Discrepancy between stated preferences (self-reports) and actual purchases – An empirical assessment

Abstract

The present study is based on a large scale panel survey and uses the German market for profiling the consumer of ecological margarine. We analyze how this consumer differs from the mainstream consumer. Consumers of ecological margarine are categorized as light- , medium-, heavy-users and loyalists. Also, we explore why some consumers - when being asked - intend to buy ecological margarine but do not purchase the product (and vice versa). A cluster analysis of non-purchasers of ecological margarine shows at least one sizeable cluster of non-purchasers possess views on eco-statements that are more eco-prone than loyal purchasers of eco-margarine. Several other interesting findings are revealed. Implications for promotion of ecological margarine are discussed (not in the present draft but at the conference).

The Gap between Intentions and Behavior

Can we trust responses from consumers? Are they reliable? Assume that a consumer tells us that she is willing to pay a specific amount for acquiring a product. Will she actually do so (correctly transform intentions to behavior) or does she just say so without acting accordingly? There may be good explanations for the discrepancy between her positive pre-purchase intentions and the subsequent lack of actual purchase (financial reasons, health problems, time pressure, non-availability of item etc.). Nevertheless the mismatch between stated intentions and purchase behavior must be a concern to marketers.

In some situations it appears that consumers tend to report behavior that is *politically correct*. Surveys have shown that (Source: Danish press reports across recent years):

- Significantly more people (33%) say that they intend to go to church during Christmas than actually do so (20%).
- A majority of Danish car drivers think they behave better in traffic than the average Dane does.
- A research study some years ago showed that about 70% of people claim to live healthier than the average Dane does.

- When comparing survey responses with actual data it turns out that respondents claim to have contributed two to three times as much to specific charitable organizations than they have. It appears that some people report to have contributed without having done so (maybe they confuse contributions) while others have contributed but overestimate the amount contributed.

Many companies more or less uncritically rely on consumer studies provided by marketing research agencies. In most cases results are based on self-reports, that is, one relies on what respondents say they intend to do rather than what they actually do. It is reported behavior, not actual (instrumental) behavior. With other words intentions are used as a proxy for behavior.

The Green/Ecological Submarket

Nowadays, a lot of companies use big resources on launching ecological or green products. However, so far the market share of ecological products is limited and varies much across products categories. Recent market research data from Denmark unravel the following market shares of ecological products compare to all products within the category: Milk 35%, eggs 27%, vegetables 13%, coffee 7%, cheese 5% and pork 1% (Source GfK Denmark 2009). On average the market share for ecological food products in Denmark is about 8%.

While the market share of ecological subcategories in most countries on average is still confined to a few percentages of the total market, it appears that the segment will grow during the next decade – in spite of the financial crisis. The increased interest for sustainability is found within many western societies both within the business community, academic circles, the political system, NGOs and among plain consumers. Up to now relatively few empirical studies have focused on the topic.

Ethical Products: Intentions and Purchase Behavior

According to several studies many European consumers claim to be willing to pay substantially more for ethical products as compared to “ordinary” products (De Pelsmacker, Driesen and Ryap, 2005; De Pelsmacker and Janssens 2006).

Within academics it has caused considerable research interest whether consumers really act in accordance with their stated preferences. As noted, it appears that many consumers claiming to be willing to pay more for ecological products do not act in accordance with their stated intentions.

The phenomenon has been named “The Gap between the Ethical Purchase Intention and Actual Buying Behavior of Ethically Minded Consumers” (Carrington, Neville and Whitwell, 2010).

A couple of research papers have dealt with the gap between intentions and behavior regarding ethical products like fair trade coffee. Some studies are based on theoretical considerations (Hunt and Vitell 2006; Fukukawa 2003), others are meta-studies trying to summarize earlier research (Connolly and Shaw, 2006; Morwitz, Steckel and Gupta 2007). Several empirical studies have used experimental designs (Auger, Burke, Devinney and Louviere 2003; Öhman 2011). Still other studies have tried to analyze the intentions/behavior gap by employing conjoint analysis (De Pelsmacker, Driesen and Ryap, 2005) and structural equation modeling (Follows and Jobber, 2000; De Pelsmacker and Janssens 2006).

So far, all empirical studies comparing ethical intentions with behavior appear to have been based on self-explicated interviews. To the best of our knowledge no empirical study has yet been based on behavioral data or on comparing intentions data with behavioral (purchase) data involving the same respondents.

