

Article

What Are People Willing to Pay for Social Sustainability? A Choice Experiment among Dutch Consumers

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Abstract: A relatively large number of studies has shown that consumers are willing to pay more for products that are certified as being environmentally or socially responsible, but most of these studies focus on the willingness to pay (WTP) for environmental benefits, while insights into the WTP for social benefits are limited. More research in this area will shed light on consumer choices and help policymakers to better direct the food industry toward social sustainability. In this paper, we carry out a Discrete Choice Experiment among Dutch consumers to measure consumer WTP for five social sustainability benefits; (1) no child labor; (2) liveable wage and safe working environment; (3) project for the education of workers; (4) equal wages for men and women; and (5) freedom to join a trade union. The novelty of our research in comparison with previous studies is that we aim to differentiate the WTP for various social standards instead of estimating an overall WTP for fair-trade labels. In addition to average price premiums per social standard, our latent class models also give insight into heterogeneity in WTP, or more specifically, stated price premiums by different groups (or market segments) in society. The results suggest that substantial price premiums for social sustainability benefits may exist, which currently are not reflected in food prices. Including price premiums for market products that fully incorporate societal costs of those products, so-called true prices or shadow prices, will decrease consumer demand for less-sustainable products and will lead to a fairer and more sustainable economic system. Our results also show that the price premiums may vary substantially between the various categories of social sustainability benefits and across products and market segments. Further research on assessing the motivations behind consumer choices for more-sustainable products is crucial here, especially for campaigns aimed at enhancing their market shares.



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1. Introduction

In many countries, consumers express increasing concern over the environmental and social impacts associated with the production of the products they buy. Recognizing that social and environmental responsibility is a key corporate dimension in forming customer perceptions about a company [1], companies have reacted to this concern in various ways, for example, by labeling and certification [2,3] and investing in socially responsible production practices for their products [4]. Others even argue that fair-trade is considered a social movement by an increasing number of young consumers who have positive beliefs and attitudes compared to previous generations [5]. This belief is supported by [6], who find in their subgroup analysis that the younger generation has a higher willingness to pay (WTP), while people older than 55 have the lowest WTP. This creates a window of opportunity for the development of social sustainability in the food market. Several studies have shown that consumers in Europe, the United States, and other countries are willing to

pay a positive price premium for environmentally and socially sustainable products [4]. A recent meta-analysis suggests that the average premium that consumers are willing to pay worldwide for sustainable food is following an increasing trend, which is a hopeful sign for the development of a more sustainable society [6]. Yet, most of these studies have focused on the WTP for environmental benefits and fewer on the WTP for social sustainability benefits, e.g., improvements in labor rights and social justice. This is interesting since a recent study finds that a lack of sustainability has a larger negative effect on consumer behavior in the social dimension than in the environmental dimension [7]. They argue that a possible explanation might be that participants are more affected (as empathizing human beings) by bad practices that directly harm workers.

The limited number of studies that investigate the social sustainability benefits of consumer products suggest that these may have a strong influence on the WTP of consumers [4], but as far as we know, there is only one study that assesses the WTP for socially sustainable products and that uses a comprehensive set of social conditions [8]. They assess the WTP for athletic shoes adhering to different social sustainability benefits and find different WTPs for different benefits, the highest WTP being for a guarantee that no child labor was used in the production of these shoes. Furthermore, most studies present mean estimates of WTP for social sustainability benefits in terms of a percentage price premium or absolute monetary value, but they do not pay particular attention to the heterogeneity of the consumer population. This is an interesting omission and gap in our knowledge since, in most fields, of research on consumer and citizen preferences, heterogeneity and market segmentation are the norm rather than the exception [9,10]. The originality and added value of this study, therefore, lie in the fact that we measure consumer willingness to pay for a comprehensive set of social sustainability benefits for different consumer products and that we assess the WTP for different market segments. We do this by carrying out a Discrete Choice Experiment among a substantial number of Dutch consumers. With this, we provide shed light on consumer choices and help to direct actors in the food supply chain towards incorporating social sustainability in their marketing strategies.

Based on the existing literature, we expect that there is substantial heterogeneity in WTP for sustainability standards among consumers, with a relatively large group of consumers having (near) zero WTP. We also expect that not all social sustainability benefits are valued equally and that preventing child labor has the highest WTP. Finally, we argue that a rational consumer would be indifferent between specific products for which he or she would like to pay for social sustainability benefits. We, therefore, expect that the WTP for social sustainability benefits is independent of the consumer product for which it is evaluated.

In the remainder of this paper, we develop a practical classification of social sustainability standards in Section 2. Section 3 presents the methods and data of our study. Section 4 presents the results, while Section 5 discusses the results and provides a conclusion.

2. Literature Review

2.1. Developing a Framework for Social Sustainability

In this section, we bring together definitions of what social sustainability entails, with the purpose of developing a framework that is supported by different fields of expertise. The first route is to approach sustainability from a scientific angle. The most commonly cited generic definition of sustainability is the following [11] (p. 15):

“Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Although this definition gives a broad idea of sustainability in general, it is quite vague and does not provide a specific definition of social sustainability [12]. To tackle the vagueness, several scientists have developed a new framework with three ecological sustainability principles and one social sustainability principle: the Framework for Strategic

Sustainable Development (FSSD) [12,13]. The definition of social sustainability in this framework is as follows [12] (p. 33):

“In a sustainable society ... people are not subject to conditions that systematically undermine their capacity to meet their needs (e.g., from the abuse of political and economic power).”

A follow-up study [14] enhances this definition by describing what a socially sustainable society may look like. They added four specific categories of values and rights, i.e., health, influence, competence, and impartiality, and propose that social sustainability is met if there are no obstacles to achieving these values and rights. The exact definition they provide is as follows [14] (p. 47):

“In a socially sustainable society, people are not subject to structural obstacles to ... SSP 1. ... health. (This means that people are not exposed to social conditions that systematically undermine their possibilities to avoid injury and illness; physically, mentally or emotionally, e.g., dangerous working conditions or insufficient wages.) SSP 2. ... influence. (This means that people are not systematically hindered from participating in shaping the social systems they are part of, e.g., by suppression of free speech or neglect of opinions.) SSP 3. ... competence. (This means that people are not systematically hindered from learning and developing competence individually and together, e.g., by obstacles for education or insufficient possibilities for personal development.) SSP 4. ... impartiality. (This means that people are not systematically exposed to partial treatment, e.g., by discrimination or unfair selection to job positions.)”

