Are Stated Preferences Confirmed by Purchasing Behaviours? The Case of Fair Trade-Certified Bananas in Switzerland

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ABSTRACT. As the market share of Fair Trade food products in countries of the North grows, understanding consumer preferences with regard to this recent label is becoming increasingly important. This article reports on a test of the consistency of consumers' stated preferences, for which a survey was conducted at the place and time of actual purchase decisions. The aim of the survey was to further improve the understanding of consumers' stated motivations for buying 'Fair Trade' and 'organic Fair Trade' bananas in Switzerland. Hypothetical questions with double dichotomous choices were used to compare two types of bananas – conventional and labelled – and to assess the average stated willingness-to-pay (WTP) for Fair Trade-labelled bananas. The results show that Fair Trade is largely accepted in Switzerland and that the premium for purchasing such products is influenced by age, the number of young children and the perception of the Fair Trade label. I then used a comparative test of field observations and stated preferences for bananas to measure inconsistency in choices. This comparison reveals that less than one-fifth of the answers are in principle inconsistent. These results point to the importance of confidence in the Fair Trade labels if consumers' purchases are to increase.

KEY WORDS: bananas, consumer preference, Fair Trade, willingness-to-pay

Introduction

Over the past few decades, consumers have demonstrated a growing interest in socially responsible

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products, and ethically labelled goods such as Fair Trade food items, handicrafts and fabrics that have gained wide popularity. Socially responsible products are also referred to as ethical (Browne et al., 2000; Loureiro and Lotade, 2005a) or fair, depending on the label, logo or certification. Fair Trade food products represent a large and growing market in the countries of the North, especially in Europe where 65% of the global volume is sold (Courrier de la planète, 2008). A large number of Fair Trade products are certified by Fair Trade umbrella organizations which guarantee minimum prices for participating producers, working conditions in line with democratic principles, no use of child labour, trade unions for workers and environmental sustainability (Raynolds, 2000). As a result, these products seem to satisfy emerging consumers' social expectations, and some consumers are willing to pay more for Fair Trade products, irrespective of whether they are labelled.

Of all the North-American and European countries, the market penetration of Fair Trade-certified products is highest in Switzerland, both in volume and in value per capita. This study, therefore, focusses on the Swiss case to help characterize what could be called a mature final market. In absolute value, each Swiss consumer spent an average of 21 Swiss francs on Fair Trade-certified products in 2007, nearly double the amount spent by the average 'runner-up' UK consumer (Krier, 2008). The market shares achieved are high and considered impressive. For coffee, the first Fair Trade-certified product introduced, the value is now approximately 4–5% (Pfeifer, 2006). However, according to Pfeifer, coffee was ranked behind bananas (55% of the market), pineapples (17%), honey (16%), sugar (15%), fruit juices
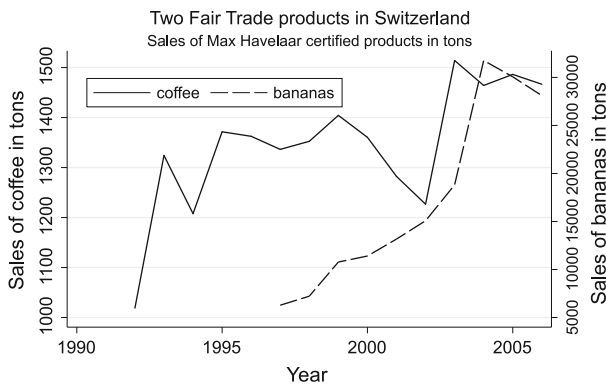
Figure 1. Sales volumes of two Max Havelaar-certified products, coffee and bananas. *Source*: Max Havelaar Foundation, Switzerland.

(7%) and tea (6%) in 2006. Figure 1 presents the sales volume of Fair Trade-certified coffee and bananas since their introduction in retail stores.

The certification of Fair Trade products started with the Max Havelaar label when the Max Havelaar Switzerland Foundation, the Swiss Fair Trade certifier, was founded in 1992 as a member of the umbrella organization 'Fairtrade labelling organization International' (FLO International). The six largest Swiss aid organizations (Brot für alle, Caritas, Fastenopfer, HEKS, Helvetas and Swissaid) combined their forces to establish this certifying organization (Krier, 2008).

From the outset, the Max Havelaar Foundation received support from the two largest Swiss food retail chains, Migros and Co-op. These two retail chains, which represent more than 75% of the Swiss food retail market, agreed to sell Fair Trade-labelled products. As a result, by 2006, Fair Trade products could be found in approximately 7000 retail stores (Fairtrade Labelling Organizations International, 2008), of which 212 were World Shops (Waridel and Teitelbaum, 1999). In the same year, 85% of grocery stores sold Fair Trade products to 150,000 Swiss households, all of which were regular purchasers. This very broad distribution from the very outset probably explains the wide popularity of the Fair Trade concept in Switzerland. The foundation has consequently been able to attract other importers and retailers and broaden its product range to capture an increasing market share. Consequently, the certification organization which was initially dependent on federal subsidies became a self-sustaining entity in 2001, able to survive on its income from license fees.

