

Consumer Preferences for Animal Welfare Labelling on Feta Cheese

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Abstract

Large scale monitoring programs and innovative certification schemes have emerged over the last few years to tackle issues related to inhuman animal treatment during the food production process. However, it is unclear to what extent consumers are willing to trade off animal welfare for higher prices. We conduct a valuation experiment to uncover consumer preferences and willingness to pay (WTP) for animal welfare labelling. We also investigate whether demographic characteristics and attitudinal variables affect WTP. A key finding of the study is that respondents place a positive value to animal welfare certification label, and they are willing to pay an average premium of 120 cents of a Euro per 400 gr feta cheese carrying this label. Moreover, results suggest that women are willing to pay higher premiums than men as well as prior knowledge about this label can positively influence purchase decisions. Finally, results indicate that the more consumers are conscious about ethically minded behavior in their lives the higher is also their willingness to pay for animal welfare label.

Keywords

Animal welfare, Labelling, Willingness to pay, Contingent valuation

1. Introduction

The last few years, more and more farms recognize the need to adopt sustainable development principles, since the welfare of farmed animals is markedly and progressively decreasing due to the prevalence of intensive livestock systems [1]. However, practices towards better standards of animals' living are linked with extra production costs which most of the times are paid by the end user. Thus, it is crucial to investigate whether consumers intent to pay a premium for goods produced with animal-friendly raising techniques, in order costs associated with these techniques to be recouped from potential customers. An effective tool used by producers and retailers to inform consumers regarding these techniques is the animal welfare certification label. This label is a certification scheme that guarantees animals are raised under good housing and feeding conditions and can express natural behaviors.

Elbakidze and Nayga examined consumer willingness to pay for animal welfare in dairy production and concluded that participants on average were willing to pay extra for a scoop of certified ice-cream although they were unwilling to pay a premium for certified cheese [2]. The positive effect of animal welfare label on consumers WTP in dairy industry was also found among Italian consumers [3]. They detected a higher WTP for yogurt labelled with high welfare standards as compared with yogurts labelled with intermediate and low welfare standards.

In this survey we elicit WTP for feta cheese certified for higher animal welfare standards. In the next section we present our data collection and questionnaire design. We then present our results in Section 4 and conclude with a discussion of our findings in the last section.

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2. Methodology

The data collection was carried out through personal interviews in a randomly selected sample of consumers, in front of the main entrance of various supermarkets of the Prefecture of Attica during November 2019. The final sample consisted of 200 consumers and the only criteria that participants had to meet was being over 18 years old. As a product of interest was chosen feta cheese since it is considered an important fresh product in terms of supply and demand in Greece (it is one of the most representative products of the Greek dairy industry) as well as it is an agricultural product that can be sold in packages that could carry certification labels. Moreover, the dairy industry has been blamed for several ethical issues in relation to animal welfare violations the last few years.

To uncover consumers' preferences and willingness to pay for animal welfare labelling we employed the contingent valuation method (CVM). Specifically, we created a questionnaire where at the beginning subjects were asked whether they knew the label under investigation. After this, all subjects regardless their response to the previous question received information related to the animal welfare label. We did this because we wanted to make sure that all subjects (familiar or not with the specific label) would be valuing the specific label having in mind the same information.

After the previous informative script was read, we used a cheap talk script combined with a budget constraint reminder (set up like the one used in [4]) and a consequentiality script [5] to encourage and motivate respondents to reveal their preferences with the necessary precision and minimize any hypothetical bias in the WTP estimates. Then the willingness to pay valuation question followed where consumers were asked to indicate the premium (if any) they would be willing to pay for a pack of 400 grams feta cheese certified with an animal welfare label over the price (€4.5) of a similar pack of conventional product which has not been produced following specific animal-friendly methods. The bid amounts used for the valuation questions (30 cents, 60 cents, 90 cents and 120 cents) were selected based on historical prices of feta cheese with different certifications as well as feedback we received from the pilot survey. The bids were varied on a between-subject basis so that each respondent saw a single price and was asked a Yes/No question about it. Total sample was split equally through the 4 treatments so that each one received 50 responses. Subjects that negatively responded the valuation question were asked to indicate the reason why they did it.