A second route to define sustainability is through an institutional framework. One may refer to the sustainable development goals endorsed by the United Nations. These goals include several social aspects of sustainability. Achieving these goals would then suggest that a sustainable society is achieved (See: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>, accessed on 1 March 2017). Another initiative in developing sustainability standards is the Global Reporting Initiative (GRI). This worldwide independent organization provides standards for sustainability reporting that are widely used by organizations to measure environmental, social, and economic impacts. The GRI 400, a list with 19 different social standards, is used to assess an organization's social impact on society (See: <https://www.globalreporting.org/standards/gri-standards-download-center/>, accessed on 1 March 2017). A third source is the International Finance Corporation (IFC), a large global development institution with a focus on the private sector in developing countries, which released a report in 2012 with performance standards on environmental and social sustainability to assess a company's performance on sustainability (See: https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards, accessed on 1 March 2017). Finally, we looked at the World Business Council for Sustainable Development. This is a widely used network and business association with a focus on developing sustainable solutions and stimulating companies to report on their true value, costs, and profits. They developed the social capital protocol in which social impacts (SI) and social dependencies (SD) are presented (See: <https://www.wbcsd.org/Clusters/Social-Impact/Social-and-Human-Capital-Protocol/Resources/Social-Capital-Protocol>, accessed on 1 March 2017). These represent the characteristics that determine a sustainable society. All of these standards were combined into seven main standards of social sustainability, as displayed in Table 1. The four column categories, health, influence, competence, and impartiality, are derived from [14].

Table 1. Framework with socially sustainable standards.

Categories of Values and Rights	Social Standards
Health	1. No forced and child labor <i>Based on: GRI 408, GRI 409, PS 2, SDG 8</i>
	2. Health, safety, and security of local communities <i>Based on: GRI 413, PS 4, SDG 3, SDG 11</i>
	3. Safe, fair, and healthy working conditions <i>Based on: GRI 401, GRI 403, PS 2, GRI 410, PS 1, PS 2, SDG 1, SDG 2, SDG 3, SDG 6, SDG 8, SDG 10, SD 1, SD 5, SI 1</i>
Influence	4. Freedom of association and collective bargaining <i>Based on: GRI 407, SDG 8</i>
Competence	5. Education <i>Based on: GRI 404, SDG 4</i>
Impartiality	6. Compliance with rights of Indigenous people <i>Based on: GRI 411, PS 7</i>
	7. No discrimination on race, gender, and ethnicity <i>Based on: GRI 406, GRI 405, PS 2, SDG 5, SDG 10, SI 5, SD 5</i>

Note: GRI = Global Reporting Initiative; PS = Performance standard (IFC); SDG = Sustainable Development Goal; SD= Social dependency (WBCSD); SI = Social impact (WBCSD).

2.2. Previous Findings on Willingness to Pay for Social Sustainability

With the framework in mind, we reviewed the literature on WTP for socially sustainable products. We define WTP as a measurement of buying intention or the maximum price that a given consumer is willing to pay for a product or service that is considered a realistic proxy for actual behavior [15,16]. In the literature, there are two broad approaches for measuring the WTP: stated preference methods and revealed preference methods. Stated preference methods are based on hypothetical consumer behavior. Respondents are asked about their preferences for hypothetical products, and this information on preferences is then used to estimate the associated values that people attach to the hypothetical products or features thereof. Stated preference methods can be divided into direct surveys and indirect surveys. Examples of direct surveys are expert judgments and customer surveys. Examples of indirect surveys are conjoint analysis, contingent valuation, and discrete choice analysis [17]. Revealed preference methods are based on actual consumer behavior. Preferences and values are revealed in complementary or ‘surrogate’ markets by using data on actual choices made by the respondents or firms in the related markets [18]. Revealed preference methods can be divided into methods that use market data (hedonic pricing and travel costs) and experiments, where laboratory experiments, field experiments, and auctions are examples of different kinds of experiments [17].

Most of the studies that we identified measure WTP for social sustainability by using stated preference methods, while some apply revealed preference methods; the main characteristics and findings of these studies are summarized in Table 2. Overall, we see that many studies use common products such as coffee, chocolate, bananas, and strawberries, and a few studies focus on more luxury items. The results for price premiums found for coffee, chocolate, and bananas vary between studies. For coffee, [19] find an average price premium of 20–23% for consumers in the United States for health and education projects in the coffee grower communities. A similar percentage is reported in [20] for Chinese consumers for a cup of fair-trade coffee in a coffee bar. Lower percentages were found for coffee by US consumers (+3.3% price premium) [21] and for coffee by Belgian consumers (+10%) [16]. The impact of social conditions on the WTP for bananas is investigated in [22,23]. The first study finds an average price premium of about 9% for fair-trade bananas. The second study does not report the base price but states that the average price premium would be CHF 1.28/kg bananas, which most likely is much higher than 9%.

Table 2. Overview of previous WTP studies for socially sustainable products ^a.