Switzerland will undoubtedly continue to be the model for other labelling initiatives, especially for bananas, the most widely sold Fair Trade product (Fairtrade Labelling Organizations International, 2008). Over the last couple of years, the Swiss Fair Trade certification logo could be found on more than 28 million kilograms of bananas. The early support provided by the two main retail chains may explain why Fair Trade is successful in Switzerland and why Fair Trade bananas enjoy such an impressive market share in that country. In addition to Claro Fair Trade AG and Caritas-Fair Trade, the third main Swiss Fair Trade importer, Gebana AG, was one of the pioneering organizations in Europe. Gebana AG stemmed from a collective of women located in the German-speaking part of Switzerland. First called 'Bananenfrauen' and later 'Nicaragua-Bananen', this association of women started questioning a retail store discount on bananas from Nicaragua in 1973 (Pfeifer, 2006). These women campaigned and sold bananas with a premium equivalent to the newly introduced discount. The funds collected financed actions aimed at improving producers' working conditions in Guatemala. The association founded the company 'Gebana' in 1998, now active under the name 'Terrafair', and has been campaigning on banana-related issues for more than 30 years. It now imports from many countries such as Ghana, Colombia, the Dominican Republic, Peru and Costa Rica. The Fair Trade movement for bananas thus started in Switzerland well before the introduction of certification.

The Swiss Fair Trade market may now have reached a plateau: after jumping from € 101 million in 2003 to € 136 million in 2004, the net retail value of products sold with the Fair Trade label remained roughly static over the following 2 years at € 143.1 million and € 142.3 million, respectively. More than 83% of this retail value comes from only three products, i.e. bananas (38%), flowers (34%) and coffee (11%) (Krier, 2008). The Swiss Fair Trade market may, therefore, be maturing.

Partly to increase market shares of certified products and partly to bring rationale to convergent production standards, Swiss Fair Trade certification is also associated with the Swiss organic label. Both organic and Fair Trade brands are guarantees of certification by third party organizations with regard to information that cannot be verified by consumers

(Gozan et al., 2001). Labels generally reflecting producers' marketing practices make consumers aware of production conditions (Caswell and Mojduszka, 1996) and, therefore, deserve further investigation with regard to consumer perception, confidence and preferences. Despite increasing Fair Trade and organic product consumption, estimates of premiums paid by Swiss consumers for Fair Trade goods are scarce, especially for Fair Trade-certified bananas and organic Fair Trade-certified bananas. Nor have Swiss consumers' purchasing motives been given very much attention.

In light of these facts, this article presents the results of a survey carried out at the place of purchase in which real purchases were observed and where stated preferences of the same sample of Swiss consumers were recorded. The survey concerns two labels, the 'Max Havelaar' Fair Trade label and the 'BIO-Suisse Max Havelaar' organic Fair Trade label. In the following pages, the first label is referred to as FT and the second one as OFT. Food choices were also observed. In addition to the characterization of consumer preferences for FT- and OFT-certified bananas, consumers' statements in the survey were compared to their actual choices, i.e. their real purchases.

The main contributions presented here are two-fold: first, a comparative test between observed and stated preferences proposed within the limits of surveys and consumers' rationality; and, second, original data on Swiss consumer preferences for a particular Fair Trade product – bananas – which can be considered as a mature Fair Trade market. The study focusses on Switzerland with a view to contributing to the knowledge and understanding of Fair Trade final consumers, as the Fair Trade market in Switzerland has such a high level of market penetration of certified products and is one of the leading countries with regard to the sales of Fair Trade products per capita. For this reason, it could be extrapolated to future market penetration in other countries. In addition, Fair Trade cannot develop further in the North if the market for final consumers does not expand.

Based on a short review of the literature, the following section explains the choice of methodology. Survey data are presented in 'Description of collected data' section followed by the econometric model in 'Methodology for estimating the WTP' section. After validation of the methodology in 'Results: links between stated premium and real choices' section, the results are presented in 'Results: estimates of WTP' section. 'Concluding remarks' section draws conclusions and wider lessons from the case study of Fair Trade bananas in Switzerland.

A short review of stated preference methodologies

Previous marketing or consumer studies on Fair Trade food products have characterized segments of consumers, consumer purchase habits and consumer choices of place of purchase. Some authors have estimated the willingness-to-pay (WTP) for Fair Trade food of a sample of consumers and identified individual characteristics influencing the WTP for such products. The most frequently used methodologies in this literature are surveys collecting stated choices (de Ferran and Grunert, 2007; De Pelsmacker et al., 2005; Loureiro and Lotade, 2005b) and experimental auctions that elicit preferences (Arnot et al., 2006; Tagbata and Sirieix, 2008). These studies mainly focussed on three products: coffee (Arnot et al., 2006; de Ferran and Grunert, 2007; De Pelsmacker et al., 2005; Loureiro and Lotade, 2005b), chocolate (Tagbata and Sirieix, 2008) and bananas (Rousu and Corrigan, 2008). WTP for Fair Trade has been found to be significantly correlated to age (Rousu and Corrigan, 2008), income level (Rousu and Corrigan, 2008), business or economic education (Rode et al., 2008) and knowledge about the label (Arnot et al., 2006). When surveys include information regarding prices of labelled products, they also appear to influence choices for Fair Trade.

