RTG 2654 Sustainable Food Systems

University of Goettingen

SustainableFood Discussion Papers

No. 1

Information Source and Content – Drivers for Consumers' Valuation of Fairly Traded Foods

Liza von Grafenstein
Sarah Iweala
Anette Ruml

December 2021

Information Source and Content – Drivers for Consumers' Valuation of Fairly Traded Foods

Liza von Grafenstein[1][2], Sarah Iweala[3], Anette Ruml[4]

Abstract

To learn about the role of information content and source as catalysts to increase consumers' valuation of fairly traded foods, we conducted an online survey with 2,500 consumers representative of the German population. Within the online survey, respondents were randomly assigned to one of five information treatments or the control group. We employ the contingent valuation approach to measure the willingness-to-pay (WTP) premium for chocolate with the Fairtrade label compared to similar conventional chocolate. To estimate WTP and the outcome which measures the participants' purchasing intentions, we use ordinary least squares and interval regressions. We find that German consumers are willing to pay a high price premium for a Fairtrade label despite limited knowledge about the certification. This WTP is relatively robust to additional supportive information provision irrespective of the information source. However, the broader measure of behavior, the purchasing intention, can rise due to information provided by a retailer or the government. While a supportive statement by a university does not seem to incentivize the valuation of Fairtrade certified chocolate, we find that an unsupportive (zero effect) statement of the same source can discourage the purchasing intention. Our findings imply that policymakers and scientists need to mind the risk of generalized science communication and create information campaigns to increase purchasing frequency.

Keywords: Labor standards, sustainable consumption, ethical label, consumer knowledge, WTP, information treatment

JEL codes: M3, Q0

---

[1] Department of Agricultural Economics and Rural Development, University of Göttingen, Platz der Göttinger Sieben 5, 37073 Göttingen, Germany (liza.grafenstein@uni-goettingen.de)
[2] Corresponding author
[3] Department of Agricultural Economics and Rural Development, University of Göttingen, Germany (sarah.iweala@uni-goettingen.de)
[4] German Institute for Global and Area Studies (GIGA), Neuer Jungfernstieg 21, 20354 Hamburg, Germany (anette.ruml@giga-hamburg.de)

1 Introduction

Labor conditions in the agricultural sector of the Global South are hazardous and up till today often characterized by forced and child labor, poor working conditions, and low income (see NORC (2020) for a recent assessment on cocoa production). The agricultural sector accounts for the largest share of child labor, 70% or 108 million children in absolute terms (ILO, 2017). A hotspot of child labor is cocoa production in West Africa (ILO and UNICEF, 2021). In the most relevant cocoa-exporting countries, Ghana and the Ivory Coast, 1.56 million children were involved in child labor in 2018/19 (NORC, 2020). On the other side of the value chain, consumers in the Global North consistently state their preference for fair labor standards and fairly traded products, but consumption rates of such remain low (Lusk, 2018). Despite continuous global growth, Fairtrade certified products account for only 1.7% of the total market in Switzerland and 1.5% in Sweden that are among the countries with the highest shares (Willer and Lernoud, 2018). While consumers' characteristics influencing the purchasing intention of fairly traded products have been widely examined in the existing literature (Arnot et al., 2006; Brunner, 2014; De Pelsmacker et al., 2005; Vecchio and Annunziata, 2015), the role of information content and source as catalysts to increase consumers' valuation of fairly traded foods is not well established.

The provision of information per se affects consumers' valuation or behavior regarding food in general (Cecchini et al., 2018; Gifford and Bernard, 2006; White et al., 2019) and food with sustainability features in particular (Bullock et al., 2017; Chrysochou and Grunert, 2014; d'Astous and Mathieu, 2008). For example, Disdier and Marette (2012) elicit the willingness-to-pay (WTP) for seafood products of either regular, environmentally friendly, or fairly traded features after several information treatments. They find that the WTP for fairly traded labeled products increases after a brief and even more after additional information. Nevertheless, evidence of information affecting consumers purchasing behavior is mixed: Andorfer and Liebe (2015) find no effect of information on purchases of fairly traded coffee in a field experiment.

Further, little is known about how the source of information itself affects consumers' product evaluation. Here, we analyze the effect heterogeneity between credible sources of information such as the government and less credible sources like interest groups that potentially provide consumers with sustainability information (e.g. Aschemann-Witzel and Grunert, 2015; McFadden and Huffman, 2017; Rousu et al., 2007). Thus, our first research question contributes to the existing literature by asking *"Does the effect of information on the valuation of fairly traded products differ across information sources?"*. Our study covers important actors in the supply chain as the sources of the information: certification agencies, governments, research institutions, and retailers.

We further address a second research gap: the role of the information content, in particular the key statement. Information treatments in previous studies either carried supportive or unsupportive effect statements regarding the features of a food product. Results are mixed as some authors find similar effects on consumers' attitudes and behaviors for supportive and unsupportive information (Aktar, 2013; Disdier and Marette, 2013), larger effects for unsupportive information (Fox et al., 2002; Rousu et al., 2007), larger effects

for supportive information (Disdier and Marette, 2012; Gifford and Bernard, 2006), or no effects (Waldman and Kerr, 2018). In studies with only unsupportive and neutral information treatments, the unsupportive information affects consumers' attitudes negatively (Aschemann-Witzel and Grunert, 2015; Müller and Gaus, 2015). Our study broadens the evidence of unsupportive and supportive effect statements on consumers' valuation of sustainable foods by using the *same* information source for supportive and unsupportive effect statements. Only Aktar (2013) uses the same explicitly named information source for both types of information. He shows that companies' positive or negative disclosure of ethically questionable business practices increases consumers' WTP compared to non-disclosure. To the best of our knowledge, no evidence exists in the context of science communication. Science usually serves as a source of descriptive information (Aschemann-Witzel and Grunert, 2015; McFadden and Huffman, 2017; Rousu et al., 2007) or explicitly supportive information for technological change (Fox et al., 2002). Against the backdrop of increasing efforts in science communication (Weingart and Joubert, 2019), it is important to study the unintended consequences of the communication of scientific study results to a broader public (Blanton and Ikizer, 2019). Thus, our second research question asks, "*Does an unsupportive effect statement compared to a supportive effect statement communicated by the same academic source affect consumers' valuation of fairly traded foods differently?*". When using the same information source for supportive and unsupportive statements about the intended welfare effect of an ethical label, we identify whether the source or the effect statement drive changes in consumers' valuation of fairly traded foods.

Aside from the treatments, we are interested in the initial knowledge of consumers about the certification, and whether it plays a role in their valuation of the certified product. Previous research indicates that consumer knowledge in the EU depends on the label; the Fairtrade label is correctly associated with its sustainability claim (Grunert et al., 2014). Yet, most studies capture only whether consumers can identify the Fairtrade certification correctly and not how much consumers know (e.g. Rousseau, 2015). Thus, we contribute to the literature in a three-fold way by (1) assessing the role of consumers' initial knowledge of Fairtrade, (2) comparing four different information sources (certification agency, government, research institution, retailer), and (3) contrasting supportive and unsupportive statements about the intended welfare effects of sustainability certification by a research institution.

To test our questions empirically, we conducted an online survey with a sample of 2,500 consumers in Germany in November 2020. The participants were randomly assigned to five information treatments and the control group. We use the contingent valuation approach to measure the participants' WTP for the premium of chocolate with the Fairtrade certification compared to similar conventional chocolate. A related outcome captures the participants' purchasing intention of Fairtrade certified products in the future.

Our results show that German consumers are generally willing to pay a high price premium for Fairtrade certification despite limited knowledge about the label, i.e. the expected means of WTP premium range between 47 and 56 Euro-cents. Additional information does not increase the participants' WTP but their purchasing intention. Further, the treatment effects differ by information sources. When the retailer or the government provide the information, the participants' purchasing intentions rise. While we provide no

evidence that a supportive statement by the university can incentivize the valuation of Fairtrade certified chocolate, we find that an unsupportive (zero effect) statement by the same source can discourage the purchasing intention.

2 Data and Methods

2.1 Study Design: Randomized controlled trail with information intervention

To assess how information about the certification affects the valuation of fairly traded foods, we conducted a randomized controlled trial with five treatment arms and one control group that did not receive any information. As listed in Table 1, participants in the treatment arms looked at almost identical information leaflets (Figure A.1-A.5 in the appendix) that differed either in the source of information (1-4) or the effect statement (3 vs 5).[5]

Table 1: List of information treatments

	Source	Source represented by	Effect statement about intended welfare effect of the Fairtrade certification
1	Certification agency	Fairtrade	supportive
2	Government	German Ministry for Development and International Cooperation	supportive
3	Research institution	University of Göttingen	supportive
4	Food retailer	EDEKA	supportive
5	Research institution	University of Göttingen	unsupportive

      Leaflets in all treatment arms refer to Fairtrade certified cocoa in the Ivory Coast because of the high prevalence of human rights violations in cocoa production in West Africa (ILO and UNICEF, 2021; NORC, 2020). For the different sources, we selected actors in the value chain of cocoa that could share sustainability information with consumers. For the varying statement of the intended welfare effect of the Fairtrade certification, we claimed that a new study found that certification either improves (supportive) or does not improve (unsupportive) income and working conditions. The unsupportive effect statement does not state that certification impairs income and working conditions but a zero effect. The effect statement differed for the research institution only because it is the most likely to publish zero effects based on scientific evidence. We debriefed the participants at the end of the survey to clarify that the leaflets were designed and issued by us. We did not provide further information regarding the welfare effects of Fairtrade certification because they are heterogeneous across case studies and study foci (e.g. Maertens, 2019; Meemken, 2020; Sellare et al., 2020).

---

[5] This leads to a less realistic format for the university but ensures that other features like the format of the message would not affect consumers' perception of the information and, hence, their valuation of fairly traded foods.

2.2 Data and Sampling

The study sample is based on the responses of 2,500 consumers in Germany, who participated in the online survey carried out by the panel provider Respondi, in November 2020. To reflect the socio-demographic structure of the German population, we set a quota for age, gender, education, and income.

Germany is an ideal setting for our study because a large share of consumers states their preference for sustainable foods (BMEL, 2019). Further, the awareness of Fairtrade certification is relatively high and product availability is no constraint (Iweala et al., 2019; TransFair, 2021; Willer and Lernoud, 2018). German consumers also value the communication of pro-social aspects on foods (Ghvanidze et al., 2017). Therefore, consumers in Germany make up a suitable sample to analyze other factors playing a role in the willingness-to-purchase, such as the role of information source and effect statement.

2.3 Outcome Measures

2.3.1 WTP Measure

We applied the contingent valuation method using an iterative price list to measure the hypothetical WTP for the Fairtrade certification. Contingent valuation is suitable for capturing the price premium that a consumer is willing to pay for one additional product attribute (here the certification) when prices for that attribute are non-existing in the marketplace (Liebe, 2007). It is the most widely used stated preference method for eliciting WTP in the context of organic food consumption (Katt and Meixner, 2020). The key valuation question was posed to participants as follows:

> *"The next time you go shopping, you are standing in front of the chocolate shelf. You are faced with the choice between a 100 g bar of chocolate with a Fairtrade label or a similar bar of chocolate without a Fairtrade label. How much more would you be willing to pay for a bar of chocolate with a Fairtrade label, compared to a similar chocolate bar without a Fairtrade label?"*[6]

As respondents chose between a 100 g bar of chocolate of an unknown brand and flavor with and without a Fairtrade certification, the choice experiment and the phrasing of the question allowed us to measure the stated preference for the certification directly as a quantifiable amount.