It has long been known that intentions are poor predictors of behavior and that gaining insight into this gap is of critical importance to understanding, interpreting, predicting, and influencing consumer behavior. The gap, however, remains poorly understood, especially within the ethical consumer context (Bagozzi 1993; Cobb-Walgren, Ruble and Donthu1995; Auger, Burke, Devinney and Louviere, 2003; Belk, Devinney and Eckhardt 2005; Connolly and Shaw 2006; Carrington, Neville and Whitwell 2010). Nevertheless, self-reported willingness to pay is often treated as a proxy of actual purchase behavior (De Pelsmacker, Driesen and Rayp 2005).

Philosophers like Rapaille question the purpose of asking consumers about their behavior. According to Rapaille consumers willingly or unwillingly try to please the interviewer and respond accordingly (Rapaille 2006). Also, some marketing researchers doubt that one can rely on respondents’ answers. As Gordon (2011) puts it: “What people say about intended behavior is not what happens in the real world. Intentions to purchase may at best be regarded as an indication of positive or negative perception rather than predictive of a particular behavior.”

It is often assumed that people operate on the assumption that when a person states that he believes, feels etc. a particular way about some social stimulus, he will behave in a way that is consistent with these statements. If this assumption is correct, why do researchers report such poor relationship between attitude and behavior? (Gross and Niman, 1975)

Wicker (1969) examined 46 empirical studies addressing attitude-behavioral consistency. The results were devastating:

> "Taken as a whole, these studies suggest that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions. Product-moment correlation coefficients relating the two kinds of responses are rarely above .30, and often are near zero. Only rarely can as much as 10% of the variance in overt behavioral measures be accounted for by attitudinal data."

The finding of Wilson, Matthew and Harvey (1975) were more encouraging. They report an attempt to predict consumers' selection of toothpaste brand from their behavioral intentions: 85% of respondents selected the brand which they had expressed an intention to buy in an experimental context. Ryan and Bonfield (1975) analyzed a series of British and American studies and found an average correlation of 0.44 between intention and successive behavior. In a later study of loan applications at a credit union the correlation was 0.33 (Ryan and Bonfield (1980).

These modest correlations are in harmony with Fishbein's claim for his model to the effect that high correlations are possibly only under maximally-conductive conditions including the measurement of intentions immediately prior to the performance if the corresponding behavior (Fishbein 1973). However, this renders Fishbein's model of limited value in much commercial consumer research where brand choice intentions are often necessarily measured well before opportunities to purchase are available (Foxall 1984).

Several researchers have tried to model the link between intentions and behavior (Sheth 1974, 244; Hunt and Vitell 2006). So far these models have concentrated on the conceptual level without any efforts of empirical assessment. The present study does not intend to evaluate theoretical models. Instead we try to present some empirical findings addressing the intentions/opinion-behavior relationship.

The Empirical Study

The present study is based on a consumer panel of 25.420 German consumers whose retail purchases of selected products were recorded across 52 weeks of 2007. During the year the panelists carried out 2.230.225 shopping trips (on average 87.7 per panelist). Of these trips 267,077 involved purchase of margarine. Throughout 2007 22,418 panelist or 88.2% of all panel members purchased margarine. The panelists actual purchase behavior of ecological margarine (based on a combination of self-reported diaries and bar code

based recordings) were compared with their stated intentions with regard to buying ecological products *in general*. The empirical analysis is based on panel data from GfK Germany.

The statistical analysis employs data mining and multivariate analysis (reported elsewhere).

The German margarine market comprises about 200 brands across 40 producers.
Specifically, the 22.418 margarine purchasing panelists spent 31.763.995 Eurocent on purchases of margarine (177.990.151 gram). While 2050 panelists at least once purchased ecological margarine 20.368 never did so during 2007.

The market share of ecological margarine in 2007 was 13% both in weight and value. With regard to ecological margarine one may categorize purchasers as light users (< 10%), medium users (>10% <50%), heavy users >50% < 99% and loyalists (100%). Table 1 displays the average age, income and household size.