Consumer preferences can be observed when choices, WTPs and premiums are collected and analysed. Empirically, different valuation methods can be used to observe choices and to observe or assess WTP. The contingent valuation (CV) method, a type of survey that contains hypothetical scenarios, is used to observe stated preferences. CV methods have been applied to environmental economics (Munro and Hanley, 1999; Shogren, 2006) and health economics to assess non-market values, but they are also used in marketing studies. Three types of question can be found in CVs: open-ended, dichotomous choice or iterative choice formats (Bateman et al., 1995).

The payment card format is an example of iterative choice formats. Loureiro and Lotade (2005b) report on a consumer survey identifying the WTP for a labelling programme using this format. Different bid intervals are iteratively presented to respondents who choose one of these intervals as their range of WTP.

Dichotomous choice formats are also called referenda because a hypothetical scenario is presented to respondents who can only answer positively or negatively. For accuracy and statistical efficiency purposes (Hanemann, 1984; Hanemann et al., 1991), dichotomous choices are often doubled to form the double-bounded dichotomous choice (DBDC) format, as in the study by Loureiro et al. (2002).

In this survey, a DBDC format is used with price differences between two products in the referendum questions for two reasons. First, it can easily be implemented in retail stores where real purchases can also be observed. Second, double choices improve the accuracy of the WTP assessment compared to simple dichotomous choice surveys, as mentioned above.

Finally, DBDC contingent valuations at the point of purchase have already been reported in the literature (Blend and Ravenswaay, 1999; Loureiro and Lotade, 2005b; Loureiro et al., 2002) and can act as benchmarks. Lusk and Hudson (2004) show that when the survey is conducted at the point of purchase, answers are less prone to selection bias and that the regular purchasing context mimics real choices. This contrasts with the findings of studies based on telephone or mail surveys. The in-store setting allows the participants to view the large variety of products offered by the grocery store and to inspect the products that they are being asked to consider.

Hypothetical questions in our survey are phrased using price differences. This phrasing allows us to obtain Fair Trade label premiums, i.e. differences between the WTP for a certified banana and the WTP for a standard banana.

In short, several studies have compared stated and real choices (Cummings et al., 1995; Johannesson et al., 1998) but they tend to yield heterogeneous results. Cummings et al. showed that stated WTP differs significantly from real choices. In contrast, results presented by Johannesson et al. (1998) are less affirmative, although this difference could be attributed to the comparative tests they chose.[1] The

experiment run by Loureiro et al. (2003) is also of interest, whereby stated choices are compared to real choices. The results partially confirm that stated WTP and real purchases are linked, since stated WTP is partly correlated with higher probabilities of purchase.

All in all, few studies have estimated the WTP for Fair Trade food on a sample of actual Fair Trade certified product buyers and at the place of purchase. Furthermore, none have presented results on Swiss Fair Trade certified bananas. Some studies have identified individual characteristics influencing the WTP for such products, as mentioned above, but not specifically in Switzerland. This study may therefore contribute to the understanding of Fair Trade final consumption.

Description of collected data

Data were collected in the summer of 2006 in cooperation with the manager of the selected grocery store. The store is located in a sub-urban area of the French-speaking part of Switzerland. The interviewers were to approach customers entering the fresh produce section and choosing any kind of banana, in 1-h intervals at various times of the day and on different days of the week. Demographic quotas were not used because the criterion for interviewee selection was the purchase of bananas, and demographic data on Swiss banana consumers were not available. On the other hand, we were able to cover banana consumers with all types of preferences for bananas, since the fresh produce section offered two other types of bananas in addition to the products considered in the survey.

Respondents were selected if they purchased bananas and their choices were recorded.

Tables I and II present descriptive statistics on the main demographic variables of the sample. In total, 110 banana purchasers responded to the survey. A majority of respondents were women (75%). The respondents' average age was between 40 and 49 years old. Every age-group was represented, with a small proportion of people aged 18–29 (8%). The majority of respondents (81%) said that they were responsible for the household's grocery shopping. The average household size was between two and three individuals. In addition, 47% of all respondents

TABLE I

Summary statistics for the demographics

Variable name (description)	Frequency	Mean	SD
Woman		0.75	0.43
Age	1 (18–29 years) = 8%	3.25 (40–49 years)	1.21
	2 (30–39 years) = 20%		
	3 (40–49 years) = 28%		
	4 (50–59 years) = 25%		
	5 (60 yrs and more) = 18%		
Prim shopper (primary shopper)		0.81	0.30
Hous size (household size)		2.73	1.21
Children (nb. of children)	0 = 53%	0.83	1.04
	1 = 21%		
	2 = 17%		
	3 or 4 = 9%		
Income	<CHF 4000 = 9%	2.93 (CHF 4000–6000)	1.01
	CHF 4–6000 = 28%		
	CHF 6–7800 = 25%		
	>CHF 7800 = 39%		
Education	Secondary school = 22%	3.31	1.28
	Apprenticeship = 65%		
	High school = 11%		
	College = 22%		
	Grad school = 3%		

had children still living at home. The average household monthly income was between CHF 6000 and CHF 7800.

Summary statistics for the sample and the Swiss population are presented in Table II. In relation to the Swiss population as a whole, the gender ratio in the sample is slightly biased towards females as well as to middle-aged people. The average shopper is likely to be a woman and when couples shopping together were interviewed, women often answered the questions. On the whole, this sample of banana purchasers cannot be considered as irrelevant for a small-scale study.