Study	Country	Method	Product Type	Social Condition(s)	Willingness to Pay/Price Premiums ^b
[8]	China and Australia	Choice experiment	Athletic shoes	- No child labor used - Minimum wage paid - No dangerous working conditions - Acceptable living standards	- WTP: USD 10.29 - WTP: USD 8.11 - WTP: USD 8.21 - WTP: USD 8.52
[16]	Belgium	Conjoint analysis	Coffee	Fair-trade	WTP: EUR 0.19 Price premium: 10%
[21]	United States	Contingent valuation	Coffee	Fair-trade	Price premium: 3.3%
[24]	France	Experimental auction	Chocolate (100 g)	Fair-trade Organic	WTP: EUR 1.31 WTP: EUR 1.25
[25]	United States	Contingent valuation	Strawberries	Living wage and safe working conditions	Median: USD 1.02 Price premium: 68%
[22]	United States	Experimental auction	Bananas Chocolate	Fair-trade	Bananas <i>Pre-info scenario</i> Bid: USD 1.33; Price premium: 9% <i>Post-info scenario</i> Bid: USD 1.30; Price premium: 9.2% Chocolate <i>Pre-info scenario</i> Bid: USD 1.37; Price premium: 9% <i>Post-info scenario</i> Bid: USD 1.50; Price premium: 19%
[26]	Germany	Experimental auction Choice experiment	Coffee (kg)	Fair-trade	Experimental auction Price premium: EUR 1.60 Choice experiment Price premium: EUR 2.64
[23]	Switzerland	Contingent valuation	Bananas (kg) ^c	Fair-trade	WTP: CHF 1.28
[27]	United Kingdom	Hedonic pricing technique	Coffee (kg)	Fair-trade/Organic label	Price premium: 11.26% (EUR 3.00)
[28]	United States	Choice experiment ^d	Diverse set of products	Living wage	Price premiums USD 5 products: 14.5% USD 20 products: 13.6% USD 74 products: 10.8% USD 500 products: 9.5%
[29]	Germany	Choice experiment	Coffee	Fair-trade	Price premium: EUR 0.58
[30]	Sweden	Hedonic price technique	Coffee (kg)	Fair-trade	Price premium: SEK 1.381
[20]	China	Contingent valuation	Coffee	Fair-trade	Price premium: USD 0.68 (22%)
[31]	Italy	Experimental auction	Chocolate (bar)	Fair-trade	Bid: EUR 1.69
[19]	United States	Experimental auction	Coffee	Health and education projects in the growers community	Price premium: 20–23%

Table 2. Cont.

Study	Country	Method	Product Type	Social Condition(s)	Willingness to Pay/Price Premiums ^b
[32]	Belgium	Discrete choice experiment	Coffee (kg)	Fair-trade label	Price premium: EUR 6.80 (mixed models)
[33]	South Africa	Questionnaire Survey	Coffee	Fair-trade label	Price premium: 27%
[34]	Indonesia	Interviews	Coffee	Fair-trade	Price premium: 22%
[35]	Italy	BDM auction	White refine cane sugar	Fair-trade logo	Price premium: EUR 0.25 Providing additional information adds another EUR 0.08 And recognition of the FT logo adds EUR 0.13

^a In the table, some of the price premiums for coffee have been transformed to reflect the price premium per kg.

^b It was not possible to estimate price premiums in percentage terms for all studies because prices for the reference products were not reported. ^c Two sets of CV questions: one set compares Fair Trade-certified bananas with standard bananas, and the second set compares organic Fair Trade-certified bananas with FT-certified bananas.

^d A single discrete choice question was used.

Unfortunately, it was not possible to identify the price premiums in all of the studies due to the fact that, in some studies, the base price was not reported. In our research, we fill this gap by making use of a base price so that we are able to identify a relative (percentual) price increase.

3. Materials and Methods

3.1. Survey Design

We conducted a discrete choice experiment. A discrete choice experiment is a quantitative survey method to measure the individual preferences of respondents in artificial but realistic situations [29,36]. The foundation for discrete choice experiments lies in Random Utility Theory (RUT). This theory states that a person attaches utility not only to products themselves but also to their characteristics [37]. By stating a preference in a choice situation with various choice alternatives, it is assumed that the individual chooses the alternative that yields the highest benefit (or utility) to him or her and that by presenting respondents with various choice situations with constantly varying levels of choice characteristics for the different choice alternatives, it is possible to derive the marginal contribution of each choice characteristic (attribute) to overall utility. Subsequently, by relating the marginal utilities of non-monetary attributes to the marginal utility of a monetary attribute (e.g., product price), marginal WTP for a unit change in each attribute can be derived [36,38,39].

In our study, respondents were asked to choose between three options in twelve separate choice cards: four choice cards for each of the three products we selected: bananas, chocolate, and coffee. These were chosen because of the availability of fair-trade versions of these products and because they are commonly purchased by Dutch consumers. Each choice card contained two attributes: **social standards (SS)** and **price (P)**. For the first attribute, **SS**, we combined the seven social standards from our framework (see Table 1) into five options, and we added an extra option, ‘no extra social standards’. Due to practical reasons, mainly keeping the survey manageable for our respondents, and because we wanted to avoid too much similarity between the different choice options, we decided to create fewer social conditions than the seven conditions presented in Table 1. The process was as follows: we first identified certain main topics that covered all of the seven social conditions; education, child labor, freedom, equality, safe working conditions, and a liveable wage. These main topics were then combined into the five social conditions that are presented in Table 3. For the second attribute, **P**, we used a status quo price based on the market prices of bananas, chocolate, and coffee without a fair-trade label in supermarket

Albert Heijn (the Dutch supermarket with the largest market share) in April/May 2017. The following prices were used respectively; EUR 0.99 for 1 kg bananas, EUR 0.99 for a 100 g bar of chocolate, and EUR 2.39 for a package of 250 g grounded coffee. Then we added four price levels based on a 10, 25–30, 50, and 100 percent increase compared to the status quo price (see Table 4).

Table 3. Overview of the social standards attribute used in the choice experiment.

Status Quo	SS 1	SS 2	SS 3	SS 4	SS 5
No extra social standards	No child labor	Liveable wage and safe working environment	Projects for education of workers	Equal wages for men and women	Freedom to join a trade union

Table 4. Overview of product prices used in the choice experiment (SQ = Status quo).

	SQ Price	P1 8–10% Increase	P2 25–30% Increase	P3 50% Increase	P4 100% Increase
Bananas 1 kg	EUR 0.99	EUR 1.09	EUR 1.29	EUR 1.49	EUR 1.99
Chocolate 100 g	EUR 0.99	EUR 1.09	EUR 1.29	EUR 1.49	EUR 1.99
Coffee 250 g	EUR 2.39	EUR 2.59	EUR 2.99	EUR 3.59	EUR 4.79

In this study, a fractional factorial design is used to create the choice cards. A fractional factorial design is a design in which only a fraction of the total number of treatment combinations is used [40]. SPSS and other statistical programs are capable of generating this in such a way that all the attribute levels (5 for **Ss** and 4 for **P**) are distributed optimally (in this case, meaning with as little correlation between attribute levels as possible) among the combinations. In this way, 32 combinations or choice cards were created, which were applied to each of the three products. The 32 combinations were distributed among eight survey versions, such that four cards in a single version were presented for each of the three products. Version 1 of the survey is attached in Appendix A. The eight versions of the survey were randomly distributed among the 402 respondents so that we obtained approximately 50 respondents for each version.