To answer our valuation question, participants could choose between *"not being willing to pay more"* and one of three different price intervals, namely 0.01 Euro to 1.00 Euro, 1.01 Euro to 2.00 Euro, or 2.01 Euro to 3.00 Euro. Only participants who indicated their willingness to pay more proceeded to another round. They were asked to choose among ten more refined intervals with a width of 10 Euro-cents, that lied within the range of their first chosen interval. The selected price range stems from findings of existing studies on the WTP for fairly traded chocolate bars (Didier and Lucie, 2008; Poelmans and Rousseau, 2016; Rousseau, 2015;

---

[6] We also included a cheap talk script to point to the possible bias in answering behavior due to the hypothetical setting. Please refer to the full questionnaire in the supplementary appendix for all the introductions.

Teyssier et al., 2015). This iterative multiple price list method for contingent valuation allowed us to elicit WTP intervals with a single switching point (Andersen et al., 2006; Anderson et al., 2007).

2.3.2 Purchasing Intention

Our second outcome provides additional evidence for changes in consumers' valuation by our treatments: the purchasing intention. We measured the self-reported likelihood of purchasing Fairtrade certified products in the future with adapted items (Hansen et al., 2018; Michaelidou and Hassan, 2008).[7] A seven-point Likert-Scale provided the answer options for the participants. Subsequently, we performed a principal component analysis to derive one continuous variable capturing the core concept.[8]

2.4 Covariate Measures

To isolate the effects of the information treatments from response heterogeneity to information sources, we included a set of control variables. We select the controls based on determinants identified in previous consumer studies such as personal values (Grebitus et al., 2015), social norms (Johe and Bhullar, 2016), perceived effectiveness (Vermeir and Verbeke, 2008), attitudes (Panzone et al., 2016), perceived self-identity (Sparks and Shepherd, 1992), and others (White et al., 2019).[9]

Further, we control for the initial knowledge of the participants because it might affect the perception and so the effect of the information treatment on product valuation as research on knowledge in pro-environmental behavior demonstrates (Onel and Mukherjee, 2016). We followed the approach in Onel and Mukherjee (2016) and divided knowledge into objective (knowing facts) and subjective (self-rated) knowledge. The objective knowledge score derives from participants' answers to eight true or false questions about Fairtrade certification. To measure subjective knowledge, we used one continuous factor derived from a principal component analysis of participants' answers regarding their knowledge about Fairtrade certification and food production conditions compared to the average consumer in Germany following Aertsens et al. (2011).

Moreover, we included covariates capturing participants' shopping behaviors such as the frequency of buying chocolate, the average monthly chocolate expenditure, the initial frequency of buying fairly traded products, and their current awareness of such products.

2.5 Estimation strategy

To measure the average treatment effect (ATE) of the information leaflets on the valuation of fairly traded foods, we used two main models to account for the different types of data. For the WTP models, we employed interval regression, a double-sided censored Tobit model, because we elicited not a point but an interval

---

[7] The questionnaire and the subsequent list of sources used for the design of the questionnaire are available in the supplementary appendix (Chapter S.1 and Table S.2.1).

[8] For all variables we created using principal component analysis we provide more detailed information in the supplementary appendix (Table S.2.2 to S.2.10).

[9] In the supplementary appendix Table S.2.1 we list the included covariate measures together with the question and sources they were based on, including the adjustments made for this study.

estimate. Censored interval regressions are well-suited for WTP measured as a range and are more efficient than discrete choice models (Tian et al., 2011; Yang et al., 2012). For the continuous aggregated measure of purchasing intention, we used OLS regressions. All models account for heteroscedasticity. We tested the model assumptions for interval regression (see Tables S.2.11 and S.2.12 in the supplementary appendix).

First, to analyze the importance of the information source, we used a restricted sample that includes the control group and those treatment groups who received supportive information:

$$Y_i = \beta_0 + \beta_1 Fairtrade_i + \beta_2 Ministry_i + \beta_3 Retailer_i + \beta_4 supUniversity_i + \gamma X_i + \epsilon_i$$
(Estimation Equation 1)

Y_i is the outcome variable, either the WTP premium or the purchasing intention factor. $Fairtrade_i$ stands for the information treatment using the certification agency Fairtrade as a source. $Ministry_i$, $Retailer_i$, and $supUniversity_i$ represent the German Ministry for Development and International Cooperation, Germany's biggest food retailer EDEKA, and the University of Göttingen, respectively. X_i is a vector of covariates on the individual level that captures prior objective and subjective knowledge, demographic characteristics (gender, age, education, and income), values or other personal characteristics (consumer identity, perceived social norms, perceived self-efficacy, social value orientation, and trust), shopping behavior (frequency of purchasing Fairtrade labeled products/chocolate, Fairtrade awareness, amount of chocolate purchased in the last week), and trust in Fairtrade certification.[10] ϵ_i is the error term.

Second, to analyze differences in the effects between the supportive and unsupportive statements, we use the following estimation equation:

$$Y_i = \beta_0 + \beta_4 supUniversity_i + \beta_5 unUniversity_i + \gamma X_i + \epsilon_i \qquad \text{(Estimation Equation 2.1)}$$

The difference to the first estimation equation is the restriction of the sample. Here, we include the control group and those treatment groups that receive information from the university. Thus, only two treatment dummies are present: $supUniversity_i$, as before, and $unUniversity_i$ that stands for the unsupportive information treatment about the intended welfare effect of the Fairtrade certification using the University of Göttingen as a source.

---

[10] We use Pearson's correlation coefficients to detect correlated covariates. None of the covariates are statistically significantly correlated at the 5%-significance level. However, we do find correlations at the 10%-significance level with magnitudes greater than 0.6 indicating a strong relationship for fair trade awareness factor with consumer identity factor or social norms factor, and consumer identity factor with social norms factor. We keep the correlated coefficients in the regression because of the low significance level of the correlations and the different types of concepts each variable tries to capture. Moreover, we are not interested in the coefficient magnitude of said variables.

4 Results

4.1 Sample characteristics

Table 2 presents descriptive statistics for our sample of 2,239 consumers that passed our checks for inattentive answering behavior.[11] In Panel A on consumer knowledge and consumption characteristics, we differentiate subjective and objective knowledge.[12] The two-building items of the subject knowledge factor show that our participants report having similar knowledge to the average German consumer. For objective knowledge, we asked survey participants eight questions about Fairtrade certification. The mean number of correct answers is around 3 out of 8, and the mean number of incorrect answers is around 2 out of 8. The participants answered mostly with *"don't know"*. This shows an overall lack of knowledge about the features of the certification. The low values indicate that more information is required to potentially increase the valuation of fairly traded foods. Further, around 34% of the households in the sample purchase chocolate once to multiple times a week; the participants spend on average approximately 16 Euros per month on chocolate. The frequency of purchasing fairly traded products is substantially lower: only around 17% of the participants purchase once to multiple times a week, and 15% state never to do so. Yet, 40% of the participants indicate purchasing fairly traded products multiple times a month. 86% of the participants have observed the Fairtrade label in the supermarket while shopping.

Panel B presents the descriptive statistics of the outcome variables. Consumers across all sample groups are willing to pay a mean price premium between approximately 49 and 56 Euro-cents for a 100 g bar of Fairtrade certified chocolate compared to non-certified chocolate. These values are high yet also have a high standard deviation indicating substantial variation in the respondents' individual WTP. For our second outcome variable, purchasing intention, we show the two factor building items. They show that on average our participants are rather likely to purchase Fairtrade labeled foods in the future. We are confident that the treatment leaflets affected the participants' outcomes because indicators of perception of source and effect statement asked in the survey show high levels of agreement to the credibility of sender and content (Table S.2.14 in the supplementary appendix).

---

[11] We include participants in the analytical sample under two conditions; They have answered three or less of six statement batteries with the same answer option in each module and need more time to answer the survey than half of the median duration of all participants.

[12] Please see Table S.2.13 in the supplementary appendix for more summary statistics.

Table 2: Descriptive Statistics

		Mean	Standard Deviation
Panel A: Selected Consumer Characteristics			
Subjective knowledge (1 to 7)	Agreement to being well informed about the Fairtrade label compared to average German consumers.	3.688	1.600
	Agreement to being a good judge regarding food production conditions compared to average German consumers.	3.666	1.539
Objective knowledge answers (0 to 8)	Correct	3.075	1.467
	Incorrect	1.897	1.396
	Don't know	3.241	2.263
Frequency buying chocolate	Never	0.027	
	Once a month	0.276	
	Multiple times a month	0.354	
	Once a week	0.243	
	Multiple times a week	0.100	
Amount spent on chocolate in the past month in Euro		16.077	15.982
Frequency buying fairly traded products	Never	0.150	
	Once a month	0.282	
	Multiple times a month	0.395	
	Once a week	0.109	
	Multiple times a week	0.065	
Observed Fairtrade label while shopping		0.860	
Panel B: Outcomes			
Bound WTP in Euro-cents	Lower (0 to 291)	48.910	54.137
	Upper (0 to 300)	55.985	56.008
Purchasing intention (1 to 7)	Agreement to buying more Fairtrade labeled food in the near future	4.485	1.599
	Likelihood of buying Fairtrade labeled food in the next 14 days	4.467	1.768

Note: This is the analytical sample consisting of 2,239 observations with complete information for all main outcomes and covariates used in the regression analysis.

4.2 ATE of information sources

As the randomized allocation of participants to the treatment arms and control group is mainly successful, we conclude that the groups are overwhelmingly homogenous regarding the captured characteristics.[13] Thus, we identify the ATE of information treatments on the valuation of fairly traded foods. We assess the ATE of different information sources in Table 3 that presents the regression results of the supportive information

---

[13] In the balance table (Table A.1), we barely find statistically significant differences at the 5%-significance level in respect to socio-demographics and measured concepts. We contribute these findings to chance because randomization has been conducted carefully and correctly.

treatments on the consumers' WTP (columns 1-2) and purchasing intentions (columns 3-4). We only report covariate effects that are significant at least at the 5%-significance level.

For the WTP, we observe that coefficients are very small in magnitude and go up to 4 Euro-cents of predicted price premium per 100 g of Fairtrade certified chocolate. None of the effects are statistically significant even after controlling for confounding factors. One possible explanation offers the already high overall price premium participants are willing to pay for the certification, as indicated by the constant coefficient. When we consider the estimated expected WTP premium means by treatment (Figure 1, left graph), we see that the expected means are relatively high for all considered treated and control groups.[14] Participants are willing to pay between 50 and 53 Euro-cents more for chocolate across all groups if it is Fairtrade certified. Therefore, the initial WTP is high and robust to the additionally provided supportive information.

Concerning the effects of the covariates, we find that female, young, and trusting consumers who buy Fairtrade products multiple times a week, have higher household incomes, and consider themselves as an ethical consumer are willing to pay higher predicted price premiums. Trust in and awareness of Fairtrade further increase the predicted premium while the frequency of buying chocolate reduces it.

Columns 3 and 4 in Table 3 present the results of the purchasing intention that captures the intent to choose Fairtrade certified alternatives irrespective of the price (difference). While all treatment coefficients are positive, the effect is only statistically significant if the retailer or the government provided the information. The significant effects differ in magnitudes.

Further, we find that respondents' heterogeneity to information sources for the outcome purchasing intention differs from the one for WTP. Most pronounced socioeconomic characteristics are less important. However, consumer identity, social norms, self-efficacy, trust, and the amount spent on chocolate in the past month drive higher purchasing intention. Again, trust in and awareness of Fairtrade, as well as the high buying frequency of Fairtrade products have positive effects. Overall, the source of the information treatment matters for the magnitude of the purchasing intention but not for the WTP premium.

---

[14] Table S.2.15 lists the respective values of the figure.