The survey took place in the context of real purchases, which is a core element of this study. Real choices of banana type are described hereafter. Most respondents chose Fair Trade (FT)-certified bananas (66%). Overall, 14% of the people in the sample purchased standard bananas and 15% purchased organic Fair Trade (OFT)-certified bananas.[2] More than half of the respondents chose FT-labelled bananas. This finding is consistent with the FT-la-belled bananas' share of the Swiss banana market, which is reported to be around 50% in the retailing sector (Palma Torres and De Sousa-Santos, 2006).

In addition, the survey questioned respondents on their criteria for choosing bananas. Respondents could give more than one criterion. After ranking the criteria by importance, the data show that respondents made their choice according to, first, the label (58%) followed by fruit maturity (29%), quantity[3] (27%), banana size (20%), taste (17%), price[4] and purchasing habits (10% each) and finally presentation (loose bananas were a determinant for 7% of respondents and wrapped-up bags with a weight and price tag for 4%).

Finally, the respondents' attitudes towards Fair Trade, the environment and food safety were identified in the survey by presenting trade-off scenarios. Trade-offs were between one of the issues cited above and the importance of low food prices. Identifying respondents' attitudes using trade-offs, i.e. indirect questions, seems more effective. If asked directly, respondents tend to answer that they favour

TABLE II

Socio-demographic characteristics of the sample
and of the Swiss population

Variable	Sample	Swiss population
% Female	75%	54.2%
Age (0–29 years)	8%	13%
(30–39 years)	20%	22%
(40–49 years)	28%	19%
(50–59 years)	25%	16%
(60 years and more)	18%	29%
Household size	2.7	2.9
% of household with children	53%	44.0%
Household income	CHF 4000–6000	CHF 5405

Source: Swiss Federal Statistical Office.

Fair Trade and other issues generally considered to be socially positive in order to please interviewers. In addition to these trade-off questions, self-reported levels of confidence in the Fair Trade label and the Swiss organic label were collected using a 5-tier scale. This scale ranges from 'I have no confidence at all' to 'I am fully confident'. The resulting variables are summarized in Table III.

Regarding attitudes towards Fair Trade, 51% of customers accorded greater importance to buying at a low price than to buying Fair Trade.[5] A majority of respondents (72%) accorded greater importance to preserving the environment than to buying at low prices and 88% accorded greater importance to food safety than to low prices. The self-reported confidence level for both labels was on average positive, and it was higher for the Fair Trade label than for the organic label. Figures are reported in Table III.

Methodology for estimating the WTP

Description of the DBDC scenario used in the survey

For this survey conducted in Switzerland, the questionnaire includes two sets of contingent valuation questions. All respondents answer both sets. One set of questions compare Fair Trade (FT)-certified bananas with standard (S) bananas. The second set compares organic Fair Trade (OFT)-certified bananas with FT-certified bananas. Both sets of hypothetical questions are presented in the same order for all respondents, with first the comparison between FT and S bananas followed by the comparison between OFT and FT bananas.[6]

TABLE III

Summary statistics for consumer attitude variables

Variable name	Description	Values	Mean	SD
Fair trade	Importance of Fair Trade sensitivity versus food price	(1, 5), where 1 = food price matters first and 5 = Fair Trade matters first	3.34	0.98
Environment	Importance of environmental sensitivity versus food price	(1, 5), where 1 = food price matters first and 5 = saving the environment matters first	4.03	1.01
Food safety	Importance of food safety attributes versus food price	(1, 5), where 1 = food price matters first and 5 = food safety matters first	4.39	0.87
MH label	Confidence in the Fair Trade label 'Max Havelaar'	−2 = not at all, −1 = rather no, 0 = average, 1 = rather yes and 2 = entire confidence	1.19	0.71
Organic label	Confidence in the organic label 'Swiss-organic'	−2 = not at all, −1 = rather no, 0 = average, 1 = rather yes and 2 = entire confidence	0.61	1.01

In the following paragraphs, for the sake of simplicity, I refer to the set of questions regarding FT versus S bananas only. As noted above, stated choices are collected using double dichotomous choice questions. Both questions are hypothetical because they include price scenarios for two types of banana.

In addition, the two choice questions are nested because the respondent's answer to the first question determines the formulation of the second question. In the first question, FT and S bananas are offered at the same price. The respondent is then asked which type of bananas s/he wants to purchase. If s/he chooses FT bananas, these bananas are supposedly more expensive than the S bananas in the second question, i.e. the second scenario. S/he is asked which type of bananas s/he would purchase given this positive price difference. If, on the contrary, s/he prefers S bananas in the first question, then FT bananas are supposedly less expensive than the S bananas in the second question.

Fair Trade bananas are products of interest in this comparison and S bananas are products of reference, which means that the first question could be phrased as follows: do you prefer FT to S bananas if sold at the same price? In this way, a positive answer is equivalent to choosing the product of interest. Symmetrically, a negative answer is equivalent to choosing the reference product. The exact formulation of these questions is presented in annex A.

The survey provides stated premium ranges for the FT and Swiss organic FT labels, as explained in annex C. The average premium, i.e. average WTP, is then estimated using an econometric model.