Before showing respondents the twelve choice cards, it was explicitly stated that the quality of bananas, chocolate, and coffee in the choice alternatives were equal and that respondents should carefully consider their income levels in making their choices. These two issues were added in order to remind respondents to base their choices on the added social standards and product prices and not on other factors (e.g., taste/quality) and to prime respondents to make their choices such that they would reflect their actual purchase behavior.

After filtering out those people that did not actually buy a product, the number of respondents is Bananas = 357 respondents; Chocolate = 350 respondents; Coffee = 251 respondents. Before analyzing the choices that are made by the respondents, it is interesting to look at the number of times that the status quo option was chosen. In Table 5, the number of respondents that systematically chose the status quo and the total amount of status quo choices are presented. Around 26–28% of respondents systematically chose the status quo for bananas and coffee, while the percentage for chocolate is lower and close to 21%. It appears that 20–30% of respondents are either not willing to pay for social standards, find the selected price premiums too high, or do not agree with the method used in the study and choose the status quo systematically to reveal this. The pattern is interesting because of the substantially lower number of status quo choices for chocolate, revealing that there may be product-specific preferences for social standards.

Table 5. Status quo choices per product.

Product	Number of Respondents That Systematically Chose the Status Quo (% in Parentheses)
Banana	100 out of 357 respondents (28.0%)
Chocolate	75 out of 350 respondents (21.4%)
Coffee	66 out of 251 respondents (26.4%)

3.2. Sample and Population

Our study is based on a sample of Dutch consumers. In total, 402 completed surveys were collected during June 2017. The data were collected via an online survey in which the market research firm *Team Vier* carried out the fieldwork. *Team Vier* is located in the Netherlands and has a panel of approximately 7500 people of different ages, income levels, and gender. Certain variables, such as age and gender, were automatically collected by *Team Vier*; other variables, such as income, voting behavior and buying behavior related to Fair-trade products, were added to the survey as multiple-choice questions.

To start with the question on buying behavior, twelve respondents indicated that they never bought any bananas, chocolate, and coffee in the supermarket. Because of this lack of buying experience, we decided to delete them from the sample, resulting in a final sample size of 390 respondents. In this final sample, income level was determined by asking about the respondent's household gross monthly income, which they could choose from three different categories. About 16% of our sample refused to answer this question. The distribution across the three income categories from the respondents that did answer the question ($N = 328$) and in the total Dutch population is shown in Table 6. The comparison suggests that lower-income classes are somewhat overrepresented in our sample. The distribution of age and gender across the sample and in the total Dutch population is also shown in Table 6. In the sample, the average age is 48 years, and the male–female ratio is about 50/50. The numbers show that these distributions between the sample and the population match well.

Table 6. Comparison of sample statistics with population statistics.

	Sample ($N = 328$)	Population (2015)
<i>Monthly gross Income</i>		
Less than EUR 2500 per month	33.8%	28.8%
Between EUR 2500 and EUR 3000 per month	29.0%	12.0% ¹
More than EUR 3000 per month	37.2%	59.3% ²
	Sample ($N = 390$)	Population (2017)
<i>Gender (% male)</i>	50.3%	49.6%
<i>Age</i>		
0–20 ³	0.8%	22.3%
21–40	32.6%	24.6%
41–65	47.7%	34.5%
66–80	18.7%	14.0%
>80	0.3%	4.5%
<i>Political preference</i> ⁴		
Left-Cosmopolitan (CU, GL, PvdD, PvdA)	25.6%	21.4%
Left-Parochial (SP, PVV)	19.2%	22.1%
Right-Cosmopolitan (CDA, D66)	23.9%	24.6%
Right-Parochial (SGP, VVD)	19.0%	23.3%
Other	12.3%	8.6%

¹ between EUR 2500 and EUR 3333 per month. ² more than EUR 3333 per month. ³ respondents were 18 years and older. ⁴ CU = Christian Union; GL = Green-Left; PvdD = Party for the Animals; PvdA = Party for Labor (Social-Democrats); SP = Socialist Party; PVV = Party for Freedom; CDA = Christian-Democratic Appeal; D66 = Liberal-Democrats; SGP = Reformed Political Party; PvdA = Party for Labor (Social-Democrats). For the explanation of political preference, see main text. Sources: For population income, we obtained data through *CBS Statline*; for population political preferences, we obtained through *Kiesraad*, "Uitslag van de verkiezing voor de Tweede Kamer van 15 maart 2017".

Finally, we determined political affiliation by asking the respondents how they voted in the 2017 Dutch national elections by choosing from a list of the 28 political parties that competed in these elections. To summarize political affiliation, we made use of a recent classification by [41], who argues that the current Dutch political landscape can best be described along two dimensions: the traditional left-right dimension and a dimension she calls cosmopolitan-parochial regarding preferences for immigration, European integration, and international political influence in general. Based on expert judgments [42], Ref. [41] divides the ten major Dutch political parties in 2014 into Left-Cosmopolitan, Left-Parochial, Right-Cosmopolitan, and Right-Parochial. Table 6 shows the political preferences as expressed by the voting for the ten major political parties in the national elections in 2017 by our sample and the total population, along the two dimensions of [41]. The comparison shows that the sample is a good representation of the total population along the left-right and cosmopolitan-parochial political dimensions.