Table 3: Treatment effects for supportive statements

	(1) Willingness-to-pay	(2) Willingness-to-pay	(3) Purchasing intention	(4) Purchasing intention
Treatment 1: Fairtrade supportive	3.758	1.720	0.105	0.069
	(4.032)	(2.717)	(0.072)	(0.043)
Treatment 2: Ministry supportive	0.881	0.318	0.107	0.095**
	(4.016)	(2.833)	(0.073)	(0.044)
Treatment 3: University supportive	-1.254	0.665	0.075	0.053
	(3.915)	(2.781)	(0.073)	(0.042)
Treatment 4: Retailer supportive	1.748	-1.575	0.168**	0.087*
	(4.050)	(2.722)	(0.073)	(0.045)
Additive overall knowledge score (0 to 16)		-0.583		-0.006
		(0.513)		(0.008)
Subjective knowledge factor (pcf)		1.095		0.028
		(1.030)		(0.020)
Female		10.563***		0.034
		(1.899)		(0.028)
Other/diverse		-8.959		-0.213***
		(24.040)		(0.067)
Age in years		-0.416***		0.000
		(0.073)		(0.001)
Highest educational level		-0.162		-0.011
		(0.891)		(0.013)
Household income		2.822***		0.030*
		(1.086)		(0.016)
Consumer identity factor (pcf)		3.401**		0.210***
		(1.725)		(0.033)
Social norms factor (pcf)		1.018		0.059**
		(1.276)		(0.026)
Self-efficacy factor (pcf)		1.819*		0.055***
		(0.984)		(0.018)
Primary SVO angle in degrees		0.073		0.001
		(0.068)		(0.001)
General trust		1.432**		0.021**
		(0.582)		(0.010)
Frequency of buying Fairtrade products:				
Once a month		1.662		0.460***
		(2.613)		(0.059)
Multiple times a month		1.641		0.613***
		(3.115)		(0.066)
Once a week		0.277		0.708***
		(4.731)		(0.080)
Multiple times a week		14.882**		0.797***
		(6.462)		(0.087)
Frequency of buying chocolate		-2.248**		0.001
		(1.067)		(0.017)
Fairtrade awareness factor (pcf)		10.211***		0.171***
		(1.507)		(0.029)
Amount spent on chocolate in the past month in Euro		0.095		0.002**
		(0.082)		(0.001)
Trust in Fairtrade factor (pcf)		4.693***		0.231***
		(1.043)		(0.023)
Constant	52.319***	60.719***	-0.033	-0.659***
	(2.787)	(8.385)	(0.050)	(0.135)
AIC	13,703.220	12,857.269	5,287.603	3,331.787
Observations	1,858	1,858	1,858	1,858

Note: Predicted willingness-to-pay is measured in Euro-cents. Purchasing intention is a factor derived through principal component analysis. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively. The abbreviation pcf indicates that this variable is the factor score generated by a principal component analysis. AIC stands for the Akaike Information Criterion to compare model-fit.

Figure 1: Expected Means of WTP and 95% Confidence Interval
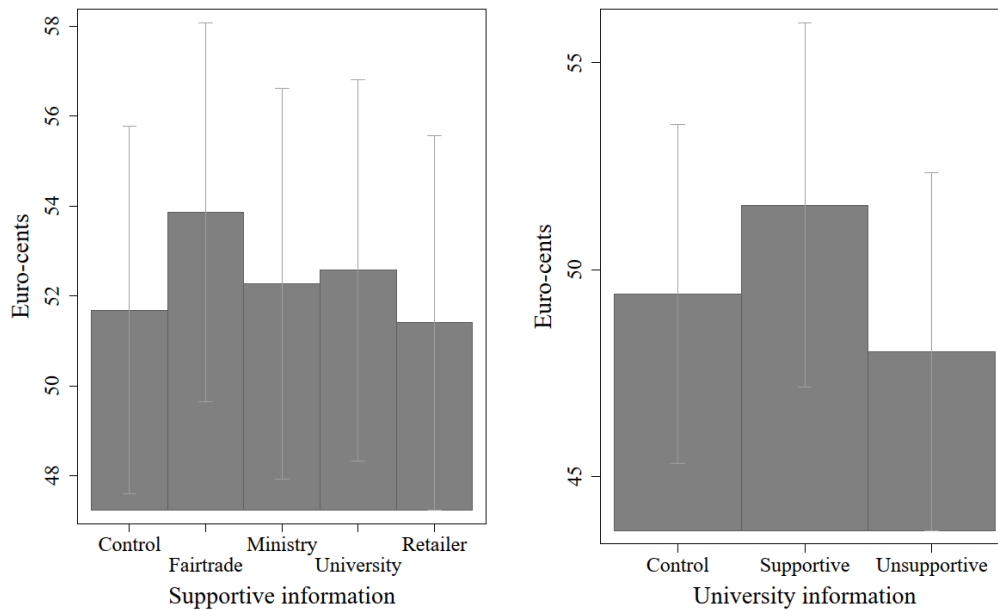
Note: The expected means represent the expected cell means for each treatment using predictive margins based on the interval regression corrected for heterogeneity. The two figures stem from different regressions, thus, the mean of the control group differs.

4.3 ATE of supportive and unsupportive statements by university

We now turn to the ATE for supportive and unsupportive statements from one source. Columns 1 and 2 in Table 4 show the coefficients for the predicted WTP premium. While the unsupportive effect statement has the expected sign in both columns, the coefficient of the supportive effect statement only turns positive when controlling for confounding factors. This positive coefficient in the main specification indicates a higher predicted WTP premium. The unsupportive statement has a negative coefficient that indicates a reducing effect. However, the coefficients are statistically insignificant. Compared to the expected mean of the WTP premium of the control group shown on the right side of Figure 1, the effect sizes are again small in magnitude. Similar to the results in Table 3, information treatments delivered by a university have no statistically significant effect.

The results for the purchasing intention regressions in columns 3 and 4 show that the unsupportive statement by the university has a negative and statistically significant effect on the purchasing intention. The coefficient is large in magnitude, particularly compared to the positive results in Table 3. Thus, consumers that receive the information that *"Fairtrade was not found to improve incomes and working conditions"* have a significantly lower purchasing intention. In contrast, the supportive statement does not have a statistically significant effect.

Table 4: Treatment effects for university statements

	(1) Willingness-to-pay	(2) Willingness-to-pay	(3) Purchasing intention	(4) Purchasing intention
Treatment 3: University supportive	-1.254	2.386	0.075	0.054
	(3.915)	(2.726)	(0.073)	(0.043)
Treatment5: University unsupportive	-4.191	-1.914	-0.208***	-0.121***
	(3.950)	(2.719)	(0.071)	(0.046)
Additive overall knowledge score (0 to 16)		-0.197		-0.001
		(0.638)		(0.011)
Subjective knowledge factor (pcf)		0.235		0.042
		(1.319)		(0.026)
Female		8.595***		0.007
		(2.353)		(0.036)
Other/diverse		14.799***		0.932***
		(5.193)		(0.091)
Age in years		-0.374***		0.001
		(0.089)		(0.001)
Highest educational level		-0.727		-0.030*
		(1.131)		(0.017)
Household income		0.725		0.026
		(1.350)		(0.020)
Consumer identity factor (pcf)		5.916***		0.232***
		(2.132)		(0.041)
Social norms factor (pcf)		1.057		0.036
		(1.532)		(0.029)
Self-efficacy factor (pcf)		1.933		0.032
		(1.239)		(0.024)
Primary SVO angle in degrees		-0.019		-0.001
		(0.086)		(0.001)
General trust		1.458**		0.027**
		(0.738)		(0.013)
Frequency of buying Fairtrade products:				
Once a month		4.459		0.446***
		(3.213)		(0.073)
Multiple times a month		4.220		0.578***
		(4.110)		(0.083)
Once a week		8.833		0.642***
		(6.120)		(0.101)
Multiple times a week		24.146***		0.698***
		(8.121)		(0.119)
Frequency of buying chocolate		-5.558***		0.017
		(1.348)		(0.023)
Fairtrade awareness factor (pcf)		4.085**		0.170***
		(1.828)		(0.037)
Amount spent on chocolate in the past month in Euro		0.193*		0.001
		(0.104)		(0.002)
Trust in Fairtrade factor (pcf)		7.837***		0.257***
		(1.344)		(0.029)
Constant	52.319***	64.842***	-0.033	-0.610***
	(2.787)	(10.435)	(0.050)	(0.170)
AIC	8,659.950	8,188.561	3,298.622	2,155.087
Observations	1,158	1,158	1,158	1,158

Note: Predicted willingness-to-pay is measured in Euro-cents. Purchasing intention is a factor derived through principal component analysis. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively. The abbreviation pcf indicates that this variable is the factor score generated by a principal component analysis. AIC stands for the Akaike Information Criterion to compare model-fit.

4.4 Limitations and Robustness

Our results have to be interpreted given the potential biases due to framing and social desirability. When we use multiple price lists for the contingent valuation approach, we face a framing effect that makes participants choose the answers in the middle more often (Andersen et al., 2006; Anderson et al., 2007). Though there is a certain crowding for choosing an answer option in the middle, the distribution of answer options is overall spreading across the whole range of possible options (Table A.2). The framing effect, if present at all, is not very strong at play in our data.

Another potential source of bias in our analysis is social desirability. As the participants are prompted to express their willingness to purchase or to pay for ethically produced chocolate in comparison to conventional chocolate, participants might want to appear in a positive light by exaggerating their valuation of Fairtrade certified products. In the real world, social desirability partly drives the discrepancy between the public opinion favoring socially acceptable fairly traded products and the small market share of these (Lusk, 2018). As the randomization is successful considering the observable characteristics in the balance tables (Table A.1), people in the different treatment and control arms should have on average the same levels of social desirability, an unobservable characteristic. Thus, social desirability should not bias the treatment effect. Additionally, the anonymous online setting of our survey should minimize this upward bias. Thus, bias caused by social desirability, or framing should hardly affect our estimates.

5 Discussion

Since our descriptive results are comparable to market data and findings of previous research, our study seems to be at least externally valid for the German market (Iweala et al., 2019; TransFair, 2021). Though it is difficult to compare our measure of knowledge about Fairtrade to existing data, our descriptive results support that German consumers understand the gist of Fairtrade without knowing details (Grunert et al., 2014; Langen and Adenaeuer, 2013).

The expected means of WTP premium for a 100 g bar of chocolate with a Fairtrade label range between 49 Euro-cents and 56 Euro-cents. These values are at the lower end of WTP estimates of other studies (Didier and Lucie, 2008; Poelmans and Rousseau, 2016; Rousseau, 2015) and compare best with findings by Teyssier et al. (2015) who find a WTP premium of 46 Euro-cents per 100 g of chocolate in a private setting.

In contrast with the consensus in the existing literature, we find that information treatments do not necessarily increase the WTP for sustainable foods (Cecchini et al. 2018). Since the initial WTP for fairly traded products is high in our study, additional information does not lead to a further increase. Therefore, the source of the information makes no difference as this study illustrates. Nevertheless, the information issued by a retailer or the government affected the participants' purchasing intention. This finding highlights the special role of retailers, especially supermarkets, as gatekeepers for producers and consumers regarding sustainability issues (Saber and Weber, 2019; Schulze et al., 2019; Wilson, 2015).

Our study further finds that a zero-effect statement reduces consumers' valuation of sustainable foods. However, we only find statistically significant effects for purchasing intention. This is unlike most of the

existing literature that shows that negative statements decrease consumers' valuation of organic or fairly traded foods (Disdier and Marette, 2012; Gifford and Bernard, 2006; Müller and Gaus, 2015). The fact that our unsupportive statement is a zero-effect and not a negative effect could also explain the small magnitude and the lack of statistical significance. Moreover, the information treatments used in this study might not affect consumers' product valuation because social responsibility affects consumers' food choices less than information regarding price or nutrition (Ghvanidze et al., 2017). Nevertheless, German consumers do value the communication of pro-social aspects on foods.