Answers and estimation model

For each banana comparison, count and percentage are presented by type of answer in Table IV. According to this table, the combination of 'yes' followed by 'yes' occurs most often. Table IV also shows that 86% of respondents have a positive WTP for the FT label on bananas and 59% of them have a positive WTP for the Swiss organic label in addition to the FT label on bananas.

The econometric model

To estimate the average premium from the premium ranges (see Table IV and annex C), the following model is used:

$$Y_j = x_j B + e_j \qquad (1)$$

where Y_j is respondent j's WTP for the label, x_j the vector of j's characteristics[7] and B the vector of parameters to be estimated, including the constant term. e is a vector of error terms e_j, assumed to be normally distributed $N(O,s)$ with s also to be estimated. In other words, the model used assumes that the variable of interest y has a normal distribution.

It should be noted that WTP Y_j is not directly observed, but only at intervals or points. Consequently, a generalized Tobit model is used. This model is presented in annex D whilst the estimates are shown in the following section.

Model specifications for estimation are selected according to two criteria. The first criterion is

TABLE IV

Description of answers to the double dichotomous choice questions

Step 1/step 2 answer	FT versus S labelled bananas	OFT versus FT labelled bananas	Hypothetical WTP for the FT or O label
No/no	3 (3%)	19 (17%)	Negative
No/yes	5 (4%)	20 (18%)	Negative
Indifferent	7 (6%)	6 (6%)	Null
Yes/no	19 (17%)	26 (24%)	Positive
Yes/yes	76 (69%)	39 (35%)	Positive
Total	110	110	

parsimony because the sample size is small. The second is corrected Akaike's information criterion (AIC). This criterion is recommended by Hurvich and Tsai (1995) to take into account the ratio between the number of parameters and the number of observations when dealing with small samples.[8] In this way, the variables exercising the greatest influence on WTPs are retained whilst the others are ruled out.

Results: links between stated premium and real choices

Stated preferences are often questioned because of respondents' tendency to exaggerate their answers. With this in mind, this section presents a test of validity for the methodology used. Results show that the double dichotomous choice questions are appropriate in this study.

Answers to the first bid and real choices

A first comparison of actual choices of banana type and stated preferences is made by analysing the respondents' answers to the first question in the sets of dichotomous choice questions. Respondents are asked to state their preferred banana in a same price–same quantity scenario. They state their preferences in two cases: when FT-certified bananas are compared to S bananas, and when OFT- and FT-labelled bananas are compared.

Table V presents the comparison of actual and stated choices for FT versus S bananas. Preferences of S banana buyers are found to be unstable with

regard to price, since 54% of them stated that they would rather buy the FT-labelled bananas for the price of the S bananas. In addition, these respondents chose S bananas for the price but not because of habit or packaging. Conversely, very few FT buyers (3%) would prefer S bananas to FT-labelled bananas if they were offered at the same price. In other words, the FT label empirically appears to be a vertical quality attribute for which preferences are heterogeneous with the price and differ between respondents.

Table VI presents comparisons between stated and actual choices for FT- and OFT-labelled bananas. First, OFT banana buyers exhibited perfectly stable preferences with regard to price difference. Second, 44% of FT-labelled banana buyers did not value the organic label in addition to the Fair Trade label. The preference for FT bananas could result from a lack of confidence in the organic label. This hypothesis is confirmed by a Mann–Whitney test on the variable representing self-reported confidence in the organic label. FT banana buyers who preferred the OFT label (at the same price) to the FT label are significantly more confident about the organic label (the z statistic is -4.384 and the Prob > $|z| = 0.000$).

Stated WTP intervals and real choices

A second comparison of actual and stated choices of banana type is made by comparing respondents' stated intervals and their real choices. In this perspective, three types of 'inconsistency' or unexpected answers are defined.

TABLE V

Actual versus stated preferences: S- and FT-labelled banana, with $n = 85$ (77% of the sample)

Actual choice of bananas	Stated preference		Total
	S	FT	
S	46%	54%	100%
	(100%)	(0%)	(13)
FT	3%	97%	100%
	(0%)	(100%)	(72)

Total observation numbers are in parentheses.

TABLE VI

Actual versus stated preferences: FT- and OFT-labelled banana, with $n = 89$ (81% of the sample)

Actual choice of bananas	Stated preference		Total
	FT	OFT	
FT	44%	56%	100%
	(100%)	(0%)	(72)
OFT	0%	100%	100%
	(0%)	(100%)	(17)

Total observation numbers are in parentheses.

TABLE VII

Summary of inconsistent and consistent answers

Case	Answer type	Number of observations	% of total sample	% of classified answers
FT versus S	Consistency	69	63%	81%
	Situation 1	3	3%	4%
	Situation 2	1	<1%	1%
	Situation 3	12	11%	14%
	Unclassified	25	23%	–
	Total	$n = 110$	$n = 110$	$n = 85$
OFT versus FT	Consistency	76	69%	85%
	Situation 1	1	<1%	1%
	Situation 2	5	5%	6%
	Situation 3	7	6%	8%
	Unclassified	21	19%	–
	Total	$n = 110$	$n = 110$	$n = 89$

Situation 1: respondents 'offer less'
These respondents stated that they were willing to pay less than they actually paid. This situation occurred when the respondent's real choice was the FT when compared to S (or the OFT banana when compared to FT), but when his/her WTP for the labelled banana was lower than the real price she paid.