3.3. Choice Model

As in most choice modeling exercises, we start by estimating a simple Multinomial Logit (MNL) model, including each social standard as a dummy variable and product price as a continuous variable, measured as a price mark-up (implying that price of the status quo product is normalized to 0). Although all parameter estimates for this model have the expected signs (except for the parameter on social standard five, which is negative), the explanatory power of this model is low. We, therefore, switch to models that allow for preference heterogeneity. Initial estimates from Random Parameters Logit (RPL) models, in which individual-specific attribute parameters are estimated, show two things. First, putting restrictions on parameters, e.g., using a fixed price parameter or restricting a random price parameter to the negative domain, leads to substantially lower model fits than for models without such restrictions (specifically, assuming the price parameter to have a normal or triangular distribution). This would favor RPL models without restrictions. Second, the distributions of estimates on WTP for social standards resulting from RPL models without parameter restrictions are extremely wide. Moreover, even when we just look at the more conservative WTP ranges, the majority of respondents appears to be willing to pay more than a 100% mark-up for all social standards. These results suggest that the price mark-ups used in the choice experiment may have been ignored in making choices by a substantial part of respondents.

In [43], it is argued that this non-attendance to the payment vehicle is (at least to a large extent) a form of hypothetical bias that can and should be controlled for and that this can be conducted by a specific Latent Class (LC) modeling approach. In this approach, the payment vehicle parameter is restricted to zero in one of the classes to filter out the group of respondents that have ignored the price mark-ups, while in other classes, the price parameter is estimated freely. Other parameters than the price parameter are necessarily restricted to be equal across all classes [44]. In our case, this implies that intrinsic preferences for social standards are assumed equal across classes and that heterogeneity in preferences and in WTP for social standards is captured by allowing the price parameter to vary across classes. This type of model is generally referred to as an Equality Constrained Latent Class or ECLC model [45,46], and we apply the model specification used in [43], in which the focus is specifically on price non-attendance. Formally, in our model, the probability of a respondent choosing alternative g among $j = 1 \dots J$ choice alternatives, given that there are $c = 1 \dots N$ classes, is given by:

$$P(g) = \sum_{c=1}^N \left[\frac{\exp \theta_c}{\sum_{c=1}^N \exp \theta_c} \right] \left[\frac{\exp(\beta s_g + \delta_c p_g)}{\sum_{j=1}^J \exp(\beta s_j + \delta_c p_j)} \right], \quad (1)$$

where θ is a set of N class-specific constants that are identified by restricting their sum to zero, β represents a vector of preference parameters on social standards s , and δ_c is the price parameter on product price p in class c . Inherent to the model is that $\delta_1 = 0$ in order to

test for non-attendance to the price attribute and that δ_2 to δ_N are freely estimated by the model and are allowed to vary between classes. Next to class-specific WTP estimates for the five social standards, an important outcome of the model is the set of N class probabilities. These class probabilities can be used to assess the probability that the payment vehicle has been ignored in making a choice between the choice alternatives. The larger the non-attendance to the payment vehicle, the larger the proportion of respondents in the first class. Conversely, without non-attendance, the proportion of respondents belonging to the first class should be zero. When using $N > 2$, the class probabilities also represent the parts of the population with a certain WTP for social standards. The WTP estimates for social standard s and class c are given by:

$$\text{WTP}_{sc} = -\frac{\beta_s}{\beta_{pc}}, \quad (2)$$

where β_s is the mean utility coefficient for social standard s (and identical constant across classes because of the equality constraints), and β_{pc} is the mean utility coefficient of product price for class c . These coefficients are estimated by the choice model. The WTP amounts are in Euro, and because the price is measured as a mark-up, the WTP estimates represent price premiums for the five social standards.

In our model, the parameters for each class are estimated by the model, but the number of classes needs to be specified a priori, leading to the question of how many classes should be used. Generally, the Akaike Information Criterion (AIC) is used for this [47], the general statistical rule being that the model with the lowest AIC is the preferred model. We, therefore, estimate models with several numbers of classes for all products and assess AIC estimates for each of these. Detailed results are presented in Table 7, and they reveal that for bananas and coffee, a model with four classes is preferred, and for chocolate, a model with three classes. Next to the AIC, there are also other indicators that confirm the sensibility of these class numbers (see notes in Table 7).

Table 7. AIC estimates for ECLC models with different numbers of classes for the three products.

	AIC
Bananas	
2 classes	2290.2
3 classes	2161.7
4 classes	2153.7
5 classes	-- ^a
Chocolate	
2 classes	2361.6
3 classes	2200.5
4 classes	2204.5 ^b
5 classes	--
Coffee	
2 classes	1724.7
3 classes	1585.3
4 classes	1574.3
5 classes	1578.3 ^c

^a Model did not converge. ^b Collinearity: two classes with almost identical and insignificant price parameters, identical class probabilities, and inflated standard errors. ^c Two classes with almost identical price parameters.

4. Results

Estimation results for the three products are presented in Table 8. Model fits are all around 0.3, which is a good fit for choice models [40]. As expected, parameter estimates for all social standards are positive, and those for product price are negative. Moreover, all parameters, including class probability estimates, are statistically significant at 5% at least.

Table 8. Price non-attendance ECLC model estimates (standard errors in parentheses) ^a.

	Bananas	Chocolate	Coffee
Social standards parameters (identical for all classes)			
No child labor	2.990 ** (0.204)	3.228 ** (0.198)	3.117 ** (0.257)
Living wage and safe working environment	3.154 ** (0.208)	2.884 ** (0.191)	2.708 ** (0.229)
Projects for education of workers	2.106 ** (0.190)	1.713 ** (0.169)	2.164 ** (0.217)
Equal wages for men and women	1.911 ** (0.181)	2.027 ** (0.169)	1.886 ** (0.223)
Freedom to join a trade union	0.986 ** (0.184)	0.891 ** (0.176)	1.125 ** (0.216)
Product price parameters for each class			
Class 1 (price parameter restricted to zero)	--	--	--
Class 2	−2.350 ** (0.392)	−4.632 ** (0.470)	−1.183 ** (0.240)
Class 3	−10.30 * (1.828)	−49.74 ** (3.554)	−4.511 ** (0.917)
Class 4	−55.70 ** (5.743)	--	−26.47 ** (2.501)
Class probabilities			
Class 1 (price parameter restricted to zero)	0.148 * (0.065)	0.375 ** (0.042)	0.164 * (0.070)
Class 2	0.453 ** (0.067)	0.375 ** (0.041)	0.408 ** (0.070)
Class 3	0.093 ** (0.032)	0.251 ** (0.024)	0.131 ** (0.047)
Class 4	0.307 ** (0.029)	--	0.296 ** (0.031)
N (Respondents)	1428 (357)	1400 (350)	1004 (251)
Log-L	−1065.9	−1091.3	−776.1
Pseudo R ² (adjusted)	0.318	0.288	0.293

^a Note that the price parameters in class 1 are restricted to zero and that parameters for the five social standards in our model are identical across classes and are therefore presented only once. **, * = Significance at 1%, 5%.