6 Conclusion

Despite little knowledge about Fairtrade certification, German consumers are generally willing to pay a high price premium for a Fairtrade labeled product in our study. Additional supportive information does not increase the participants' predicted WTP premium but leads to higher purchasing intention, especially for sources like retailers or the government. Unsupportive (zero effect) statements by a university can discourage purchasing intention. Even though we have addressed potential sources of bias, our results should be interpreted with care because our findings might be product and country-specific.

Nevertheless, our results have merit and call the attention of policymakers wanting to increase sustainable consumption and stop human rights violations in supply chains. As the predicted WTP premium is robust to the provision of supportive information in our study, we think that the potential of information to increase the WTP for ethically certified products of consumers in Germany might already be exhausted for a well-known and established label like Fairtrade. Thus, alternatives are needed to increase the prevalence of ethical production and the market share of such products. These alternatives do not need to target the consumer because their WTP for sustainability certification is already high - at least in the case of chocolate. One option is to shift the focus to the producer to introduce more due diligence in their supply chains concerning social and environmental aspects. A subsequent increase in transparency and credibility could then again incentivize the consumer.

Though additional information is not increasing the Fairtrade premium significantly, it might still assist to increase another dimension of demand: the frequency of purchasing Fairtrade labeled products as our findings suggest. Thus, information - if provided by a retailer or the government - could stimulate consumers' frequency of buying Fairtrade certified products.

The last implication of our study is the caution with which scientific results should be communicated. Academic studies, on which science communication is based, generally analyze narrow research questions in a specific setting. Context and limitations, especially of unsupportive (zero effect) findings, need to be communicated clearly to avoid negative effects on consumption behavior.

To strengthen the understanding and evidence on the issues addressed in this paper, future research should broaden the range of investigated products and contexts. Further, future research should engage in other techniques eliciting the WTP premium of fairly traded food products and consider purchasing intention or measures of frequency as another dimension worth investigating.

References

Aertsens, J., Mondelaers, K., Verbeke, W., Buysse, J., Van Huylenbroeck, G., 2011. The influence of subjective and objective knowledge on attitude, motivations and consumption of organic food. British Food Journal 113, 1353–1378. https://doi.org/10.1108/00070701111179988

Aktar, I., 2013. Disclosure strategies regarding ethically questionable business practices. British Food Journal 115, 162–193. https://doi.org/10.1108/00070701311289939

Andersen, S., Harrison, G.W., Lau, M.I., Rutström, E.E., 2006. Elicitation using multiple price list formats. Exp Econ 9, 383–405. https://doi.org/10.1007/s10683-006-7055-6

Anderson, S., Harrison, G.W., Lau, M.I., Elisabet, R.E., 2007. Valuation using multiple price list formats⋆. Applied Economics 39, 675–682. https://doi.org/10.1080/00036840500462046

Andorfer, V.A., Liebe, U., 2015. Do information, price, or morals influence ethical consumption? A natural field experiment and customer survey on the purchase of Fair Trade coffee. Social Science Research 52, 330–350. https://doi.org/10.1016/j.ssresearch.2015.02.007

Arnot, C., Boxall, P.C., Cash, S.B., 2006. Do Ethical Consumers Care About Price? A Revealed Preference Analysis of Fair Trade Coffee Purchases. Canadian J Agric Econ 54, 555–565. https://doi.org/10.1111/j.1744-7976.2006.00066.x

Aschemann-Witzel, J., Grunert, K.G., 2015. Influence of 'soft' versus 'scientific' health information framing and contradictory information on consumers' health inferences and attitudes towards a food supplement. Food Quality and Preference 42, 90–99. https://doi.org/10.1016/j.foodqual.2015.01.008

Blanton, H., Ikizer, E.G., 2019. Elegant Science Narratives and Unintended Influences: An Agenda for the Science of Science Communication: Unintended Influence. Social Issues and Policy Review 13, 154–181. https://doi.org/10.1111/sipr.12055

BMEL, 2019. Ökobarometer 2019.

Brunner, T.A., 2014. Applying neutralization theory to fair trade buying behaviour: Neutralization and fair trade. International Journal of Consumer Studies 38, 200–206. https://doi.org/10.1111/ijcs.12081

Bullock, G., Johnson, C., Southwell, B., 2017. Activating values to stimulate organic food purchases: can advertisements increase pro-environmental intentions? Journal of Consumer Marketing 34, 427–441. https://doi.org/10.1108/JCM-12-2015-1643

Cecchini, L., Torquati, B., Chiorri, M., 2018. Sustainable agri-food products: A review of consumer preference studies through experimental economics. Agric. Econ. – Czech 64, 554–565. https://doi.org/10.17221/272/2017-AGRICECON

Chrysochou, P., Grunert, K.G., 2014. Health-related ad information and health motivation effects on product evaluations. Journal of Business Research 67, 1209–1217. https://doi.org/10.1016/j.jbusres.2013.05.001

d'Astous, A., Mathieu, S., 2008. Inciting consumers to buy fairly-traded products: a field experiment. Journal of Consumer Marketing 25, 149–157. https://doi.org/10.1108/07363760810870644

De Pelsmacker, P., Janssens, W., Mielants, C., 2005. Consumer values and fair-trade beliefs, attitudes and buying behaviour. Int Rev on Public Marketing 2, 50–69. https://doi.org/10.1007/BF02893257

Didier, T., Lucie, S., 2008. Measuring consumer's willingness to pay for organic and Fair Trade products. International Journal of Consumer Studies 32, 479–490. https://doi.org/10.1111/j.1470-6431.2008.00714.x

Disdier, A.-C., Marette, S., 2013. Globalisation issues and consumers' purchase decisions for food products: evidence from a laboratory experiment. European Review of Agricultural Economics 40, 23–44. https://doi.org/10.1093/erae/jbr065

Disdier, A.-C., Marette, S., 2012. How do consumers in developed countries value the environment and workers' social rights in developing countries? Food Policy 37, 1–11. https://doi.org/10.1016/j.foodpol.2011.10.002

Fox, J.A., Hayes, D.J., Shogren, J.F., 2002. Consumer Preferences for Food Irradiation: How Favorable and Unfavorable Descriptions Affect Preferences for Irradiated Pork in Experimental Auctions. Journal of Risk and Uncertainty 24, 75–95. https://doi.org/10.1023/A:1013229427237

Ghvanidze, S., Velikova, N., Dodd, T., Oldewage-Theron, W., 2017. A discrete choice experiment of the impact of consumers' environmental values, ethical concerns, and health consciousness on food choices: A cross-cultural analysis. British Food Journal 119, 863–881. https://doi.org/10.1108/BFJ-07-2016-0342

Gifford, K., Bernard, J.C., 2006. Influencing consumer purchase likelihood of organic food. International Journal of Consumer Studies 30, 155–163. https://doi.org/10.1111/j.1470-6431.2005.00472.x

Grebitus, C., Steiner, B., Veeman, M., 2015. The roles of human values and generalized trust on stated preferences when food is labeled with environmental footprints: Insights from Germany. Food Policy 52, 84–91. https://doi.org/10.1016/j.foodpol.2014.06.011

Grunert, K.G., Hieke, S., Wills, J., 2014. Sustainability labels on food products: Consumer motivation, understanding and use. Food Policy 44, 177–189. https://doi.org/10.1016/j.foodpol.2013.12.001

Hansen, T., Sørensen, M.I., Eriksen, M.-L.R., 2018. How the interplay between consumer motivations and values influences organic food identity and behavior. Food Policy 74, 39–52. https://doi.org/10.1016/j.foodpol.2017.11.003

ILO, 2017. Global estimates of child labour: results and trends, 2012-2016.

ILO, UNICEF, 2021. Child labour global estimates 2020, trends and the road forward.

Iweala, S., Spiller, A., Meyerding, S., 2019. Buy good, feel good? The influence of the warm glow of giving on the evaluation of food items with ethical claims in the U.K. and Germany. Journal of Cleaner Production 215, 315–328. https://doi.org/10.1016/j.jclepro.2018.12.266

Johe, M.H., Bhullar, N., 2016. To buy or not to buy: The roles of self-identity, attitudes, perceived behavioral control and norms in organic consumerism. Ecological Economics 128, 99–105. https://doi.org/10.1016/j.ecolecon.2016.02.019

Katt, F., Meixner, O., 2020. A systematic review of drivers influencing consumer willingness to pay for organic food. Trends in Food Science & Technology 100, 374–388. https://doi.org/10.1016/j.tifs.2020.04.029

Langen, N., Adenaeuer, L., 2013. Where does the Fair Trade price premium go? Confronting consumers' request with reality. Social Enterprise Journal 9, 293–314. https://doi.org/10.1108/SEJ-08-2012-0031

Liebe, U. (Ed.), 2007. Methoden zur Messung der Zahlungsbereitschaft, in: Zahlungsbereitschaft für kollektive Umweltgüter: Soziologische und ökonomische Analysen. VS Verlag für Sozialwissenschaften, Wiesbaden, pp. 105–146. https://doi.org/10.1007/978-3-531-90464-1_3

Lusk, J.L., 2018. Separating Myth from Reality: An Analysis of Socially Acceptable Credence Attributes. Annu. Rev. Resour. Econ. 10, 65–82. https://doi.org/10.1146/annurev-resource-100517-023153

Maertens, M., 2019. Fairtrade does not walk the talk. Nat Sustain 2, 549–550. https://doi.org/10.1038/s41893-019-0332-0

McFadden, J.R., Huffman, W.E., 2017. Willingness-to-pay for natural, organic, and conventional foods: The effects of information and meaningful labels. Food Policy 68, 214–232. https://doi.org/10.1016/j.foodpol.2017.02.007

Meemken, E.-M., 2020. Do smallholder farmers benefit from sustainability standards? A systematic review and meta-analysis. Global Food Security 26, 100373. https://doi.org/10.1016/j.gfs.2020.100373

Michaelidou, N., Hassan, L.M., 2008. The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. Int J Cons Stud 32, 163–170. https://doi.org/10.1111/j.1470-6431.2007.00619.x

Müller, C.E., Gaus, H., 2015. Consumer Response to Negative Media Information About Certified Organic Food Products. J Consum Policy 38, 387–409. https://doi.org/10.1007/s10603-015-9299-z

NORC, 2020. Assessing Progress in Reducing Child Labor in Cocoa Production in Cocoa Growing Areas of Côte d'Ivoire and Ghana.