Situation 2: respondents 'offer more for another item'
These respondents stated that they were willing to pay more than they actually paid for the other product. This situation occurs when the respondent's real choice is the product of reference (either S or FT) and when his/her WTP for the label (either FT or OFT) is higher than the label premium she paid.

Situation 3: respondents 'offer more'
These respondents stated that they were willing to pay more than they actually paid. This situation occurs when the respondent's WTP for the label is higher than the actual premium s/he paid.

Situations 1 and 2 represent statements that a priori do not match the real choices. Therefore, they are called 'inconsistent'. Situation 3 sheds light on stated choices that could be self-reported overestimations of the real WTP.

Counts and percentages of each situation are shown in Table VII, both for FT versus S bananas and for OFT versus FT bananas. Two references are considered to calculate the percentages. The entire sample is considered in the fourth column of Table VII whilst in the fifth column, I consider the sub-sample of classified answers only.

The distribution of answers is similar in both comparative cases, FT versus S and OFT versus FT.[9] To conclude, the bias of double dichotomous choice format used appears constant in all comparisons. The methodology I used is, therefore, validated.

Results: estimates of WTP

Estimates of the average WTP for the Fair Trade label (model 1) and the organic Fair Trade label (model 2) are presented in this section.

Estimation results for model 1 are presented in Table VIII. According to the specifications of this model, WTP is explained by the following variables: *Fair Trade × MH label*, *50–59 y*, *chil-4* and *pricec*. *Fair Trade × MH label* is the respondent's perception score for the Fair Trade label. This variable ranges from −10 to +10 and is obtained from the attitude variables previously described concerning sensitivity to Fair Trade and confidence in the FT label. The 50–59 age-group (*50–59 y*) is significantly and negatively correlated with WTP for the Fair Trade label, as is the number of children under 4 years old (*chil-4*) and the stated choice criterion of price for the real purchase (*pricec*). Age, number of young children and propensity to buy at a low price might

TABLE VIII

Estimation of model 1: FT versus S

Variable	Coeff.	SE	z	$P > |z|$
Fair Trade × *MH label*	16.799★★	(3.533)	4.75	0.000
50–59 γ	−44.098★	(22.363)	−1.97	0.049
Chil-4	-35.538★★★	(20.320)	−1.75	0.080
Pricec	−68.233★	(27.087)	−2.52	0.012
Constant	78.507★★	(18.505)	4.24	0.000
$\ln(\sigma)$	4.187★★	(0.169)	24.73	0.000
N		110		
$\text{Log}(V)$		−56.812		
$\chi^2_{(2)}$		38.477		
AIC		125.623		
Corrected AIC[a]		126.004		

Significance levels are ★5%, ★★1%, ★★★10%.
[a]The corrected Akaike's information criterion equals AIC + $(2k(k + l))/(n - k - 1)$ where *n* is the number of observations and *k* the number of parameters.

indicate an income effect. Yet, the income variable never appears as significant, irrespective of the model specification, a fact which might be explained because stating one's income in a survey can be inaccurate, especially in face-to-face surveys. With this specification of model 1, average WTP for the FT label on bananas is estimated at CHF 1.28/kg with a confidence interval (at 95%) that ranges from +0.98 to +CHF 1.58/kg. At the time of the survey, the actual price difference in the retail store was CHF 0.70/kg. Therefore, the actual premium is below the estimated confidence interval for the stated premium.

Results indicate that income and price effects influence respondents' preference for Fair Trade. This is always an important choice criterion in food purchases, especially for low-income households. The higher price of FT-certified bananas could explain Co-op's reintroduction of cheap bananas in 2005 after having removed them from the shelves (Krier, 2008). Above all, the estimated constant is high and positive in relation to the high percentage of preference for FT bananas: more than two-thirds of the respondents preferred FT-certified bananas to S bananas. Familiarity with fair-trade − both the label and the movement − and confidence in them might be strong elements of this Swiss success.

Model 2 is presented in Table IX. Estimated coefficients indicate that WTP can be explained by the following variables: *environment × organic label*,

income[10] and *18–29 γ*. *Environment × organic label* is the respondent's perception score for the organic label. This variable ranges from −10 to +10. It is obtained from the attitude variables previously described concerning sensitivity to environmental preservation and trust in the Swiss organic label. *Environment × organic label* is significantly and positively correlated with the WTP for the organic label. Respondents' ages range from 18 to 29, and income has a positive effect on WTP. These effects of age, income and trust in the label have been reported in past studies on eco-labels (Blend and Ravenswaay, 1999; Loureiro et al., 2002).

Average WTP for the Swiss organic label (with respect to the Fair Trade label on bananas) is estimated at CHF 0.33/kg with a confidence interval at 95% that ranges from +0.09 to +CHF 0.51/kg. At the time of the survey, the actual price difference in the retail store was CHF 0.50/kg. This actual premium is close to the upper limit of the estimated confidence interval for the stated premium.