Table 1: Selected Demographics of Ecological Consumers

User % Category	n	Pct.	Age	Income (EUR/month)	Household size
0%					
Nonuser	20368	46.8	2240	3.39	
< 10%					
Light user	779	38%	51.5	2268	3.56
> 10% < 50%					
Medium user	762	37%	50.4	2212	

		3.29
	>50% < 99%	
Heavy user		
		349
		17%
		51.3
		2272
		3.23
	100%	
Loyalists		
		160
		8%
		49.5
		2284
		2.98
	n	
		22418
		100%

About 9% of German household heads ([779+762+349+160]/22418) purchased ecological margarine at least once during 2007. Only one out of four purchasers of ecological margarine spent more than half of their margarine purchases on an ecological brand. We notice that purchasers of ecological margarine are somewhat older than non-purchasers. Also, the household size of loyal purchasers is significantly smaller than that of non-purchasers.

Table 2 displays thirteen ecological statements across user categories of margarine. Note that there is a mismatch regarding the total number of respondents (n) of Table 1 and 2. It turns out that some panelists did not provide answers to the statements (respectively were not exposed to them) while they did fill in the questions regarding socio-demographics.

Figure 1 shows the corresponding graph. Notice that the category of loyalists has a more positive attitude regarding ecological issues compared to the other categories of users. We also note that the difference in opinions of light users, medium users and heavy users is almost negligible.

Table 2: Margarine user categories across statements

1 = totally disagree to 5 = totally agree

Ecological/bio statements		X **Non-bio**	Y **All-bio**	I **Light user**	III **Heavy user**	IV **Loyalists**	*X/I*	*X/II*
I prefer ecological/bio version of products	X01	2,41	2,70	2,62	2,60	3,28		
I trust specialized stores more than supermarkets	X02	2,38	2,52	2,42	2,52	2,97	n.s.	
Bio-products contribute to fight against climate change	X03	2,62	2,83	2,80	2,76	3,21		
Control of eco production in Germany tighter than in other countries	X04	3,24	3,35	3,32	3,37	3,55	n.s.	,02
Prefer eco-products from	X05	3,42	3,64	3,59	3,69	3,99		

Germany to other countries								
Bio products taste better than non-bio products	X06	2,79	2,96	2,91	2,91	3,35		
Bio products are more healthy than non-bio products	X07	3,11	3,31	3,26	3,21	3,77		
I would like a bigger supply of bio products	X08	2,65	2,92	2,87	2,82	3,46		
I am willing to pay more for bio products	X09	2,43	2,65	2,59	2,55	3,21		
I have been shopping in specialized bio stores	X10	2,05	2,34	2,25	2,44	2,82		
I expect to shop more at bio stores in the future	X11	1,92	2,15	2,08	2,16	2,60		
There should be more information about bio products	X12	2,67	2,89	2,85	2,83	3,22		
I have a high interest in bio	X13	2,32	2,60	2,52	2,60	3,13		

products								
n =		12275	1445	595	243	90		
Note: z-values not shown in the table:	X/Y, and X/IV, respectively = all pairwise differences significant on the ,01 level							
	I/II, I/III and II/III respectively = all pairwise differences non-significant							
	Empty cells are significant on the ,01 level							

In Table 3 we have carried out a k-means cluster analysis of *non-purchasers (!)*. In an introductory analysis several hierarchical and nonhierarchical were employed. Simultaneously, different cluster solutions across all runs were inspected. Based on different considerations (cluster size, error sum of squares etc.) we decided to use a four cluster solution. Figure 2 displays the corresponding graph.

Table 3: Cluster Analysis of Non-Purchasers of Margarine across Statements

	CL1	**CL2**	**CL3**	**CL4**	**Loyalists**	CL2/Loyalists
X01	2,30	2,92	1,23	4,04	3,28	
X02	2,51	2,71	1,27	3,54	2,97	n.s.
X03	2,85	2,81	1,49	3,80	3,21	
X04	3,45	3,27	2,51	4,00	3,55	
X05	3,75	3,65	2,27	4,48	3,99	
X06	2,96	2,95	1,71	3,97	3,35	
X07	3,30	3,33	1,98	4,31	3,77	
X08	2,68	3,15	1,31	4,25	3,46	0,01
X09	2,37	2,94	1,19	4,06	3,21	0,03
X10	1,39	3,05	1,31	3,45	2,82	n.s.
X11	1,40	2,65	1,22	3,20	2,60	n.s.
X12	2,94	3,09	1,44	3,99	3,22	n.s.
X13	1,89	3,12	1,39	3,71	3,13	n.s.
(n= 12275)	4164	2359	3507	2245	90	
Relative size	34%	19%	29%	18%		
Note: z-values not shown in table:						
All pairwise differences between CL4 and Loyalists significant on the ,01 level						
Empty cells are significant on the ,01 level						

Cluster 4, consisting of nearly 20% of all non-purchasers is by far the most pro-ecological cluster. Cluster 3 on the other hand (34%) can be characterized as very eco-negative across all issues. Only when it comes to statements involving Germany (the native country of the respondents) they are a bit less negative. Cluster 3 simply has no confidence in eco-products. They are non-believers. Cluster 1 and Cluster 2 have similar opinions on several issues. However, they differ on statements regarding supply, visiting specialized stores and willingness to pay more for eco-products. In general, Cluster 2 appears to be more “enthusiastic” in that regard compared to Cluster 1.