Onel, N., Mukherjee, A., 2016. Consumer knowledge in pro-environmental behavior: An exploration of its antecedents and consequences. WJSTSD 13, 328–352. https://doi.org/10.1108/WJSTSD-01-2016-0004

Panzone, L., Hilton, D., Sale, L., Cohen, D., 2016. Socio-demographics, implicit attitudes, explicit attitudes, and sustainable consumption in supermarket shopping. Journal of Economic Psychology 55, 77–95. https://doi.org/10.1016/j.joep.2016.02.004

Poelmans, E., Rousseau, S., 2016. How do chocolate lovers balance taste and ethical considerations? British Food Journal 118, 343–361. https://doi.org/10.1108/BFJ-06-2015-0208

Rousseau, S., 2015. The role of organic and fair trade labels when choosing chocolate. Food Quality and Preference 44, 92–100. https://doi.org/10.1016/j.foodqual.2015.04.002

Rousu, M., Huffman, W.E., Shogren, J.F., Tegene, A., 2007. Effects and Value of Verifiable Information in a Controversial Market: Evidence from Lab Auctions of Genetically modified food. Economic Inquiry 45, 409–432. https://doi.org/10.1111/j.1465-7295.2007.00017.x

Saber, M., Weber, A., 2019. How do supermarkets and discounters communicate about sustainability? A comparative analysis of sustainability reports and in-store communication. IJRDM 47, 1181–1202. https://doi.org/10.1108/IJRDM-08-2018-0156

Schulze, M., Spiller, A., Risius, A., 2019. Food Retailers as Mediating Gatekeepers between Farmers and Consumers in the Supply Chain of Animal Welfare Meat - Studying Retailers' Motives in Marketing Pasture-Based Beef. Food ethics 3, 41–52. https://doi.org/10.1007/s41055-019-00040-w

Sellare, J., Meemken, E., Kouamé, C., Qaim, M., 2020. Do Sustainability Standards Benefit Smallholder Farmers Also When Accounting For Cooperative Effects? Evidence from Côte d'Ivoire. American Journal of Agricultural Economics 102, 681–695. https://doi.org/10.1002/ajae.12015

Sparks, P., Shepherd, R., 1992. Self-Identity and the Theory of Planned Behavior: Assesing the Role of Identification with "Green Consumerism." Social Psychology Quarterly 55, 388. https://doi.org/10.2307/2786955

Teyssier, S., Etilé, F., Combris, P., 2015. Social- and self-image concerns in fair-trade consumption. Eur Rev Agric Econ 42, 579–606. https://doi.org/10.1093/erae/jbu036

Tian, X., Yu, X., Holst, R., 2011. Applying the payment card approach to estimate the WTP for green food in China. Halle (Saale): Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO).

TransFair, 2021. Fairtrade - Eine Agenda für die Zukunft Jahres- und Wirkungsbericht 2020/2021.

Vecchio, R., Annunziata, A., 2015. Willingness-to-pay for sustainability-labelled chocolate: an experimental auction approach. Journal of Cleaner Production 86, 335–342. https://doi.org/10.1016/j.jclepro.2014.08.006

Vermeir, I., Verbeke, W., 2008. Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. Ecological Economics 64, 542–553. https://doi.org/10.1016/j.ecolecon.2007.03.007

Waldman, K.B., Kerr, J.M., 2018. Does safety information influence consumers' preferences for controversial food products? Food Quality and Preference 64, 56–65. https://doi.org/10.1016/j.foodqual.2017.10.013

Weingart, P., Joubert, M., 2019. The conflation of motives of science communication — causes, consequences, remedies. JCOM 18, Y01. https://doi.org/10.22323/2.18030401

White, K., Habib, R., Hardisty, D.J., 2019. How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. Journal of Marketing 83, 22–49. https://doi.org/10.1177/0022242919825649

Willer, H., Lernoud, J., 2018. The world of organic agriculture: statistics & emerging trends 2018. Forschungsinstitut für biologischen Landbau FIBL, Frick.

Wilson, J.P., 2015. The triple bottom line: Undertaking an economic, social, and environmental retail sustainability strategy. Intl J of Retail & Distrib Mgt 43, 432–447. https://doi.org/10.1108/IJRDM-11-2013-0210

Yang, S.-H., Hu, W., Mupandawana, M., Liu, Y., 2012. Consumer Willingness to Pay for Fair Trade Coffee: A Chinese Case Study. Journal of Agricultural and Applied Economics 44, 21–34.

Appendix

Figures

Figure A.1: Treatment 1: Fairtrade

Last week the following communication from **Fairtrade** was in the media. **Please read this message carefully.**

Figure A.2: Treatment 2: Ministry

Last week, the following announcement from the **German Federal Ministry for Development and Cooperation** was in the media. **Please read this message carefully.**

Figure A.3 Treatment 3:University supportive

Last week, the following announcement from the **University of Göttingen** was in the media. **Please read this message carefully.**

Figure A.4: Treatment 4: Retailer

Last week, the following announcement from **EDEKA** was in the media. **Please read this message carefully.**

Figure A.5: Treatment 5: University unsupportive

Last week, the following announcement from the **University of Göttingen** was in the media. **Please read this message carefully.**

The Fairtrade label does not deliver what it promises!
Researchers at the University of Göttingen show in a new study that Fairtrade certification in Côte d'Ivoire, the world's largest cocoa producer, has not improved incomes and working conditions for farmers and plantation workers.

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

Fairtrade is a network of consumers, companies and farmers for fair trade through better prices and decent working conditions.

The Fairtrade label stands for fairly grown and traded products!

FAIRTRADE

How does Fairtrade want to help?

Fairtrade Minimum Price: Fairtrade offers price stability through a minimum price.

Fairtrade Premium: Fairtrade offers a price premium that farmers can use to invest in their communities.

Better working conditions: Workers on Fairtrade certified plantations have fixed labor contracts, minimum wages, and access to clean toilets and drinking water. In addition, Fairtrade prohibits corporal punishment, forced and prison labor, and the employment of children under the age of 15.

No discrimination: Fairtrade prohibits discrimination based on ethnicity, gender, sexual and political orientation, disability and religion.

Tables

Table A.1: Balance Table

	Mean (standard deviation)						p-value of difference					
	Fairtrade	Ministry	Retailer	University +	University -	Control	Fairtrade - Control	Ministry – Control	Retailer - Control	University + - Control	University - - control	University + - University -
Panel A: Socio- economic status												
Age in years	45.580	44.866	44.347	45.881	45.068	46.362	0.439	0.148	0.055*	0.645	0.215	0.448
	(13.354)	(14.331)	(14.103)	(14.579)	(14.763)	(14.486)						
Gender												
Female	0.497	0.547	0.454	0.539	0.541	0.534	0.303	0.728	0.027**	0.898	0.862	0.965
	(0.501)	(0.498)	(0.499)	(0.499)	(0.499)	(0.499)						
Male	0.497	0.453	0.543	0.461	0.457	0.466	0.380	0.728	0.033**	0.898	0.804	0.908
	(0.501)	(0.498)	(0.499)	(0.499)	(0.499)	(0.499)						
Other/diverse	0.006	0.000	0.003	0.000	0.003	0.000	0.134	.	0.279	.	0.302	0.324
	(0.074)	(0.000)	(0.054)	(0.000)	(0.051)	(0.000)						
Highest achieved education degree												
Hauptschulabschluss	0.348	0.324	0.373	0.358	0.370	0.404	0.111	0.021**	0.384	0.193	0.330	0.742
	(0.477)	(0.469)	(0.484)	(0.480)	(0.483)	(0.491)						
Realschulabschluss	0.307	0.284	0.306	0.291	0.304	0.268	0.244	0.625	0.252	0.483	0.265	0.689
	(0.462)	(0.452)	(0.462)	(0.455)	(0.461)	(0.444)						
(Fach−)Hochschulreife	0.141	0.172	0.139	0.154	0.155	0.138	0.906	0.194	0.975	0.536	0.502	0.963
	(0.348)	(0.378)	(0.346)	(0.361)	(0.362)	(0.345)						
Hochschul −/Universitätsabschluss	0.193	0.204	0.162	0.181	0.171	0.187	0.828	0.561	0.363	0.813	0.545	0.719
	(0.395)	(0.403)	(0.369)	(0.385)	(0.377)	(0.391)						
Household income												
Below 1,300 Euro	0.265	0.271	0.251	0.213	0.273	0.278	0.684	0.814	0.406	0.035**	0.867	0.055*
	(0.442)	(0.445)	(0.434)	(0.410)	(0.446)	(0.449)						
1,300 to 2,599 Euro	0.390	0.381	0.402	0.442	0.394	0.389	0.992	0.809	0.726	0.135	0.896	0.179
	(0.488)	(0.486)	(0.491)	(0.497)	(0.489)	(0.488)						
2,600 to 4,499 Euro	0.271	0.271	0.298	0.278	0.249	0.249	0.489	0.484	0.133	0.362	0.985	0.379
	(0.445)	(0.445)	(0.458)	(0.448)	(0.433)	(0.433)						
4,500 Euro and above	0.075	0.078	0.049	0.067	0.084	0.084	0.640	0.759	0.060*	0.391	0.990	0.390
	(0.263)	(0.268)	(0.216)	(0.251)	(0.278)	(0.277)						
Panel B: Values												
Consumer identity factor (pcf)	0.019	-0.026	0.061	-0.014	-0.142	0.004	0.831	0.679	0.434	0.803	0.045**	0.083*
	(1.000)	(1.006)	(0.981)	(1.009)	(1.010)	(1.029)						
Social norms factor (pcf)	0.027	0.043	0.071	-0.004	-0.110	0.057	0.688	0.843	0.848	0.390	0.020**	0.152
	(1.052)	(1.014)	(0.964)	(0.999)	(1.019)	(0.986)						
Self-efficacy factor (pcf)	0.055	0.041	0.086	-0.031	-0.044	-0.016	0.344	0.443	0.184	0.833	0.694	0.866
	(0.995)	(1.010)	(1.035)	(1.066)	(0.983)	(1.047)						
Primary SVO angle in degrees	27.804	26.316	27.982	27.145	26.959	26.935	0.345	0.4991	0.256	0.822	0.979	0.835

	(12.044)	(12.193)	(11.702)	(12.727)	(11.791)	(13.285)						
General trust	3.552	3.528	3.613	3.636	3.556	3.392	0.169	0.249	0.074*	0.047**	0.166	0.521
	(1.553)	(1.616)	(1.709)	(1.761)	(1.647)	(1.667)						
Panel C: Shopping Behavior												
Frequency of buying chocolate												
…..Never	0.033	0.027	0.020	0.027	0.031	0.025	0.481	0.848	0.686	0.838	0.560	0.712
	(0.179)	(0.162)	(0.141)	(0.162)	(0.175)	(0.155)						
…..Once a month	0.282	0.306	0.249	0.267	0.270	0.281	0.976	0.447	0.319	0.664	0.743	0.914
	(0.450)	(0.461)	(0.433)	(0.443)	(0.445)	(0.450)						
…..Multiple times a month	0.334	0.346	0.355	0.372	0.360	0.355	0.553	0.797	0.982	0.617	0.886	0.725
	(0.472)	(0.476)	(0.479)	(0.484)	(0.481)	(0.479)						
…..Once a week	0.262	0.223	0.266	0.243	0.231	0.239	0.453	0.588	0.396	0.905	0.793	0.708
	(0.441)	(0.416)	(0.442)	(0.429)	(0.422)	(0.427)						
…..Multiple times a week	0.088	0.099	0.110	0.092	0.108	0.101	0.553	0.934	0.694	0.660	0.761	0.466
	(0.284)	(0.299)	(0.313)	(0.289)	(0.310)	(0.302)						
Amount spent on chocolate in the past month in Euro	14.912	17.432	15.789	16.105	15.659	16.485	0.132	0.481	0.523	0.732	0.455	0.687
	(12.803)	(21.504)	(13.818)	(15.105)	(15.238)	(15.759)						
	(0.339)	(0.329)	(0.355)	(0.343)	(0.348)	(0.351)						
Fairtrade awareness factor (pcf)	0.052	-0.019	0.097	-0.001	-0.115	-0.002	0.474	0.819	0.190	0.985	0.127	0.122
	(1.043)	(1.010)	(1.015)	(1.012)	(1.015)	(1.056)						
Frequency of buying fairly traded products												
…..Never	0.152	0.137	0.136	0.140	0.176	0.155	0.901	0.468	0.455	0.557	0.436	0.180
	(0.359)	(0.344)	(0.343)	(0.348)	(0.381)	(0.363)						
…..Once a month	0.286	0.295	0.246	0.245	0.307	0.296	0.933	0.984	0.126	0.1168	0.725	0.058*
	(0.458)	(0.457)	(0.431)	(0.431)	(0.462)	(0.457)						
…..Multiple times a month	0.398	0.416	0.399	0.426	0.341	0.392	0.862	0.497	0.840	0.333	0.143	0.017**
	(0.490)	(0.493)	(0.490)	(0.495)	(0.475)	(0.489)						
…..Once a week	0.102	0.088	0.142	0.121	0.105	0.096	0.776	0.715	0.053*	0.258	0.678	0.481
	(0.303)	(0.284)	(0.349)	(0.327)	(0.307)	(0.295)						
…..Multiple times a week	0.050	0.064	0.078	0.067	0.071	0.062	0.476	0.874	0.376	0.742	0.601	0.851
	(0.218)	(0.246)	(0.269)	(0.251)	(0.257)	(0.241)						
Trust in Fairtrade factor (pcf)	0.104	0.022	0.068	0.013	-0.074	0.014	0.214	0.914	0.455	0.995	0.214	0.239
	(1.003)	(1.008)	(0.973)	(1.041)	(1.000)	(0.990)						
Panel D: Knowledge												
Subjective knowledge factor (pcf)	-0.014	-0.014	0.028	-0.003	-0.029	-0.099	0.248	0.254	0.093*	0.187	0.331	0.713
	(0.979)	(1.030)	(1.022)	(0.974)	(0.965)	(1.042)						
Additive overall knowledge score (0 to 16)	9.298	9.263	9.078	9.129	9.092	9.202	0.438	0.627	0.334	0.573	0.400	0.779
	(1.636)	(1.695)	(1.710)	(1.792)	(1.876)	(1.790)						

Note: This is the analytical sample consisting of 2,239 observations with complete information for all main outcomes and covariates used in the regression analysis. The abbreviation pcf indicates that this variable is the factor score generated by a principal component analysis. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively.