Class probability estimates for class 1 (non-traders), the class with the price parameter restricted to zero in order to control for non-attendance to price, indicates that around 15% of respondents ignored the price parameter in the experiments for bananas and coffee, while around 37% of respondents appear to have ignored price for the chocolate experiment. This difference is hard to explain in terms of content or in terms of sampling differences because all respondents took part in all three choice experiments, and it is difficult to imagine that a respondent ignored the price for one or two products and did not ignore it for the other(s). It is, therefore, likely that the reason is related to modeling, i.e., where for bananas and coffee, the model with four classes gives plausible results, the 4-class model for chocolate does not, which is why we use a 3-class model for chocolate. It appears that in this model, respondents with low price sensitivity have been allocated for a large part to the zero-price class and partly to the class with a medium-range price sensitivity; the class with a high price sensitivity (class 4 for bananas and coffee and class 3 for chocolate) is of similar size for all three products.

Since, in our model, parameter estimates for social standards are identical across classes, all underlying respondent variation in terms of WTP is reflected in the price parameters, which do vary between classes. In this respect, the patterns show that there is a relatively large group (around 40%) with low price sensitivity, a small group with a mid-range price sensitivity (clearly a group that is not represented in the 3-class model for chocolate,) and a substantial group (25–30%) with high price sensitivity.

From the parameter estimates reported in Table 8, we derive WTP estimates (reflecting price premiums) for the different social standards using equation 2. These price premiums are presented in Table 9, both in EUR and in percentage mark-up. Note that WTP estimates for class 1 (non-traders) cannot be estimated due to the zero-price parameter and that WTP estimates for respondents in this class simply remain uncertain because ignoring product price in the choice experiment may be caused by various factors and may reflect both low and high price sensitivity. The WTP estimates for the other classes show substantial variation in price premiums between the five social standards and between classes. Within classes, people are willing to pay most for products that are produced without child labor, followed closely by products that are produced in safe working environments and that guarantee a living wage. Price premiums for products that are produced in situations that stimulate projects for the education of workers and that strive for equal wages for men and women are substantially lower than for the previous two social standards, while price premiums are lowest for products that are produced in situations that allow workers to join a trade union.

Table 9. Price premiums in Euro and in percentage mark-up (in parentheses) ^{a,b,c}.

	Bananas				Chocolate			Coffee			
	Class 2	Class 3	Class 4	Mean	Class 2	Class 3	Mean	Class 2	Class 3	Class 4	Mean
No child labor	EUR 1.27 (129%)	EUR 0.29 (29%)	EUR 0.05 (5%)	EUR 0.73 (73%)	EUR 0.70 (70%)	EUR 0.06 (7%)	EUR 0.44 (45%)	EUR 2.64 (110%)	EUR 0.69 (29%)	EUR 0.12 (5%)	EUR 1.44 (60%)
Living wage and safe working environment	EUR 1.34 (136%)	EUR 0.31 (31%)	EUR 0.06 (6%)	EUR 0.77 (77%)	EUR 0.62 (63%)	EUR 0.06 (6%)	EUR 0.40 (40%)	EUR 2.29 (96%)	EUR 0.60 (25%)	EUR 0.10 (4%)	EUR 1.25 (52%)
Projects for the education of workers	EUR 0.90 (91%)	EUR 0.20 (21%)	EUR 0.04 (4%)	EUR 0.51 (52%)	EUR 0.37 (37%)	EUR 0.03 (3%)	EUR 0.24 (24%)	EUR 1.83 (77%)	EUR 0.48 (20%)	EUR 0.08 (3%)	EUR 1.00 (42%)
Equal wages for men and women	EUR 0.81 (82%)	EUR 0.19 (19%)	EUR 0.03 (3%)	EUR 0.46 (47%)	EUR 0.44 (44%)	EUR 0.04 (4%)	EUR 0.28 (28%)	EUR 1.59 (67%)	EUR 0.42 (17%)	EUR 0.07 (3%)	EUR 0.87 (36%)
Freedom to join a trade union	EUR 0.42 (42%)	EUR 0.10 (10%)	EUR 0.02 (2%)	EUR 0.24 (24%)	EUR 0.19 (19%)	EUR 0.02 (2%)	EUR 0.12 (12%)	EUR 0.95 (40%)	EUR 0.25 (10%)	EUR 0.04 (2%)	EUR 0.52 (22%)
Class probabilities ^d	45%	9%	31%	--	38%	25%	--	41%	13%	30%	--

^a Price premiums and percentage mark-ups for class 1 cannot be estimated due to the zero-price parameter. ^b All price premiums are statistically significant at 1%. ^c Mean price premiums based on assumption that Class 1 respondents have the same mean WTP for social standards as other respondents. ^d See Table 8.

Differences in WTP for social standards between classes are also substantial, and our findings contain two main elements. First, a large share of the respondents (around 40%) appears to be willing to pay a substantial premium for products that are produced in the circumstances with favorable social standards, with the price premium even going beyond 100% in some cases. Second, another large share of around 25–30% has a very low WTP. Shares for both groups may be larger, but since we do not know how the group of non-traders behaves in reality, this remains uncertain. Mean WTP estimates per social standard are also reported and show that WTP for social standards varies between 22% and 77%, depending on the product and the social standard. We also estimated a standard latent class model, which produces largely similar findings and patterns. The first main difference is that when using the standard latent class model, percentage price premiums for chocolate and coffee are closer together, while price premiums for bananas remain substantially higher. The second main difference is that our model produces substantially lower overall price premiums, as expected (estimation results from the standard latent class model are available upon request from the authors).

