvement in ethical products	Seven-point Likert scale	4.134	1.478	4	1	7

SD standard deviation.

Table 4 Estimation results of the regression model in Study 1 ($n = 2132$ in Model 1; $n = 1353$ in Model 2; $n = 522$ in Model 3; $n = 257$ in Model 3).

Variable	Model 1: Total			Model 2: Food			Model 3: Coffee			Model 4: Tea		
	Estimate	*p*-value		Estimate	*p*-value		Estimate	*p*-value		Estimate	*p*-value	
Intercept	1.298	0.000	***	1.125	0.000	***	1.392	0.000	***	1.921	0.000	***
Female	−0.040	0.491		−0.115	0.091		0.255	0.077		−0.218	0.256	
Age	0.042	0.085		0.058	0.042	*	0.014	0.809		0.002	0.975	
Married	0.130	0.078		0.147	0.077		0.141	0.443		0.169	0.521	
Children	0.100	0.162		0.118	0.145		0.177	0.312		−0.075	0.774	
Income	0.017	0.225		0.015	0.378		0.015	0.620		0.031	0.495	
Environment	0.154	0.215		0.024	0.868		0.542	0.045	*	0.115	0.748	
Labor	0.331	0.002	**	0.372	0.069		0.415	0.019	*	0.159	0.826	
Materials	0.340	0.002	**	0.328	0.004	**	0.424	0.429		0.083	0.828	
Package	0.113	0.120		0.095	0.228		0.377	0.212		−0.086	0.670	
Production_Area	0.363	0.002	**	0.502	0.000	***	−0.169	0.593		−0.380	0.510	
Recycle	0.467	0.001	***	0.419	0.008	**	0.346	0.289		0.848	0.031	*
Involvement	0.434	0.000	***	0.468	0.000	***	0.381	0.000	***	0.395	0.000	***
R-square	0.253			0.305			0.217			0.193		

***p < 0.001; **p < 0.01; *p < 0.05.

personal information or information on participants' sensitive thoughts, mental and physical conditions, or body parts, such as blood or cells. An informed consent agreement was signed before the survey started. The target audience consisted of consumers who habitually drink coffee. The participants were randomly divided into two groups, one of which was presented with environmental issues and the other with a product concept sheet of labor issues. The survey was distributed from a survey collaborators database held by Macromill, Inc., a Japanese research company. As shown in Table 5, as with Study 1, the surveys were collected with the intention to avoid any particular bias in terms of gender or age.

The survey items were as follows: (1) gender, (2) age, (3) marital status, (4) children, (5) frequency of drinking coffee at home (do not drink, less than one cup per week, one cup per week, two–three cups per week, four–six cups per week, one cup per day, and two or more cups per day), (6) purchase intention for the product on the concept sheet (rated on a seven-point Likert scale), and (7) WTP for the product on the concept sheet (rated on a seven-point Likert scale). Those who answered that they had no

habit of drinking coffee in (5) were excluded. The objective variables for verification are (6) and (7), and the product concept sheet was presented before this question. As we prepared a screen that presents only the concept sheet in large size, each respondent was sure to see it. As shown in Fig. 1, the product concept sheet describes environmental and labor issues. After transitioning from the screen that presents the concept sheet, we asked (6) and (7) on the next survey screen. The chi-square test was applied to the matrix of group × purchase intention/group × WTP. The null hypothesis was "there is no difference in purchase intention/WTP in each group." The significance level was 5%, and the analyses were performed using the R statistical analysis software. There were no missing values, as all responses to survey items were mandatory.

Results and discussion. Homogeneity of each group was important for conducting RCTs with high accuracy. As shown in Table 5, both groups were similar consumer groups considering the distribution of attributes. Upon applying the chi-square test to the matrix of each item × group, no significant difference was

Table 5 Attribute distribution of each group in a randomized controlled trial in Study 2 (n = 400).				
Item	**Description**	**Environment Issues**	**Labor Issues**	**_p_-value (chi-square test)**
Gender	Male	95	102	0.549
	Female	105	98	
Age	20s	25	28	0.750
	30s	46	45	
	40s	53	47	
	50s	54	50	
	60s	22	30	
Marital status	Unmarried	77	74	0.837
	Married	123	126	
Presence of children		98	90	0.483
		102	110	
Annual household income	do not like to answer	20	20	0.101
	<4 m¥	64	77	
	4–8 m¥	54	45	
	8–12 m¥	16	27	
	20 m¥ <	46	31	
Sample Size	—	200	200	

detected at the 5% level. Hence, this RCT was considered sufficiently valid. As shown in Table 6, labor issues (mean 4.105) scored higher than environmental issues (mean 3.995) based on the purchase intention results. According to the chi-square test, $p < 0.05$. The null hypothesis was rejected, and a significant difference was detected. As shown in Table 7, even in WTP, labor issues (mean 3.880) scored higher than environmental issues (mean 3.580). Similarly, significant differences were detected. Comparing the effect size with that of Cramer's V, WTP tended to be larger than purchase intention.