Table A.2: Frequency of answer options for WTP options

	Absolute frequency	Relative frequency in percent
Panel A: WTP: First Level		
I am not willing to pay more.	489	21.84
I am willing to pay between … Euro more.		
… 0.01 to 1 …	1434	64.05
… 1.01 to 2...	283	12.64
… 2.01 to 3...	33	1.47
Total	2,239	100.00
Panel B: WTP: Second Level 1		
I am willing to pay between … Euro more.		
…0.01 to 0.10 …	112	7.82
…0.11 to 0.20...	213	14.86
…0.21 to 0.30...	182	12.70
…0.31 to 0.40...	108	7.54
…0.41 to 0.50...	285	19.89
…0.51 to 0.60...	140	9.77
…0.61 to 0.70...	44	3.07
…0.71 to 0.80...	66	4.61
…0.81 to 0.90...	38	2.65
…0.91 to 1.00…	245	17.10
Total	1,433	100.00
Panel C: WTP: Second Level 2		
I am willing to pay between …Euro more.		
…1.01 to 1.10...	30	10.60
...1.11 to 1.20...	47	16.61
...1.21 to 1.30...	32	11.31
...1.31 to 1.40...	15	5.30
...1.41 to 1.50...	53	18.73
...1.51 to 1.60...	36	12.71
...1.61 to 1.70...	14	4.95
...1.71 to 1.80...	7	2.47
...1.81 to 1.90...	11	3.89
...1.91 to 2.00...	38	13.43
Total	272	100.00
Panel D: WTP: Second Level 3		
I am willing to pay between … Euro more.		
...2.01 to 2.10...	3	9.09
...2.11 to 2.20...	2	6.06
...2.21 to 2.30...	1	3.03
...2.31 to 2.40...	2	6.06
...2.41 to 2.50...	2	6.06
...2.51 to 2.60...	5	15.15
...2.61 to 2.70...	1	3.03
...2.71 to 2.80...	1	3.03
...2.81 to 2.90...	1	3.03
...2.91 to 3.00...	15	45.45
Total	33	100.00

Table A.3: ATE including inattentive participants

	Supportive Statements		Unsupportive Statements	
	(1) Willingness-to-pay	(2) Purchasing intention	(3) Willingness-to-pay	(4) Purchasing intention
Treatment 1: Fairtrade supportive	2.582 (2.637)	0.080** (0.040)		
Treatment 2: Ministry supportive	1.094 (2.719)	0.094** (0.040)		
Treatment 3: University supportive	0.857 (2.691)	0.058 (0.040)	2.554 (2.609)	0.057 (0.040)
Treatment 4: Retailer supportive	0.284 (2.753)	0.088** (0.042)		
Treatment 5: University unsupportive			-0.072 (2.639)	-0.125*** (0.043)
Observations	2,037	2,037	1,277	1,277

Note: Predicted willingness-to-pay is measured in Euro-cents. Purchasing intention is a factor derived through principal component analysis. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively. All regressions include the selected covariates as in Table 3 and 4 column (2) and (4).

Supplementary Appendix

S.1 Questionnaire

Note that the survey was conducted in German. The translated version of the questionnaire is shown below:

1. Socioeconomic and demographic characteristics

At the beginning of the survey, we need some personal information from you.

Please enter your age in years:

[   ]

Which gender are you?
- ○ male
- ○ female
- ○ other/diverse

What is your highest education degree?
- ○ (so far) without school degree
- ○ General secondary school diploma
- ○ Intermediate secondary school diploma
- ○ University entrance qualification
- ○ University degree

What is your monthly net household income, i.e., how much money is available to your household per month for living expenses after deducting taxes and social security contributions?
- ○ Below 1.300 Euro
- ○ 1.300 to 2.599 Euro
- ○ 2.600 to 4.499 Euro
- ○ 4.500 Euro and more

In which state do you live? (List of all German states)

How big is the city where you live?
- ○ village (below 5.000 inhabitants)
- ○ rural (5.000 - 19.999 inhabitants)
- ○ Small town (20.000 - 99.999 inhabitants)
- ○ Big city (100.000 - 500.000 inhabitants)
- ○ Metropolis (more than 500.000 inhabitants)

2. Consumer behavior

How much do you like eating chocolate?
- ○ very much
- ○ a lot
- ○ not so much
- ○ not at all

How often do you buy chocolate?
- ○ never
- ○ once a month
- ○ several times per month
- ○ once a week

○ several times per week

How much (in Euro) did you spend on chocolate in the last month?

[_____]

Did you ever see the above label before when going food shopping?
○ true
○ false
○ I don't know

Please read the following statements and decide, whether you agree or disagree on a scale from 1(I strongly disagree) to 7 (I strongly agree) (shown in a likert scale matrix)

- When shopping I intend to buy food that was produced under fair working conditions and wages (if available)
- When I go food shopping, I prefer to buy that has been produced under fair working conditions with fair wages (if available)
- When I buy food, I don't pay attention to whether products I buy are labelled with the Faitrade label.

How often do you buy fair trade products?
○ never
○ once a month
○ several times per month
○ once a week
○ several times per week

3. Values/ Sustainability

Please read the following statements and decide, to what extent you agree on a scale from 1 (I strongly disagree) to 7 (I strongly agree). (shown in a likert scale matrix)

- I consider myself a buyer of fair trade food
- I consider myself to be an ethical consumer
- I would describe myself as a fair trade conscious consumer.
- My family members think that it's a good idea to buy fair trade food.
- Most of my friends and acquaintances think that it is a good idea to buy fair trade food.
- Most people I care about have positive attitude towards fair trade food.

Many modern theories of psychology assume that how you answer questions is influenced by many different factors, such as your feelings and preferences. Part of our research involves learning more about our subjects. In this question, we want to know if you take the time to read all the questions and instructions. This is to ensure that our results are meaningful. Therefore, please ignore the list of animals in this question and check the "Other" box.
○ dog
○ cat
○ rabbit
○ quinea pig
○ other

Please read the following statements and decide, to what extent you agree on a scale from 1 (I totally disagree) to 7 (I totally agree) (shown in a likert scale matrix)
- My own actions are too insignificant to contribute to solving social problems.
- My own actions can lead to companies paying their workers fairly.
- Problems of social injustice are influenced by individual decisions.

4. Social Value Orientation

In this task you will determine how you want to divide certain amounts of money between yourself and another person. In the following we will refer to this other person simply as "someone". This Someone is a person you do not know and will remain mutually anonymous. All of your decisions are completely confidential. **For each of the following situations, please indicate the distribution of money that you most prefer.**

Your decisions will generate money for you as well as for the other person. In the example below, one person has decided to split the money so that he receives 50 euros while the anonymous other person receives 40 euros.

There are no right and wrong answers in this task, it is all about personal preferences. Move the slider over the different options, when you have made your decision, mark the corresponding position with the slider. **As you can see, your choices affect both the amount of money you receive and the amount of money the other person receives.**

(In the following, the respondent is presented with an example and the choices according to Murphy et al., 2011)

5. State of Knowledge Fairtrade Label 1

Please read through the following statements and decide how much they apply to you on a scale of 1 (Strongly disagree) to 7 (Strongly agree).1–strongly disagree (shown in a likert scale matrix)
- Compared to the average consumer in Germany, I am well informed about the Fairtrade label.
- Compared to the average consumer in Germany, I am in a good position to judge the conditions under which certain foods are produced.

Which of the following statements about Fairtrade (the umbrella organization for fair trade and certifier of products with the Fairtrade label) are correct?

Fairtrade certified farmers receive a guaranteed minimum price.
○ true
○ false
○ I don't know

Fairtrade prohibits the use of pesticides that are very hazardous to health.
○ true
○ false
○ I don't know

Fairtrade prohibits physical punishment, psychological and physical intimidation, and abuse.
○ true
○ false
○ I don't know

Fairtrade prohibits the employment of children under the age of 15.
○ true
○ false
○ I don't know

Fairtrade profits are invested in social projects, such as building schools and hospitals in developing countries.
○ true
○ false
○ I don't know

Fairtrade certified products may only be traded by companies that follow an international standard for respecting human rights.
○ true
○ false
○ I don't know

Workers on Fairtrade certified plantations are entitled to 10 vacation days per year.
○ true

29

○ false
○ I don't know

Female workers on Fairtrade certified plantations are entitled to 45 days of paid leave after the birth of a child.
○ true
○ false
○ I don't know

6. Credibility

Please read the following statements and decide, to what extent you agree on a scale from 1 (I strongly disagree) to 7 (I strongly agree). (shown in a likert scale matrix)
- Products with the Fairtrade label enjoy my full trust
- I am sure that products sold with the Fairtrade label are really fairly traded.
- I trust that Fairtrade delivers what it promises
- Please click 5 here for technical reasons
- Fairtrade certified farmers enjoy my full confidence to work according to Fairtrade specifications
- I trust that Fairtrade certification works.

Generally speaking, would you say that most people can be trusted, or that you can never be too careful when dealing with people, on a scale of 1 (You can't be too careful) to 7 (You can trust)?
○ 1 – You can't be too careful
○ 2
○ 3
○ 4
○ 5
○ 6
○ 7 – You can trust

7. Treatments
(Please see the treatment leaflets above)

8. WTP Level 1

The next time you go shopping, you are standing in front of the chocolate shelf. You are faced with the choice between a 100 g bar of chocolate with a Fairtrade label or a similar bar of chocolate without a Fairtrade label. How much more would you be willing to pay for a chocolate with a Fairtrade label, compared to a similar bar of chocolate without a Fairtrade label?

The results of comparable studies have shown that respondents sometimes give answers that seem correct but then turn out differently in reality. One explanation for this is that it is a purely hypothetical situation and therefore has no impact on real life, which is why respondents do not pay much attention to the selection. In real life, the choice made has to be paid for and therefore has an impact on one's budget.

Therefore, we would like to ask you to make your choice just as you would if you were making a normal purchase.

Please take this into account when you make your selection below.

○ I am not willing to pay more
○ I am willing to pay between 0,01 € and 1 € more.
○ I am willing to pay between 1,01 € and 2 € more.
○ I am willing to pay between 2,01 € and 3 € more.