This result indicates that either the price differential applied in the store for the Swiss organic label is too high compared to the average WTP or that the OFT label is not preferred by a majority of customers, at least in our sample.[11] This could explain why the market share for OFT bananas is smaller than for other types of bananas.

These findings are in line with previous studies of the WTP for eco-labels, in which age, income,

TABLE IX

Estimation of model 2: OFT versus FT

Variable	Coeff.	SE	z	$P > |z|$
Environment × organic label	5.335★★	(1.687)	2.95	0.003
Income	22.994★	(10.595)	2.26	0.024
18–29 γ	84.217★	(41.176)	2.02	0.043
Constant	−141.365★★	(41.176)	−3.00	0.003
ln(σ)	4.548★★	(0.120)	37.20	0.000
N		101		
Log(V)		−131.87		
χ²		17.26		
AIC		273.75		

Significance levels are ★5%, ★★1%, ★★★10%.

gender and education are determinants (Blend and Ravenswaay, 1999; De Pelsmacker et al., 2005; Loureiro et al., 2003). WTP nevertheless seems contingent on the type of product chosen. As with the WTP for Fair Trade, these results differ from results found in the literature. Arnot et al. (2006) believe that knowledge about the product and the label is important, whereas Tagbata and Sirieix (2008) believe that social concern is determinant and Rode et al. (2008) identify income as being important. However, Rousu and Corrigan (2008) also identify an age impact (over 40 years old).

Concluding remarks

This study presents original results on the WTP for Fair Trade-certified products in Switzerland, which is one of the leading countries with regard to sales of Fair Trade product per capita. It is based on a contingent valuation with double dichotomous choices. It was aimed at assessing average WTP for the Fair Trade label and the Swiss organic Fair Trade label on bananas, which do not appear to have been studied so far. The objective was also to characterize some of the individual determinants that are specific to Fair Trade consumers in Switzerland and to compare stated preferences to actual purchase choices using an original test. Bananas were chosen for the high Fair Trade penetration rate in that particular market, especially in retail stores.

The results validate the methodology of stated preferences whilst also indicating that the WTP for the Fair Trade label is positively influenced by

confidence in the Fair Trade label and negatively influenced by age (50–59 years old) and income limitations, including the number of young children, and price as main choice criteria for purchases. Furthermore, results show that three factors positively influence the WTP for the organic Fair Trade label: income level, age (18–29 years old) and confidence in the Swiss organic label.

Results also suggest that customers would, on average, still buy FT-labelled bananas at a higher price than the price offered at the time of the survey. Fair Trade bananas could, therefore, be sold at a higher premium and consequently a higher price could be offered to banana producers.

Confidence in the Fair Trade movement and label is very important, although it may be enhanced by marketing effects, for example a loose packaging. On the other hand, more respondents were dubious about the organic label and expressed their lack of trust. Communication campaigns on Fair Trade seem useful in influencing customer confidence.

In conclusion, the banana market in Switzerland is often seen as a mature market for Fair Trade (Waridel and Teitelbaum, 1999) products because the market share of Fair Trade-certified bananas is high and has reached new heights. Two elements seem to have strongly contributed to this popularity: the long-standing presence of FT products and the FT label in retail stores, and the communication campaigns concerning Fair Trade, especially those undertaken by associative initiatives and retail chains. The impressively massive volume of Fair Trade bananas sold is surely linked to consumers concerned about ethical

issues and Fair Trade, but retail chain strategies have greatly shaped consumer demand. The specificity of Switzerland lies in its food supply chain in which two competitive retail chains account for more than two-thirds of final food purchases. These two former retail cooperatives enjoy strong market power which could be researched further in the case of Fair Trade products. Communication campaigns also provide consumers with information to better understand the fair-trade movement: confidence in the label is inextricably linked to communication by the certifier. Further research could explore trust in certifiers, which is a major issue in some countries where Fair Trade credibility is said to be waning because of retail chain campaigns. Fair Trade stake-holders might also be interested in testing their communication and transparency policies on consumers.

Annex

A: Formulation of the hypothetical questions

For the FT vs. S labelled banana case, the questions were formlated as follows:

▷ Suppose that your grocery store only sells two types of bananas, standard (COOP) and Max Havelaar certified. These two types of banana are sold at the same price. Which one do you choose? COOP or Max Havelaar?

▷ Suppose now that the prices of the Max Havelaar bananas is 0.30 (or 0.70/1 or 10 CHF/kg) lower[12] (or higher[13]) than the standard bananas. Which type of banana do you choose? COOP or Max Havelaar?

B: Formulation of the attitude questions

I present here one example of a question about the attitude of respondents.

▷ Where would you place yourself on a scale from 1 to 5, if a low price is more important is a 1 and buying Fair Trade is a 5?

| 1 | 2 | 3 | 4 | 5 |

Below is one example of a question about the confidence in a label.

▷ Do you have confidence in the Max Havelaar label? Not at all, rather no, average or without opinion, rather yes or entirely yes?

C: Description of the collected stated premiums

Respondent's stated premium for the FT label (respectively the Swiss organic label in addition to the FT label) is derived from respondents' answers to the set of hypothetical questions and from the hypothetical price difference in these questions. Let dp be the price difference. Respondent's stated premium therefore lies in an interval depending on answers type:

• two negative (no) answers means the respondent's stated premium lies in range $I_1 = (-\infty, -dp)$,

• no followed by yes, stated premium lies in $I_2 = (-dp, 0)$,

• yes followed by no, stated premium lies in $I_3 = (0, +dp)$,

• two positive (yes) answers, stated premium lies in $I_4 = (+dp, +\infty)$.