5. Discussion and Conclusions

In our study, we identified the WTP of Dutch consumers for chocolate, coffee, and bananas that have been produced in a socially sustainable way. Social sustainability has been measured by us identifying five social standards; (1) no child labor; (2) liveable wage and safe working environment; (3) project for education of workers; (4) equal wages for men and women; and (5) freedom to join a trade union. We assessed WTP for these standards separately, thereby obtaining insight into their relative importance by means of an online survey, including a choice experiment through which 390 Dutch consumers indicated their preferences. We estimate a hybrid latent class model in which we aim to control for price non-attendance. We hypothesized that this WTP is positive (H1) but heterogeneous among consumers (H2). In addition, we hypothesized that WTP varies for different social sustainability benefits but that consumers are indifferent between products for which their WTP is evaluated (H4).

5.1. Price Premiums

The results suggest that price premiums are substantial and that, on average, consumers are willing to pay price premiums between 12% and 77%, depending on the social standard and the product. This confirms hypothesis H1. Our findings thereby suggest that when enhancing information about the particular social standards under which a product is produced may increase consumers' WTP substantially. Price premiums are the highest for products that are produced without child labor and with living wages and safe working environments, with price premiums being slightly higher for avoiding child labor for chocolate and coffee and slightly lower for bananas. Price premiums for products that stimulate projects for the education of workers and equal wages for men and women are quite similar in magnitude but well below the price premiums for products that avoid child labor and ensure living wages and safe working environments. The social standard that received the lowest price premium is the freedom to join a trade union, although stated price premiums are still substantial. The difference between price premiums for different social standards seems to confirm our hypothesis H3.

5.2. Heterogeneity in WTP

In addition to average price premiums per social standard, our latent class models also give insight into heterogeneity in WTP, or more specifically, stated price premiums by different groups (or market segments) in society. The findings show a wide variety in WTP and suggest that, on the one hand, there is a substantial group that is willing to pay price premiums that are well above average, while another substantial group has price premiums that are well below average or even close to zero. This confirms hypothesis H2. By applying a model that is a variation of the standard latent class model, we also show that there is a large group in our experiment that displays zero sensitivity to product price (non-traders). Although it could be argued that part of this group also has low price sensitivity in reality [48], it likely also represents a form of hypothetical bias that is inherent in stated preference research [43]. The upside is that we test and partially correct for this experimental anomaly and thereby obtain lower and arguably more credible price premiums. The downside is that our estimates of the magnitudes of different market segments are uncertain since we do not know the real market categories that the non-traders would belong to. However, this is a problem of experimental behavior rather than of our specific model.

5.3. Differences in WTP among Products

Differences between products in the mean price premium for a specific social standard are also quite substantial. These differences may, to some extent, be explained by the sampling issue, since we excluded those respondents who indicated that they do not buy the product in real-market situations, leading to a substantially smaller sample size for chocolate. To some extent, it may also be related to our specific model; when estimating

a more straightforward latent class model, overall price premium estimates increase, but percentage price premiums for chocolate and coffee are closer together than for our model. However, price premium estimates for bananas remain substantially higher than those for chocolate and coffee. This result seems to reject our hypothesis of indifference (H4). Various explanations for this exist, e.g., perceptions of the social standards under which a product is produced may differ between products, and income may simultaneously affect current product choices and WTP for social standards. Additionally, budget shares of different products vary substantially, and budget restrictions likely decrease the price premium for products with larger budget shares and/or necessity goods.

5.4. Comparison with Earlier Findings

It is difficult to compare our results to previous findings, either because most previous studies focused on products with actual labels that generally represent a combination of various social standards or because percentage price premiums are unknown (generally because a base price was lacking), or because base years are substantially different. There are some exceptions. Specifically, the literature provides many fair-trade price premiums, which resemble our social standard of ‘living wage and safe working environment’, allowing for some qualitative comparisons. Others find a 10% price increase in Belgian consumers for fair-trade labeled coffee [16], while [20] find a 22% price increase for Chinese consumers for fair-trade coffee; both studies use a stated preference approach. Using the hedonic pricing technique, [27] find an 11% price premium. Our findings suggest that, on average, Dutch consumers are willing to pay a price premium of around 50% for coffee, implying our WTP estimate is higher than in previous studies. With respect to chocolate, [24] find that, on average, respondents in Montpellier (France) were willing to pay EUR 1.31 in total for 100 g of fair-trade chocolate. If we transform our ‘Living wage and safe working environment’ price premium estimate into a total WTP for chocolate with this social standard, we find a very comparable estimate of EUR 1.39 for 100 g of chocolate. Using field experiments in Harrisburg, USA, [22] find a 19% price premium for fair-trade chocolate, which is quite lower than our 40% price premium, and a price premium of around 9% for fair-trade bananas, while we find a substantially higher estimate of 77%.

There are only a few other studies that give insights into WTP for some of the specific social standards tested in our study. Similar to our findings, [8] find a substantial WTP for avoiding child labor and dangerous working conditions, and although estimates are difficult to compare in magnitude because they elicit price premiums for athletic shoes, they also find that avoiding child labor is the most important ethical feature. For strawberries produced under ‘living wage and safe working conditions’ [25], find a median price premium of around 68%, which is comparable to our mean price premium estimates for this social standard, which ranges from 40% to 77%.

5.5. Limitations and Further Research

Our research design allows us to separate price premiums for different social standards, giving insight into relative consumer preferences and WTP, but our design choice also has a clear limitation in that it does not allow for deriving a WTP for products with combinations of or even all social standards. Because of budget restrictions, this combined WTP is arguably lower than the sum of WTPs for separate standards; evidence for this is provided by [28], who finds that percentage price premiums go down substantially when product prices increase. Another downside of our approach is that it is difficult to compare and validate our results by looking at current market shares and price premiums of existing products since current labels do not represent the isolated social standards in our study sufficiently closely.

Further research may focus on these two limitations, i.e., studying WTP for combinations of standards, and assessing the WTP for existing labels, also those that are relatively

unknown. In addition, adding other key product features would allow for addressing the *relative* importance of social standards compared to, e.g., taste, environmental standards, etc.