Besides the standard demographic information (age, gender, education, household size and income level), the questionnaire also elicited respondents' beliefs about the likelihood of hypothetical bias for their stated WTP, social desirability bias (using the short form of Marlowe-Crowne Social desirability scale - Reynolds's Form C by [6]) and ethical consciousness (using the Ethically minded consumer behavior scale by [7]). Respondents were also asked about other attitudinal characteristics such as purchase frequency of feta cheese per week and whether they usually purchase packed or unpacked feta cheese.

3. Results

3.1. Descriptive Analysis

Before we proceed with the analysis and results, we first explore the demographic profile of our sample. Table 1 shows the basic summary statistics for a set of subjects' observable characteristics. The sample is almost counterbalanced in terms of gender (females were 50.5%) and its average age is 39.56 years old (min=20, max=78). Most subjects hold a university degree (75.7%), and their average household size is 3.2 members. Finally, almost 70% of the respondents state they are the primary grocery shopper in the household and 62.53% usually purchase unpacked feta cheese.

We also explore whether there are any significant differences between the four treatments along demographic characteristics and attitudinal variables. The results indicate that our between-subjects treatments do not differ in terms of education (Fisher's exact p -value = 0.852), income (Fisher's exact p -value = 0.895), purchase frequency (Fisher's exact p -value = 0.678), type of purchased feta cheese package (Fisher's exact p -value = 0.831), ethically minded score (Kruskal-Wallis $\chi^2 = 4.138$, p -value = 0.247), social desirability score (Kruskal-Wallis $\chi^2 = 5.980$, p -value = 0.113), knowledge of the labels (Pearson's $\chi^2 = 0.362$, p -value = 0.948) and major grocery shopper (Pearson's $\chi^2 = 2.817$, p -

value = 0.421). However, we do reject the null hypothesis of no difference for the between-subjects treatments for gender (Pearson's $\chi^2 = 11.421$, p -value = 0.010).

Table 1
Summary statistics of subjects' observable characteristics

Variable name - Description	Scale of measurement	Frequency	Mean (SD)
Age	(Continuous)		39.56 (13.71)
Gender	1 if male 0 if female		0.50 (0.50)
Household size	(Continuous)		3.20 (1.34)
Income (Net household's income)	1= <€6.000	=3.00%	3.83 (1.54)
	2=€6.001 - €12.000	=22.50%	
	3=€12.001 - €18.000	=22.50%	
	4=€18.001 - €24.000	=13.50%	
	5=€24.001 - €30.000	=18.00%	
	6= >€30.000	=20.50%	
Education level	1=Compulsory educ/Highschool diploma	= 14.50%	3.90 (1.01)
	2=Technical school diploma	=12.50%	
	3=University graduate	=42.00%	
	4=Post-graduate studies	=31.00%	
Shopper	1 if major grocery shopper 0 otherwise		0.71 (0.46)
Confidence of response	1= Not confident at all	=1.00%	4.26 (0.79)
	2=Slightly confident	=1.50%	
	3=Somewhat confident	=10.50%	
	4= Fairly confident	=44.50%	
	4=Completely confident	=42.50%	
Feta purchase frequency (per week)	1= 0-250gr	=24.07%	2.68 (1.55)
	2=251-500gr	=26.55%	
	3= 501-750gr	=24.07%	
	4=751-1000gr	=15.63%	
	5= >1001gr	=9.68%	
Ethically minded consumer behavior	(Continuous)		33.30 (7.73)
Social desirability	(Continuous)		7.72 (2.65)
Familiar	1 if they know the label 0 otherwise		0.21 (0.41)
Feta cheese type	1=unpacked	=62.53%	1.39(0.52)
	2=packed	=35.24%	
	3=other	=2.23%	
Low food prices are more important than ethical production processes	1= Completely disagree	=26.55%	2.26 (0.97)
	2=Disagree	=42.43%	
	3=Neither agree, nor disagree	=21.84%	
	4=Agree	=7.20%	
	5=Totally agree	=1.99%	

Notes: SD stands for standard deviation.