In Study 1, both environmental and labor issues exhibited similar effects. However, in Study 2, labor issues were found to have a significant effect. This result had high validity, as the RCT was conducted under conditions that considered both environmental and labor issues. Consequently, consumers tended to prioritize human rights concerns over environmental concerns when making purchasing decisions. This divergence could be attributed to the influence of textual information and pictures related to human rights issues. Specifically, we believe that the effects of producer photographs warrant attention, as stimuli that allow the visibility of producer photographs carry significant implications for consumer psychology (Gillani et al., 2021). For example, cosmetic company Lush imprints its products with photographs and names of producers. E-mart, South Korea's largest grocery chain, packages fruits and vegetables along with the names and faces of the respective farmers who cultivated the produce (Fuchs et al., 2022). Adopting this marketing communication approach for ethical products allows the efficient utilization of limited resources while promoting ethical consumption.

Conclusion and future work

Implications. In terms of products, two aspects have been identified as affecting ethical consumption: environmental issues (Ghali, 2021; Konuk, 2019; Kumar et al., 2022; Kushwah et al., 2019; Lee and Lim, 2020; Mohd Suki, 2016; Newton et al., 2015; Sreen et al., 2021; Yue et al., 2020) and labor issues (Balasubramanian and Soman, 2019; Gillani et al., 2021; Koos, 2021; Ladhari and Tchetgna, 2017; Lee et al., 2015; Nicholls and Opal, 2005; O'Connor et al., 2017; Wang et al., 2021). However, few

studies have compared the conditions and effects of the two issues on ethical purchasing behavior. Considering the limited resources of companies and limited ability of consumers to process information, understanding additional effective factors is extremely significant. This study contributes by filling this gap. In Study 1, we confirmed that the effective factors differ depending on the target product, even within the same food industry and same beverage category. Coffee was shown to be prominent in the food industry as a product with environmental and labor issues contributing to consumer ethical awareness. Furthermore, Study 2 revealed that labor issues had a greater impact on purchase intention and WTP than environmental issues in the coffee market. To our knowledge, studies extracting the factors of ethical consumption for each target product and comparing the effects of effective factors are scarce. These results add to the missing literature on ethical consumption.

Overall, this study offers important implications for practitioners who want to promote ethical consumption. Practitioners wishing to promote ethical consumption need designs that allow consumers to perceive immediate significance. Consumers understand the gravity of labor and environmental problems; however, to date, these efforts have not borne expected outcomes. Many consumers express their importance on these ethical factors (Hernández and Kaeck, 2019; Yoon and Park, 2021); however, their concern does not lead to actual purchase behavior (Chaturvedi et al., 2021; Iweala et al., 2019; Testa et al., 2021). One of the reasons for this may be the inability to identify appropriate ethical factors for the target product. As this study showed, even within the same food industry, effective factors and their strengths and weaknesses vary. Therefore, it is important to comprehensively extract ethical factors from consumer perceptions and compare the effects of these factors for different target products. Implementing this process is expected to clarify the importance of ethical products from the consumer's point of view.

Limitations and future work. This study had several limitations. First, the results are limited to Japan's food industry; as such, generalization of the findings is limited. Thus, expansion to other countries and product categories is required. In particular, Japanese consumers have unique characteristics. For example, they evaluate the safety of food products quite strictly (Rupprecht et al., 2020). They also have a strong interest in maintaining social harmony and empathy (Karremans et al., 2011; Watanabe and Yabu, 2021). Considering differences in ethical factor effects due to national characteristics, it is necessary to compare the same effects in multiple countries.

Second, as this study focused on product aspects, differences in effects due to consumer attributes were not sufficiently examined. For example, women tend to engage in environmental protection behavior more frequently than men (Dzialo, 2017). Furthermore, financial constraints such as income and price should be carefully considered (Ran and Zhang, 2023; Schäufele and Hamm, 2018; Wiederhold and Martinez, 2018). While ethical products tend to be in a high price range (Shurvell, 2022), directly perceiving their consumer value is difficult, making it is necessary to examine the difference in effects depending on income (Farjam et al., 2019). High-status consumers believe that environmentally friendly practices are good and achievable. In contrast, low-status consumers tend to feel that their everyday actions have little impact on environmental issues (Kennedy and Givens, 2019). In this way, more precise evaluation is possible by considering the attributes that influence ethical consumption.