5.6. Implications

Using a meta-analysis to understand consumer purchase behavior in relation to different certification labels for the last 15 years (2005–2020), [49] underline the results that we found in this study. They conclude that consumers' WTP for a pound of coffee is positively and significantly influenced by the presence of Fair-trade ecolabels. Our conclusion is also supported by the research of [50], who found that if consumers are convinced that fair prices are paid to the workers and standard and safe working conditions are fulfilled, they are willing to buy more and willing to pay for fair-trade food. The fact that people in our study are willing to pay a higher price premium for specific social conditions (compared to the general fair-trade label) opens up a whole new opportunity for policymakers and fair-trade organizations. However, this is not without risks. Another study finds that consumers were unable to identify the benefits of fair-trade that are actually transmitted to the farmer [51]. In their study, removing the information bias by providing simple information provision, the WTP decreased. They argue that providing simple information may correct the wrongly formed prior beliefs of the consumers and that fair-trade's symbolic message does not deliver the promised benefits regarding higher social and economic standards for producers in developing countries.

As also argued in [5], fair-trade products should emphasize that they are ethical and safely produced without child labor or growth stimulants because this creates high product involvement and has a strong effect on the willingness to pay a price premium, potentially also creating financial incentives for companies aiming to incorporate social corporate responsibility in their strategies [52]. Labeling food in such a way that the specific social condition is visible on the package will enhance not only consumer awareness but also their willingness to pay a higher (and eventually a fairer price) for the products they consume. Simultaneously, including price premiums for market products that fully incorporate societal costs of those products, so-called true prices or shadow prices, will decrease consumer demand for less-sustainable products substantially [53] and, as such, will lead to a fairer and more-sustainable economic system.

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Institutional Review Board Statement: Ethical review for this study was done through a self-check of the Ethics Committee of the Vrije Universiteit Amsterdam, which indicated that no further review was necessary.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study as part of their membership of the respondent panel used for this study.

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Appendix A. Survey

Note that the original text of the survey was in Dutch. Below we present survey version 1. Different versions vary only in the combination of attribute levels and the order of products.

VERSION 1

This survey is part of graduation research at the Vrije Universiteit Amsterdam (VUA) and is being carried out on behalf of CE Delft. This research is about the choice behavior of consumers. There are no right or wrong answers, I am only interested in your opinion. The survey takes about 10 min. Your answers will be treated confidentially and remain anonymous.

On the next page, twelve choice cards will be shown. Each choice card contains one product; for each card, a choice can be made between three different combinations of price and social characteristics. The taste and quality of the products are always the same. We would like to ask you to indicate which one you would buy if you were in the supermarket. Please consider your current income level.

Choice card 1

Choice card 1a	Option 1	Option 2	Option 3
Product type	1 kg		
Social characteristic	No child labor	Projects for education of workers	No extra social characteristics
Price	EUR 1.99	EUR 1.49	EUR 0.99

Choice card 2

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	Liveable wage and safe working environment	Freedom to join a trade union	No extra social characteristics
Price	EUR 1.49	EUR 1.49	EUR 0.99

Choice card 3

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	Projects for education of workers	Liveable wage and safe working environment	No extra social characteristics
Price	EUR 2.99	EUR 2.59	EUR 2.39

Choice card 4

<i>Choice card</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
<i>Product type</i>	1 kg		
<i>Social characteristic</i>	<i>Freedom to join a trade union</i>	<i>Equal wages for men and women</i>	<i>No extra social characteristics</i>
<i>Price</i>	EUR 1.49	EUR 1.29	EUR 0.99

Choice card 5

<i>Choice card</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
<i>Product type</i>			
<i>Social characteristic</i>	<i>No child labor</i>	<i>Projects for education of workers</i>	<i>No extra social characteristics</i>
<i>Price</i>	EUR 1.99	EUR 1.49	EUR 0.99

Choice card 6

<i>Choice card</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
<i>Product type</i>			
<i>Social characteristic</i>	<i>Liveable wage and safe working environment</i>	<i>Freedom to join a trade union</i>	<i>No extra social characteristics</i>
<i>Price</i>	EUR 3.59	EUR 3.59	EUR 2.39

Choice card 7

<i>Choice card</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
<i>Product type</i>	1 kg		
<i>Social characteristic</i>	<i>Projects for education of workers</i>	<i>Liveable wage and safe working environment</i>	<i>No extra social characteristics</i>
<i>Price</i>	EUR 1.29	EUR 1.09	EUR 0.99

Choice card 8

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	Freedom to join a trade union	Equal wages for men and women	No extra social characteristics
Price	EUR 1.49	EUR 1.29	EUR 0.99

Choice card 9

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	No child labor	Projects for education of workers	No extra social characteristics
Price	EUR 4.79	EUR 3.59	EUR 2.39

Choice card 10

Choice card	Option 1	Option 2	Option 3
Product type	1 kg		
Social characteristic	Liveable wage and safe working environment	Freedom to join a trade union	No extra social characteristics
Price	EUR 1.49	EUR 1.49	EUR 0.99

Choice card 11

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	Projects for education of workers	Liveable wage and safe working environment	No extra social characteristics
Price	EUR 1.29	EUR 1.09	EUR 0.99

Choice card 12

Choice card	Option 1	Option 2	Option 3
Product type			
Social characteristic	Freedom to join a trade union	Equal wages for men and women	No extra social characteristics
Price	EUR 3.59	EUR 2.99	EUR 2.39
Do you ever buy the following products in the supermarket?			
1. A bunch of bananas	☐ 1. No	☐ 2. Yes, without Fair-trade trade mark	☐ 3. Yes, with fair-trade quality mark
2. A chocolate bar	☐ 1. No	☐ 2. Yes, without fair-trade quality mark	☐ 3. Yes, with fair-trade quality mark
3. A package of ground coffee	☐ 1. No	☐ 2. Yes, without fair-trade quality mark	☐ 3. Yes, with fair-trade quality mark
How much is the gross monthly income of your household?			
☐ 1. Less than EUR 2500 gross per month			
☐ 2. Between EUR 2500 and EUR 3000 gross per month			
☐ 3. More than EUR 3000 gross per month			
☐ 4. Don't know/ different			
Which political party did you vote for in the last parliamentary elections? (Drop-down menu with 28 political parties)			

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