According to Loureiro et al.'s (2002) study, values of dp can be arbitrarily chosen. Values above and below the real premium at the retail store where set in this survey. Real price differences were 0.70 Swiss francs per kilogramme (CHF/kg) and 0.50 CHF/kg in the case of FT vs. S bananas and OFT vs. FT bananas respectively at the time when the survey took place. Following values were used in the survey: ± 0.30 CHF/kg, ± 0.70 CHF/kg or ± 1.10 CHF/kg in the S vs. FT banana case, and ± 0.40 CHF/kg or ± 1.00 CHF/kg in the OFT vs. FT banana case.

D: Description of the econometric model

The WTP $\mathbf{y_j}$ is not directly observed. Only intervals or points are observed. The dependent variable is therefore considered as censored or truncated, and a limited dependent model is required (Maddala, 1986). I chose a generalised Tobit model, because the observations can be classified into the four categories:

1. the set $\mathscr{C}$ of centred values y_j (point values)
2. the set $\mathscr{L}$ of left-censored values y_{Lj}

3. the set $\mathscr{R}$ of right-censored values γ_{Rj}
4. the set $\mathscr{I}$ of closed interval values $\gamma_i \in (\gamma_{1j}, \gamma_{2j})$[14].

The generalised Tobit model estimates probabilities of observations being in one of the categories described above. Estimations are made by likelihood maximisation, with logarithmic form $\ln V$[15] being:

$$\ln V = -\frac{1}{2} \sum_{j \in \mathscr{C}} \left\{ \left(\frac{\gamma_j - \mathbf{x}_j \beta}{\sigma} \right)^2 + \log 2\pi\sigma^2 \right\}$$
$$+ \sum_{j \in \mathscr{L}} \log \Phi \left(\frac{\gamma_{Lj} - \mathbf{x}_j \beta}{\sigma} \right)$$
$$+ \sum_{j \in \mathscr{R}} \log \left\{ 1 - \Phi \left(\frac{\gamma_{Rj} - \mathbf{x}_j \beta}{\sigma} \right) \right\}$$
$$+ \sum_{j \in \mathscr{I}} \log \left\{ \Phi \left(\frac{\gamma_{2j} - \mathbf{x}_j \beta}{\sigma} \right) - \Phi \left(\frac{\gamma_{1j} - \mathbf{x}_j \beta}{\sigma} \right) \right\}.$$

The function Φ is the Gaussian distribution function. Estimations of this model are presented in the following section.

The generalised Tobit model has been chosen on previous studies (Cameron and James, 1987; Cameron, 1991) for WTP mean and confidence interval estimations. Nevertheless, the DBDC format specificity relies on nested questions that might induce correlation between answers to the first and second price difference hypotheses. In such a case, correlation has to be taken it into account. Cameron and Quiggin (1994) suggest the use of bivariate Probit models with restrictions on the parameters in case of normal and correlated answers. Estimations of bivariate Probit model show that the correlation parameter ρ does not significantly differ from zero (p-values are not significant[16]). This result rules out the hypothesis of correlated answers.

Notes

[1] A χ^2-test is used in the study by Johannesson et al., whereas non-parametric tests are usually considered more relevant for small samples.
[2] Some respondents purchased other varieties of bananas on the shelves, such as small bananas, whereas the variety of standard, FT- and OFT-certified bananas is the same: Cavendish.

[3] Packaging was not controlled during the survey. They differed depending on the type of banana. Standard and OFT bananas were in plastic bags and FT packages were loose.
[4] This variable is called *pricec*.
[5] I considered here the answers that satisfied the condition *Fair Trade* > 3. Similar figures are calculated for the variables *environment* and *food safety*.
[6] I adopted this simple procedure due to the small sample of respondents, but with a serious limitation: no order effect can be tested. This issue is partly solved since questions are ordered in increasing complexity.
[7] This notation includes a constant term as the first element x_{j1}. Hence, for all j, $x_{j1} = 1$.
[8] The chosen model specification presents lowest corrected AIC. The various specifications are available on request from the author.
[9] Using a Mann–Whitney non-parametric test for unmatched samples, differences are not significant since the p-values (0.357 and 0.502, respectively) are higher than 0.005 (when all answers or only classified answers are considered, respectively).
[10] Owing to missing observations for income level, the estimation is made for 101 instead of 110 observations.
[11] Preference for one label does not necessarily match preferences for other labels. Segments of consumers who enjoy purchasing FT products might have less confidence in the organic certification, as Tagbata and Sirieix (2008) have shown.
[12] When previous answer was no for the Max Havelaar banana.
[13] When previous answer was yes for the Max Havelaar banana.
[14] The closed intervals are either $(-dp'_j, 0)$ or $(0, +dp'_j)$.
[15] This is specified in the manual of the software used: STATA Release 9 (2005): *STATA base reference manual A-J*, Volume 1, Stata Press, Release 9.
[16] These estimations are available upon request to the author.

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