

Consumer Preferences for Sustainably Produced Bananas: A Discrete Choice Experiment

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Agenda

- “Mega-Trend”: Sustainability
- Empirical Analysis
- Results of the Analysis
- Conclusion and Limitation

„Mega-Trend“: Sustainability



Sustainability



- one of the current mega-trends in all industries, but not clearly defined by consumers or experts

(RAT FUER NACHHALTIGE ENTWICKLUNG 2008)

- credence attribute: typically conveyed to the consumer via labeling (private and public)



- credibility of a label, general trust and acceptance of the customer are decisive factors for the acceptance of a label

(VERMEIR AND VERBEKE 2004)

- studies about consumer preferences for sustainable products are relatively rare, particularly in the area of fruits and vegetables in Europe

(MOSER ET AL. 2011)

Target of the Analysis

- target: research more closely consumer preferences regarding production qualities using the example of bananas
- What preferences do consumers have concerning sustainable process qualities in their purchase of bananas?
- Are consumers interested in a label that combines all currently existing sustainable process qualities?
- What preferences do consumers have concerning the organization that certifies sustainable process qualities?
- What impact does price have?
- Do differing attitudes and socio-demographic parameters lead to differences in consumer preferences?



Empirical Analysis



Research Design and Sample Description

- online questionnaire
- 316 respondents
- selection by socio-demographic quota specifications
 - gender
 - age
 - place of residence
 - income



→ approximately representative for the German population

(STATISTISCHES BUNDESAMT 2009)

- sample period: February/March 2012

Methodology

- construction of the statements on the basis of an intensive literature study

- division of the questionnaire in four main parts
 - individual's lifestyle
 - consumer behavior
 - Discrete Choice Experiment (DCE)
 - socio-demographics

- data analysis with STATA 10.0 IC





Discrete Choice Experiment (DCE)

- as in real purchase situations, the participants make a choice on the basis of a limited number of alternative products – optimal for this study

(ASHOK ET AL. 2002, HAHN 1997)

- besides sustainability characteristics, in this study also factors of standard setters and price as criteria relevant for purchase
- the characteristic sustainable production quality is offered to the consumer through organic certification, organic & fair certification and sustainability certification
 - the sustainability certification is a hypothetical label that combines all the sustainability attributes of previous labels for bananas (organic, fair trade and carbon footprint)

Attributes and their Levels in the DCE

	Status quo	Level 1	Level 2	Level 3
Sustainable production quality	none	organic certification	organic & fair trade certification	sustainability certification (organic & fair trade & carbon neutral)
Standard setter	none	government institution	supermarket chain	independent organization
Price	1.29 €/kg	1.79 €/kg	1.99 €/kg	2.19 €/kg

- 3 * 9 sets in this study = 2,817 answered choice stets
- intervening variables:
 - socio-demographic variables
 - consumer behavior and likeability of the product (bananas)
 - trust in organizations
 - attitudes

Results of the Analysis



Basic Model

	Variables	Basic Model
Attributes & ASC	Organic & fair trade label	1.104265***
	Sustainable label	0.4786202***
	Supermarket	-0.2174748***
	Independent organization	0.3178736***
	Prices	-1.697908***
Quality criterion	N (n)	11268 (313)
	LR Chi ²	584.73
	Prob > Chi ²	0.0000
	Pseudo-R ²	0.0749
	Log Likelihood	-3,612.8257
	AIC	7,235.651

reference groups: conventional banana (status quo), organic label and governmental institution (no separation from the status quo possible due to the experimental design)

significance level: ***= 99.9% , **= 99%, *= 95%, §=: 90% (cf. HARTL 2008)

Extended Model

- basic model with relatively small explanatory power (pseudo $R^2= 0.0749$) – preferences of the test persons are not explained adequately
 - inclusion of the intervening variables:
 - socio-demographic variables
 - consumer behavior and likeability of the product (bananas)
 - trust in organizations
 - attitudes
- improvement of the performance of the model to very good (pseudo $R^2= 0.2137$)



Socio-Demographic Variables

- younger test persons have a greater preference for the production qualities labeled organic & fair trade and organic & fair & carbon neutral
- educational level influences not only the usefulness of the production quality but also the usefulness of the organization
- a higher level of education increases the perceived usefulness of the independent organization as the organization of certification
- educational level did not have a perceptible effect in connection with the supermarket labels
- the preference for sustainable production qualities is positively influenced by a higher level of education

Consumer Behavior and Likeability of the Product



- a strong price orientation results in a smaller preference for sustainable production
- quality orientation exerts no influence on preference with regard to the sustainability of production qualities – it does influence the perceived usefulness of the organization
- the greater the test person's orientation to quality, the greater the perceived usefulness of an independent organization for certification – in contrast, a strong quality orientation exerts no influence on the preference for supermarkets as the organization of certification
- concerning the usefulness of production qualities, this is a significant positive parameter for test persons who especially like bananas, whereas the value of the label organic & fair trade & carbon neutral is somewhat greater

Trust in Organizations

- the more the test persons trust the supermarkets to provide reliable information regarding the production of foodstuffs, the higher the supermarkets rate in their positive usefulness as organizations for certification when compared to governmental institutions or "no organization", as in conventional production quality



Attitudes

- the test persons perceived sustainable production qualities as increasingly more useful in direct relation to the degree that they were fair trade products – the effect of this production quality was observed for organic & fair trade products even more than for organic & fair trade & carbon neutral products
- the positive response to sustainable production also exerted a positive influence on the perceived usefulness of sustainable production qualities in comparison to the reference – this effect was observed somewhat more with the organic & fair trade & carbon neutral production quality
- the usefulness of the organic & fair trade & carbon neutral production quality was not significantly influenced by attitude towards environmentally friendly products

Conclusion and Limitation





Conclusion and Limitation

- there is interest in more production information than conventional and government-regulated organic certification divulge
- the hypothetical label was only accepted with reservations – due to its complexity there seems to be a need for further information
- the possibility of simplification throughout the market, with its various labels (“overload”), should be considered
- standard setter: trust plays an important role in consumer preference – cooperation with NGOs, which are more credible for consumers
(MOSER ET AL. 2011 CT. ROEHR ET AL. 2005)
- the criteria on which the given standard is based are of particular importance (“greenwashing”)
(CF. SIRIEIX ET AL. 2011)

Conclusion and Limitation

- well-founded data, but still a convenience sample
 - social expectancy effect might have led to deviations from the true results – especially since this study examined social and ecological factors
 - DCE tries to simulate a real purchase decision – at areal point of sale, a lot of additional factors play a role (appearance of the product and the consumer's buying habits)
- further research is needed that focuses on the suitability of scientific research for practical application in order to derive reliable prognoses to identify market potential and market share

Thank you for your kind attention.



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