9. WTP Level 2

We would now like you to answer the same question again, but with different answer options: How much more would you be willing to pay for a chocolate with the Fairtrade label , compared to a similar chocolate without the Fairtrade label?

We would like to ask you again to decide exactly as you would if you were making a normal purchase.
- ○ I am willing to pay between 0,01 € and 0,10 € more.
- ○ I am willing to pay between 0,11 € and 0,20 € more.
- ○ I am willing to pay between 0,21 € and 0,30 € more.
- ○ I am willing to pay between 0,31 € and 0,40 € more.
- ○ I am willing to pay between 0,41 € and 0,50 € more.
- ○ I am willing to pay between 0,51 € and 0,60 € more.
- ○ I am willing to pay between 0,61 € and 0,70 € more.
- ○ I am willing to pay between 0,71 € and 0,80 € more.
- ○ I am willing to pay between 0,81 € and 0,90 € more.
- ○ I am willing to pay between 0,91 € and 1,00 € more.

We would now like you to answer the same question again, but with different answer options: How much more would you be willing to pay for a chocolate with the Fairtrade label, compared to a similar chocolate without the Fairtrade label?

We would like to ask you again to decide exactly as you would if you were making a normal purchase.
- ○ I am willing to pay between 1,01€ and 1,10€ more.
- ○ I am willing to pay between 1,11€ and 1,20€ more.
- ○ I am willing to pay between 1,21€ and 1,30€ more.
- ○ I am willing to pay between 1,31€ and 1,40€ more.
- ○ I am willing to pay between 1,41€ and 1,50€ more.
- ○ I am willing to pay between 1,51€ and 1,60€ more.
- ○ I am willing to pay between 1,61€ and 1,70€ more.
- ○ I am willing to pay between 1,71€ and 1,80€ more.
- ○ I am willing to pay between 1,81€ and 1,90€ more.
- ○ I am willing to pay between 1,91€ and 2,00€ more.

We would now like you to answer the same question again, but with different answer options: How much more would you be willing to pay for a chocolate with the Fairtrade label, compared to a similar chocolate without the Fairtrade label?

We would like to ask you again to decide exactly as you would if you were making a normal purchase.
- ○ I am willing to pay between 2,01 € and 2,10 € more.
- ○ I am willing to pay between 2,11 € and 2,20 € more.
- ○ I am willing to pay between 2,21 € and 2,30 € more.
- ○ I am willing to pay between 2,31 € and 2,40 € more.
- ○ I am willing to pay between 2,41 € and 2,50 € more.
- ○ I am willing to pay between 2,51 € and 2,60 € more.
- ○ I am willing to pay between 2,61 € and 2,70 € more.
- ○ I am willing to pay between 2,71 € and 2,80 € more.
- ○ I am willing to pay between 2,81 € and 2,90 € more.
- ○ I am willing to pay between 2,91 € and 3,00 € more.

10. Purchasing Intention

Please read through the following statement and decide how much you agree with it on a scale of 1 (I totally disagree) to 7 (I totally agree). (shown in a likert scale matrix)

In the near future I want to buy more food with the Fairtrade label.

On a scale of 1 (very unlikely) to 7 (very likely) , how likely are you to buy Fairtrade labeled food in the next 14 days? (shown in a likert scale matrix)

11. Perception of Information

We would now like to conclude by inviting you to share your opinion about the communication shown.
Please read through the following statements and decide how much you agree with them on a scale of 1 (I totally disagree) to 7 (I totally agree). (shown in a likert scale matrix)

- This message presents useful information
- This message presents important information
- This message presents concerning Information
- The sender of the message is reputable
- The sender of the message is trustworthy

Thank you and Debriefing

Finally, we would like to point out that the communication shown was created by us for study purposes only and therefore does not represent an official communication with scientifically proven facts.

In this study we want to learn, whether information affects consumer behavior.

So far, it has not been scientifically clarified, whether Faitrade certification improves the income and working conditions of farmers and workers.

Please click here to proceed to the final page!

S.2 Tables

Table S.2.1: Overview concept questions and source of questions and adjustments

Concept	Items	Source	Adjustment
Identity	• I consider myself a buyer of fair-trade food • I consider myself to be an ethical consumer • I would describe myself as a fair trade conscious consumer	Sparks and Sheperd, 1992 Hansen et al., 2018	Adjusted from organic to Fairtrade, and translated to German
Social Norm	• My family members think that it's a good idea to buy fair trade food • Most of my friends and acquaintances think that it is a good idea to buy fair trade food • Most people I care about have a positive attitude towards fair trade food	Hansen et al., 2008	Adjusted from organic to Fairtrade, and translated to German
Perceived Consumer Effectiveness	• My own actions are too insignificant to contribute to solving social problems • My own actions can lead to companies paying their workers fairly • Problems of social injustice are influenced by individual decisions	Antonetti et al., 2012	Only items with relevance to fair trade used, and translated to German
Social Value Orientation	In the following situation, please select the money distribution that you prefer the most. Please note that you will receive the first amount of money and the other person will receive the second amount of money.	Murphy et al., 2011	Translated to German
Subjective Knowledge	• Compared to the average consumer in Germany, I am well informed about the Fairtrade label • Compared to the average consumer in Germany, I am in a good position to judge the conditions under which certain foods are produced	Aertsens et al., 2011	Adjusted from organic to Fairtrade, 1 item dropped, and translated to German
Trust in Fairtrade	• Products with the Fairtrade label enjoy my full trust • I am sure that products sold with the Fairtrade label are really fairly traded • I trust that Fairtrade delivers what it promises • I Fairtrade certified farmers enjoy my full confidence to work according to Fairtrade specifications • I trust that Fairtrade certification works	Kriege-Steffen, 2015	Adjusted from organic to Fairtrade
Trust	Generally speaking, would you say that most people can be trusted, or that you can never be too careful when dealing with people.	GESIS, 2018	No adjustment
Purchasing Intention (future)	• In the near future I want to buy more food with the Fairtrade label • How likely are you to buy Fairtrade labeled food in the next 14 days?	Michaelidou and Hassan, 2008 Hansen et al., 2018	Adjusted from organic to Fairtrade, and translated to German
Awareness (current)	• When grocery shopping, I prefer to purchase food products that involve fair treatment and fair compensation of workers (if available) • When grocery shopping, I intend to purchase food products that involve fair treatment and fair compensation of workers (if available) • When shopping, I do not pay attention whether food products are labelled as Fairtrade certified.	Iweala et. al., 2019	Items slightly adjusted to Fairtrade

Table S.2.2: Results of principal component analysis of Fairtrade awareness statements

Factor Question	Fairtrade Mean	SD	Ministry Mean	SD	Retailer Mean	SD	University + Mean	SD	University - Mean	SD	Control Mean	SD	Factor loading
When shopping I intend to buy food that was produced under fair working conditions and wages (if available)	4.514	1.709	4.293	1.757	4.251	1.672	4.197	1.72	4.454	1.69	4.313	1.728	0.923
When I go food shopping, I prefer to buy that has been produced under fair working conditions with fair wages (if available)	4.273	1.76	4.267	1.697	4.26	1.717	4.095	1.747	4.334	1.676	4.167	1.765	0.927
When I buy food, I don't pay attention to whether products I buy are labelled with the Faitrade label.	4.077	1.904	4.088	1.943	3.956	1.937	4.197	1.964	4.042	1.904	3.977	2.007	-0.573
Cronbach's alpha	0.734												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.567												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.3: Results of principal component analysis of consumer identity statements

Factor Question	Fairtrade Mean	SD	Ministry Mean	SD	Retailer Mean	SD	University + Mean	SD	University - Mean	SD	Control Mean	SD	Factor loading
I consider myself a buyer of fair-trade food.	3.922	1.745	3.878	1.695	3.921	1.689	3.756	1.715	4.018	1.682	3.869	1.734	0.946
I consider myself to be an ethical consumer.	3.965	1.587	3.965	1.611	3.882	1.661	3.769	1.641	3.961	1.546	3.919	1.686	0.909
I would describe myself as a fair-trade conscious consumer.	3.955	1.702	3.919	1.741	3.899	1.664	3.767	1.712	3.992	1.651	3.899	1.729	0.951
Cronbach's alpha	0.929												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.745												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.4: Results of principal component analysis of social norms statements

Factor Question	Fairtrade		Ministry		Retailer		University +		University -		Control		Factor loading
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
My family members think that it's a good idea to buy fair trade food.	4.401	1.742	4.487	1.704	4.429	1.721	4.256	1.714	4.457	1.64	4.462	1.72	0.913
Most of my friends and acquaintances think that it is a good idea to buy fair trade food.	4.433	1.714	4.378	1.662	4.284	1.62	4.273	1.676	4.514	1.606	4.381	1.613	0.923
Most people I care about have a positive attitude towards fair trade food.	4.579	1.694	4.572	1.618	4.514	1.65	4.381	1.63	4.559	1.599	4.528	1.604	0.926
Cronbach's alpha	0.91												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.757												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.5: Results of principal component analysis of self-efficacy statements

Factor Question	Fairtrade		Ministry		Retailer		University +		University -		Control		Factor loading
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
My own actions are too insignificant to contribute to solving social problems.	3.539	1.736	3.594	1.794	3.629	1.753	3.662	1.724	3.634	1.713	3.674	1.756	-0.652
My own actions can lead to companies paying their workers fairly.	4.327	1.715	4.408	1.655	4.319	1.738	4.293	1.725	4.486	1.648	4.23	1.705	0.864
Problems of social injustice are influenced by individual decisions.	4.741	1.348	4.684	1.362	4.552	1.352	4.585	1.379	4.773	1.432	4.687	1.388	0.704
Cronbach's alpha	0.589												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.522												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.6: Results of principal component analysis of subjective knowledge statements

Factor Question	Fairtrade		Ministry		Retailer		University +		University -		Control		Factor loading
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Compared to the average consumer in Germany, I am well informed about the Fairtrade label.	3.713	1.526	3.732	1.595	3.724	1.571	3.744	1.581	3.768	1.625	3.632	1.67	0.924
Compared to the average consumer in Germany, I am in a good position to judge the conditions under which certain foods are produced.	3.696	1.521	3.744	1.583	3.713	1.505	3.723	1.461	3.794	1.517	3.575	1.585	0.924
Cronbach's alpha	0.829												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.5												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.7: Results of principal component analysis of trust in Fairtrade statements

Factor Question	Fairtrade		Ministry		Retailer		University +		University -		Control		Factor loading
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Products with the Fairtrade label enjoy my full trust.	4.822	1.571	4.715	1.531	4.722	1.577	4.561	1.594	4.705	1.587	4.679	1.577	0.932
I am sure that products sold with the Fairtrade label are really fairly traded.	4.779	1.634	4.695	1.574	4.705	1.639	4.619	1.592	4.726	1.55	4.647	1.578	0.922
I trust that Fairtrade delivers what it promises.	5.09	1.618	4.894	1.626	4.919	1.605	4.868	1.605	4.995	1.572	4.966	1.595	0.929
Fairtrade certified farmers enjoy my full confidence to work according to Fairtrade specifications.	4.895	1.518	4.794	1.497	4.855	1.552	4.658	1.504	4.804	1.49	4.715	1.488	0.912
I trust that Fairtrade certification works.	5.087	1.559	4.912	1.561	4.914	1.605	4.87	1.574	4.987	1.572	4.943	1.558	0.931
Cronbach's alpha	0.958												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.91												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.8: Results of principal component analysis of purchasing intention statements

Factor Question	Fairtrade Mean	SD	Ministry Mean	SD	Retailer Mean	SD	University + Mean	SD	University - Mean	SD	Control Mean	SD	Factor loading
In the near future I want to buy more food with the Fairtrade label.	4.636	1.564	4.577	1.623	4.511	1.609	4.176	1.553	4.637	1.537	4.395	1.612	0.947
How likely are you to buy Fairtrade labeled food in the next 14 days?	4.549	1.759	4.568	1.74	4.545	1.75	4.079	1.749	4.632	1.731	4.389	1.748	0.947
Cronbach's alpha	0.829												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.5												

Notes: Question one has a scale from 1 (I strongly disagree) to 7 (I strongly agree) and question two has a scale from 1 (very unlikely) to 7 (very likely).