Third, this study did not close the gap between consumer attitudes and behavior. Although consumers report that environmental considerations are a factor in their purchasing decisions,

Coffee beans made with consideration for environmental issues

We believe that the accumulation of consideration for the environment is important for coffee cultivation.

Therefore, this product has the following three commitments.
- Produced without soil or water pollution.
- Produced in the shade of trees without cutting down forests.
- Produced mainly using renewable energy.

A better daily life with coffee beans that are both delicious and sustainable.

Coffee beans made with consideration for labor issues

We believe that it is important to consider the human rights of producers in the cultivation of coffee beans.

Therefore, this product has the following three commitments.
- Producing in a comfortable working environment.
- Pay appropriate compensation for production.
- Produced with the development of coffee farms in mind.

A better daily life with coffee beans that are both delicious and sustainable.

Fig. 1 Stimuli for a randomized controlled trial in Study 2 (top: environmental issues, bottom: labor issues). (The images above were generated using copyright-free materials from Pexels and Pixabay).

Table 6 Chi-square test results for effect on purchase intention in Study 2 ($n = 400$).

Stimulus	Purchase Intention							Total	Mean	p-value	Cramer's V
	1	2	3	4	5	6	7				
Environment issues	13	23	20	85	27	19	13	200	3.995	0.027*	0.130
Labor issues	16	14	16	75	55	14	10	200	4.105		

*$p < 0.05$.

their consumption behaviors do not correspond to these decisions (Chaturvedi et al., 2021; Schäufele and Hamm, 2018). Thus, the attitude–behavior gap in ethical consumption—despite being an important academic and practical topic —remains an unresolved paradox (Casais and Faria, 2022; Sun, 2020). Therefore, to strengthen the conclusions of this study, further verification using data on purchasing behavior in physical stores should be conducted in the future.

Fourth, in the RCT conducted in this study, the impact of human rights issues was found to be considerable, primarily due

Table 7 Chi-square test results for effect on WTP in Study 2 (n = 400).

Stimulus	WTP							Total	Mean	*p*-value	Cramer's V
	1	2	3	4	5	6	7				
Environment issues	24	21	37	78	23	7	10	200	3.580	0.003**	0.221
Labor issues	22	12	34	60	50	16	6	200	3.880		

WTP refers to willingness to pay.
**p < 0.01.

to the combined influence of text and photographs, which are inseparable. In other words, it is not feasible to determine from this study alone whether photographs depicting the producers are genuinely effective. Therefore, it is imperative to employ research designs that allow for the differentiation and comparison of the effectiveness of photographs alongside other forms of information in future studies.

Fifth, the consideration of the characteristics of workers projected in photographs was insufficient to enhance the effect of human rights issues on ethical consumption. The effect may vary depending on the gender, age, and even race of the worker.

Finally, the properties of stimuli that enhance the effectiveness of environmental issues were not investigated. This study introduced only the effect of producer photographs on labor issues. Similarly, environmental issues may have characteristics that are preferred by consumers, offering future research avenues.

Data availability
The data used in this study are available from https://doi.org/10.17026/dans-zxa-27gk. Please set the character code to UTF8.

Materials availability
Material used for product concept sheet in Study 2: coffee beans: https://www.pexels.com/ja-jp/photo/1695052/; forest: https://www.pexels.com/ja-jp/photo/957024/; solar panel: https://www.pexels.com/ja-jp/photo/4148472/; farmer: https://pixabay.com/photos/coffee-couple-farmer-agriculture-6951264/, https://pixabay.com/photos/farmer-jungle-tanzania-africa-4493421/ (last accessed October 4, 2023).

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Author contributions

TK: Conceptualization, Data Analysis and Writing; KH: Conceptualization; KK: Data Analysis; MM: Data Collection; YI: Survey Design; RI: Previous Research Survey; MK: Project Management.

Competing interests

The authors declare no competing interests.

Ethical approval

Meiji University does not require an ethical review for research that does not target data on a part of the human body, such as blood or cells, or information on an individual's sensitive thoughts or mental and physical conditions.

Informed consent

All study participants provided informed consent.

Additional information

Supplementary information The online version contains supplementary material available at https://doi.org/10.1057/s41599-023-02229-1.

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