Figure 3 once again displays the average opinions of Cluster 2 and 4. Bsiedes, we have included the group of Loyalists of Figure 1. So, Figure 3 shows one positive and one moderately positive cluster of non-purchasers. These two groups comprise 33.6% of all Germans who purchased margarine (ecological & non-ecological) during 2007. In Figure 3 we compare these 33.6% (2359 +2245 – Table 3) with the tiny group of Loyal purchasers of margarine (n = 90). Notice that Cluster 4 alone (n = 2245) is twenty five times bigger than the group of loyalists (n = 90). Note also that the difference in mean on the thirteen statements between loyalists and Cluster 2 is small. Eight of them (01 and 03-09) are significant on the .05 level. But this is caused by the law of great numbers implying that if n approaches infinity everything becomes significant.

Discussion

The cardinal conundrum here is this: Why do respondents of Cluster 2 and especially of Cluster 4 possess positive opinions concerning ecology without acting accordingly concerning purchase behavior?

First, we should recall that respondents of Cluster 2 and Cluster 4 have not purchased ecological margarine and that their opinions (X01-X13) refer to ecological issues *in general* (not confined to margarine). Moreover we think (although this supposition is not substantiated by empirical research) that margarine – like butter, milk etc. belongs to a group of low commitment or low involvement product categories (Robertson 1976, Raju, Unnava and Montgomery 2009, Florenthal and Arling 2011).

In an upcoming paper (published elsewhere) the author addresses the research problem why consumers who intend/are positive toward ecological products do not act accordingly with regard to purchase behavior.

Table 4 displays a cross tab of (1.) Willingness to paying more for ecological products and (2.) actual purchase behavior of ecological margarine (Source: GfK Germany 2007). It should be stressed that respondents were not asked “how much more” they were willing to pay. What is interesting (but probably not surprising) is that some consumers with a negative attitude towards eco products nevertheless end up with purchasing ecological margarine (between 1% and 100%).

While some consumers that claim to be willing to pay more for eco products do not buy ecological margarine ("Betrayers") others who have a negative attitude toward eco-products in general, nevertheless purchased ecological margarine ("Surprisers"). Notice the substantial difference in size of the four groups with regard to the total margarine consumption: "Honest Believer" (3.9%), "Surpriser" (6.0%), "Betrayer" (27.9%) and "Rejecter" (62.2%). Note 3.9% or 0,039 = 634/[(20368+2050)-(436+5666)]. In a later paper we will investigate the purchase of other ecological products by these same consumers.

Table 4: Cross-tab of (recoded) attitude and behavior regarding ecological products

	Willingness to pay more for ecological products			
	Positive intention	Negative intention	Missing	Total
Ecological margarine	***(I) "Honest Believer"*** (39%)	***(II) "Surpriser"*** (61%)		(100%)
Purchaser:	n = 634	n = 980	436	2050
Monthly HHI (EURO)	2522	2084		
Age	51.2	51.5		
	(III) "Betrayer" (31%)	***(IV) "Rejecter"*** (69%)		(100%)
Non-purchaser:	n = 4536	n = 10166	5666	20368
Monthly HH (EURO)	2480	2137		
Age	48.8	47.2		

Notice: Totally agree and agree recoded as "Positive intention"; Totally disagree and disagree recoded as "Negative intention". Neither agree nor disagree recoded as missing.

Table 5 displays the pairwise difference between the four groups of consumers. Purchasers of ecological margarine are between two and four years older than non-purchasers. Our results also show that consumers with a positive intention toward ecological products earn 15-20% more than consumers with a negative intention.

Table 5: Pairwise difference between cells

Pairwise comparison	Significance of difference (T-test)	
	Age	Household income
I-II	.330	*.001*
I-III	*.001*	.400
I-IV	*.001*	*.001*

II-III	*.001*	*.001*
II-IV	*.001*	.100
III-IV	*.001*	*.001*

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