Before we continue with the econometric analysis, we could gain some first insights by comparing the positive responses per stated bid. Figure 1 shows WTP responses for feta cheese carrying an animal welfare certification label. Firstly, we observe a decline in positive responses when the bid amount increases which is consistent with the principles of basic economics. Second, there is a significant percentage of subjects that state high values even when the premium over the price of a package of 400 gr of conventional product is set up to 120 cents of a Euro (which represents a 27 per cent increase in the price of feta cheese).

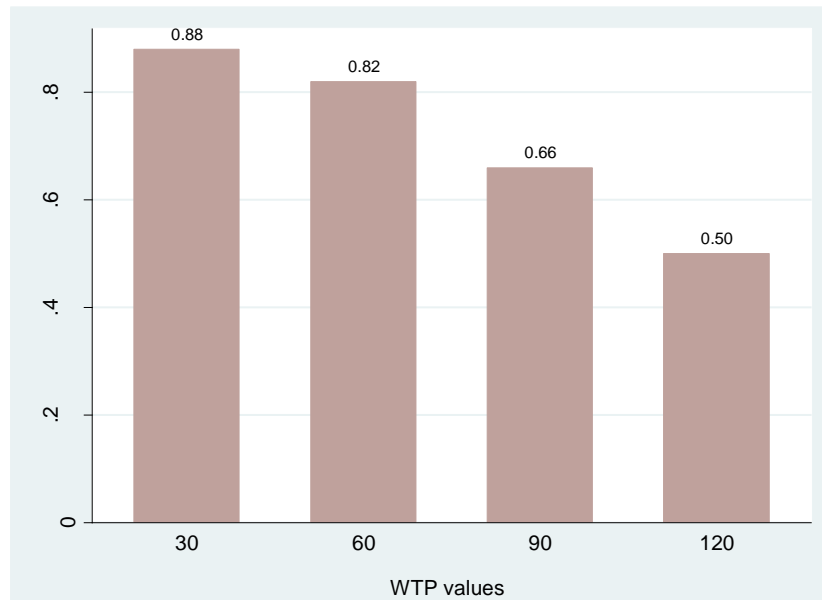


Figure 1: Distribution of WTP responses for animal welfare label

3.2. Econometric Analysis

Given the nature of the dependent variable, we estimate an interval regression model. In the interval regression the lower limit is set to the bid value if the answer is “Yes”, and the upper limit is set to the bid value if the answer is “No”. Table 2 shows coefficient estimates from our specification model. Results indicate that males and females do differ in their stated WTP and specifically, males are less willing to pay a premium for feta cheese with animal welfare label. With respect to attitudinal characteristics, ethical minded score seems to positively affect WTP. Thus, the more a consumer perceives themselves as ethically minded when making consumption choices, the more willing is to pay for animal welfare labeled feta cheese. Moreover, subjects who have prior knowledge about the animal welfare certification are willing to pay a higher premium than those who don’t. The rest variables do not exert a statistically significant effect on WTP.

Table 2
Interval regression estimates

	Coefficients	Standard errors
Constant	214.267	(17892.957)
Age	-0.484	(0.539)
Gender	-19.358*	(11.183)
Household size	7.189	(4.739)
Income		
€ 6.001-€12.000	-5.908	(36.626)
€ 12.001-€18.000	-20.248	(36.149)
€18.001-€24.000	-38.632	(36.879)
€ 24.001-€30.000	-13.04	(38.701)
>€30.000	-10.504	(37.222)
Education level		
<i>Technical school</i>	-9.994	(25.071)
<i>University graduate</i>	-6.485	(20.091)
<i>Post-graduate studies</i>	4.898	(21.776)
Feta purchase frequency		
<i>251-500gr</i>	-16.044	(15.895)
<i>501-750gr</i>	2.982	(16.641)
<i>751-1000gr</i>	21.184	(21.405)
<i>>1001gr</i>	5.914	(29.531)
Ethical minded consumer behavior	3.273***	(0.926)
Social Desirability	0.341	(2.117)
Confidence of response		
<i>Slightly confident</i>	5.244	(23125.804)
<i>Somewhat confident</i>	-225.028	(17892.914)
<i>Fairly confident</i>	-218.129	(17892.903)
<i>Completely confident</i>	-224.824	(17892.911)
Familiar	28.372*	(15.806)
Feta cheese type		
<i>Packed</i>	6.716	(12.226)
<i>Other</i>	18.51	(46.937)
Low food prices are more important than ethical production processes		
<i>Disagree</i>	29.778*	(15.776)
<i>Neither agree nor disagree</i>	14.424	(18.526)
<i>Agree</i>	34.757	(23.321)
<i>Strongly agree</i>	265.706	(12806.409)
σ_u	3.845***	(0.186)
N	200	
AIC	233.3638	
BIC	345.5066	