Table S.2.9: Results of principal component analysis of perception message content statements

Factor Question	Fairtrade Mean	SD	Ministry Mean	SD	Retailer Mean	SD	University + Mean	SD	University - Mean	SD	Control Mean	SD	Factor loading
This message presents useful information.	5.648	1.343	5.494	1.442	5.584	1.421	5.276	1.421	5.535	1.432			0.959
This message presents important information.	5.612	1.344	5.503	1.434	5.584	1.441	5.355	1.421	5.558	1.453			0.961
This message presents concerning information.	3.12	1.758	3.118	1.748	3.259	1.836	4.589	1.808	3.359	1.739			0.223
Cronbach's alpha	0.569												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.506												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.10: Results of principal component analysis of perception message sender statements

Factor Question	Fairtrade		Ministry		Retailer		University +		University -		Control		Factor loading
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
The sender of the message is reputable.	5.295	1.354	5.225	1.542	5.323	1.42	4.998	1.383	5.23	1.427			0.967
The sender of the message is reliable.	5.17	1.348	5.119	1.521	5.207	1.43	4.947	1.345	5.131	1.399			0.972
The sender of the message is trustworthy.	5.247	1.338	5.155	1.549	5.248	1.431	4.937	1.36	5.154	1.462			0.975
Cronbach's alpha	0.97												
Kaiser-Meyer-Olkin measure of sampling adequacy	0.782												

Notes: Scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.11: Robustness check homoscedasticity and normality for willingness-to-pay (supportive statements)

	Interval regression	Interval regression corrected for heterogeneity	Ordered probit
Treatment 1: Fairtrade supportive	1.883	1.720	0.051
	(3.478)	(2.717)	(0.075)
Treatment 2: Ministry supportive	-0.550	0.318	-0.023
	(3.447)	(2.833)	(0.075)
Treatment 3: University supportive	-2.663	0.665	-0.060
	(3.456)	(2.781)	(0.075)
Treatment 4: Retailer supportive	-1.329	-1.575	-0.033
	(3.536)	(2.722)	(0.077)
Observations	1,858	1,858	1,857
Log likelihood	-6,584.061	-6,378.635	-4,525.673
AIC	13,220.122	12,857.269	9,159.346
Likelihood-ratio: Chi2		410.853	
Likelihood-ratio: p-value		0.000	

Note: Predicted willingness-to-pay is measured in Euro-cents. The 10-Euro-cents intervals are the categories used for the ordered probit regression. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively. The number of observations varies because for one observation only the interval for Euros and not for 10 Euro-cents is available. AIC stands for the Akaike Information Criterion to compare model-fit.

Table S.2.12: Robustness check homoscedasticity and normality for willingness-to-pay (university statements)

	Interval regression	Interval regression corrected for heterogeneity	Ordered probit
Treatment 3: University supportive	-2.201	2.386	-0.047
	(3.499)	(2.726)	(0.076)
Treatment 5: University unsupportive	-2.769	-1.914	-0.091
	(3.486)	(2.719)	(0.076)
Observations	1,158	1,158	1,157
Log likelihood	-4,183.184	-4,048.280	-2,785.029
AIC	8,414.368	8,188.561	5,666.057
Likelihood-ratio: Chi2		269.807	
Likelihood-ratio: p-value		0.000	

Note: Predicted willingness-to-pay is measured in Euro-cents. The 10- Euro-cents intervals are the categories used for the ordered probit regression. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively. The number of observations varies because for one observation only the interval for Euros and not for 10 Euro-cents is available. AIC stands for the Akaike Information Criterion to compare model-fit.

Table S.2.13: Summary Statistics

		Mean	Standard Deviation
Panel A: SES			
Age in years		45.375	14.287
Age range	18 to 24	0.107	0.309
	25 to 39	0.264	0.441
	40 to 54	0.315	0.465
	above 55	0.314	0.464
Gender	Male	0.478	0.500
	Female	0.520	0.500
	Other/diverse	0.002	0.042
Highest educational level	Hauptschulabschluss	0.364	0.481
	Realschulabschluss	0.293	0.455
	(Fach-)Hochschulreife	0.150	0.357
	Hochschul-/Universitatsabschluss	0.183	0.387
Household income	Below 1,300 Euro	0.259	0.438
	1,300 to 2,599 Euro	0.399	0.490
	2,600 to 4,499 Euro	0.268	0.443
	4,500 Euro and above	0.073	0.261
Size of town	Village	0.165	0.371
	Rural	0.206	0.405
	Small town	0.253	0.435
	Large city	0.208	0.406
	Metropolis	0.167	0.373
Panel B: Values			
Consumer identity factor (pcf)		-0.018	1.007
Social norms (pcf)		0.013	1.007
Self-efficacy (pcf)		0.013	1.023
Primary SVO angle in degrees		27.173	12.323
Panel C: Chocolate consumption			
Chocolate Fondness	Very much	0.523	0.500
	Much	0.405	0.491
	Hardly	0.061	0.239
	Absolutely not	0.012	0.107
Frequency buying chocolate	Never	0.027	0.163
	Once a month	0.276	0.447
	Multiple times a month	0.354	0.478
	Once a week	0.243	0.429
	Multiple times a week	0.100	0.300
Amount spent on chocolate in the past month in Euro		16.077	15.982
Panel D: Fairtrade shopping behavior			
Fairtrade label while shopping		0.860	
Fairtrade awareness (pcf)		0.000	1.027
Frequency buying fairly traded products	Never	0.150	0.357
	Once a month	0.282	0.450
	Multiple times a month	0.395	0.489
	Once a week	0.109	0.311
	Multiple times a week	0.065	0.247
Trust in Fairtrade (pcf)		0.023	1.003
General trust (1 to 7)		3.543	1.661
Panel E: Knowledge			
Subjective knowledge (pcf)		-0.024	1.002
	Agreement to being well informed about the Fairtrade	3.688	1.600

	label compared to average German consumers.		
	Agreement to being a good judge regarding food production conditions compared to average German consumers.	3.666	1.539
Answers (0 to 8)	Correct	3.075	1.467
	Incorrect	1.897	1.396
	Don't know	3.241	2.263
Incorrect answers (0 to 4)	Undervaluation	0.209	0.539
	Overvaluation	1.475	1.152
Objective knowledge (0 to 16)		9.178	1.753
Objective knowledge weighted with subjective knowledge		17.081	9.857

Note: This is the analytical sample consisting of 2,239 observations with complete information for all main outcomes and covariates used in the regression analysis. The abbreviation pcf indicates that this variable is the factor score generated by a principal component analysis.

Table S.2.14: Balance Regarding Leaflet Perception

Variables	Observations	Mean (standard deviation)				
		Fairtrade	Ministry	Retailer	University +	University -
This message presents useful information.	1,827	5.726	5.625	5.639	5.652	5.336
		(1.287)	(1.394)	(1.391)	(1.394)	(1.393)
This message presents important information.	1,829	5.694	5.634	5.645	5.6300	5.433
		(1.295)	(1.391)	(1.401)	(1.422)	(1.386)
This message presents concerning information.	1,829	3.041	2.981	3.348	3.173	4.575
		(1.755)	(1.761)	(1.764)	(1.824)	(1.850)
The sender of the message is reputable.	1,829	5.330	5.315	5.310	5.354	5.010
		(1.331)	(1.510)	(1.406)	(1.415)	(1.369)
The sender of the message is reliable.	1,830	5.213	5.189	5.205	5.238	4.966
		(1.328)	(1.502)	(1.379)	(1.432)	(1.334)
The sender of the message is trustworthy.	1,831	5.293	5.245	5.238	5.291	4.955
		(1.318)	(1.528)	(1.431)	(1.430)	(1.352)

Note: This is the analytical sample with complete information for all main outcomes and covariates used in the regression analysis. The mean values derive from potential seven answer options of a Likert scale from 1 (I strongly disagree) to 7 (I strongly agree).

Table S.2.15: Expected Means of WTP in Euro-cents for interval regression

	(1)	(2)	(3)	(4)
Control	52.319***	51.700***	52.319***	49.114***
	(2.787)	(2.033)	(2.787)	(2.029)
Treatment 1: Fairtrade supportive	56.077***	53.421***		
	(2.913)	(2.046)		
Treatment 2: Ministry supportive	53.200***	52.019***		
	(2.892)	(2.184)		
Treatment 3: University supportive	51.065***	52.366***	51.065***	51.500***
	(2.749)	(2.111)	(2.749)	(2.196)
Treatment 4: Retailer supportive	54.066***	50.125***		
	(2.939)	(2.034)		
Treatment 5: University unsupportive			48.127***	47.201***
			(2.799)	(2.167)
Controls	No	Yes	No	Yes
Observations	1,858	1,858	1,158	1,158

Notes: Expected mean willingness-to-pay is measured in Euro-cents. Standard errors in parentheses. *, **, and *** represent statistically significance at the 10%-, 5%-, or 1%-significance level, respectively.

S.3 Comparison pre-analysis plan and this study

Table S.3: Comparison of analysis suggested in pre-analysis plan and this paper

	Pre-Analysis Plan	**Study**
Main sample	Sample of participants with amount of time is more than half of the median as calculated based on the other participants and choosing the same answering option in less than or equal to half of six statement batteries.	Additional exclusion of participants with incomplete covariates used in the regression analysis.
Descriptive statistics and simple comparison		
Distribution of single variables	Histograms of the primary and supplementary outcomes	Not reported, available upon request
Comparison of the difference in the distributions	Epps-Singleton tests	Not reported, available upon request
Comparison of the difference in the median for ordinal outcomes	Kruskal-Wallis one-way for all treatment groups	t-tests for dummies for each category and each two treatment groups
Comparison of the difference in the mean for continuous outcomes	ANOVA for all treatment groups	t-tests for each two treatment groups
Regression Analysis		
WTP effects	Interval regression with covariates for a) only supportive statements and control group b) only university statements and control group c) only university statements	Interval regression corrected for heterogeneity with covariates incl General trust for a) only supportive statements and control group b) only university statements and control group
Purchasing intention	Ordered probit model with the two indicators of purchasing intention with covariates for a) only supportive statements and control group b) only university statements and control group c) only university statements	OLS corrected for heterogeneity of purchasing intention factor score with covariates incl General trust for a) only supportive statements and control group b) only university statements and control group
Perception	OLS of message perception factor and sender perception factor each with covariates for a) only supportive statements, b) only university statements	OLS corrected for heterogeneity of message perception factor and sender perception factor each with covariates incl General trust for a) only supportive statements, b) only university statements
	Ordered probit model with the three indicators of each perception factor with covariates for a) only supportive statements, b) only university statements	Not reported, available upon request
Robustness Checks		
Purchasing intention	Ordered logit model with the two indicators of purchasing intention	Not reported, available upon request

Exclusion of outliers in regression analysis	Main models for purchasing intention and WTP with exclusion of strong outliers	Not reported, available upon request
Multiple hypothesis testing		
Purchasing intention	Family wise error rate for the single indicators	Not reported, available upon request
Perception	Aggregation to single factor	Not reported, available upon request
Heterogenous effects	Interaction terms	Not reported, available upon request