Notes: *<0.1, **<0.05, ***<0.01

Using predicted values from econometric model, we can graph the demand curve and calculate the mean WTP value for the animal welfare label. The average WTP premium associated with the animal welfare label is estimated at 120.17 cents of a Euro. Figure 2 shows the demand curve where each point

on the curve indicates the percentage of respondents that would be willing to buy a package of 400gr feta cheese with animal welfare label, at the premium projected on the Y-axis.

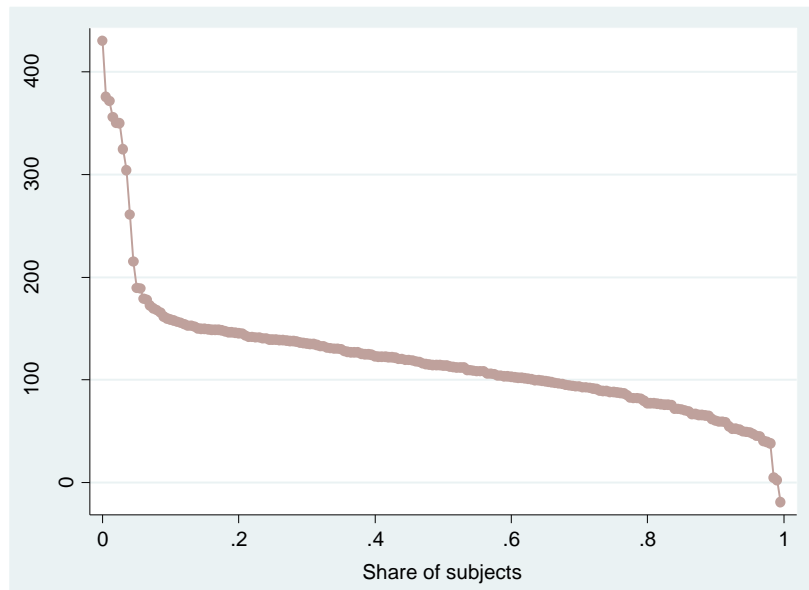


Figure 2: Predicted premiums for animal welfare label

4. Conclusions

Given the growing interest for actions that promote sustainability, this study investigates consumers' attitudes and behavior and estimates their willingness to pay a premium for feta cheese with animal welfare label. Moreover, we explore whether willingness to pay can be affected by demographic characteristic and attitudinal factors.

We find average willingness to pay premium of up to 27% for animal welfare label which is in line with [8] who found the same price increase for certified FAW broiler fillets. We also find demographic and attitudinal effects as well. Women are willing to pay higher premiums than men for animal welfare label which is consistent with previous studies related to animal welfare valuation [9] and [10], though age, income, education don't exert a statistically significant effect on WTP value. In addition, in accordance with [11] we find that knowledge about the animal welfare label can play a significant role in influencing purchase decisions. Finally, results indicate that the more consumers are conscious about ethically minded behavior in their lives the higher is also their willingness to pay animal welfare label.

Overall, the positive premium that our respondents are willing to pay suggests that people are aware of the need for higher animal welfare standards in feta cheese production, and they believe that their individual purchasing habits will make a difference towards a more sustainable future in the Greek livestock.

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