



**HAL**  
open science

## Les valeurs des individus sont-elles liées à leur choix d'attributs durables ?

Simone Mueller, Lucie Sirieix, Hervé Remaud

► **To cite this version:**

Simone Mueller, Lucie Sirieix, Hervé Remaud. Les valeurs des individus sont-elles liées à leur choix d'attributs durables ?. 6. International conference of the Academy of wine business research (AWBR), Academy of Wine Business Research (AWBR). INT., May 2011, Bordeaux, France. 14 p. hal-02807041

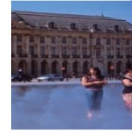
**HAL Id: hal-02807041**

**<https://hal.inrae.fr/hal-02807041>**

Submitted on 6 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



**6<sup>th</sup> AWBR International Conference**  
**9 – 10 June 2011**  
**Bordeaux Management School – BEM – France**

**Are personal values related to sustainable attribute choice?**

**Simone Mueller**

*Aarhus School of Business and Social Sciences, Denmark*  
*Ehrenberg-Bass Institute for Marketing Science, University of South Australia*  
[Simone.Mueller@marketingscience.info](mailto:Simone.Mueller@marketingscience.info)

**Lucie Sirieix**

*Département Sciences Economiques, Sociales et de Gestion U.M.R. MOISA 1110, Montpellier*  
*SupAgro*  
[Sirieix@supagro.inra.fr](mailto:Sirieix@supagro.inra.fr)

**Hervé Remaud**

*Bordeaux Management School*  
*Ehrenberg-Bass Institute for Marketing Science, University of South Australia*  
[Herve.Remaud@bem.edu](mailto:Herve.Remaud@bem.edu)

### **Abstract**

**Purpose:** *A cross-cultural study with large representative samples analyses to what degree Schwartz's personal values and environmental concerns are related to consumers' choices of wine with sustainable characteristics.*

**Methodology:** *Across seven countries, the attribute importance and willingness to pay of consumer segments resulting from choice experiments are related to Schwartz's personal value dimensions and environmental attitudes.*

**Findings:** *Personal values were only weakly related to revealed differences in choice behaviours. Choice segments differed slightly stronger in environmental concern; nevertheless the effect size is small, on average only explaining five percent of variance. The valuation of sustainable attributes was positively related to consumers' environmental concern and to their personal values Conservatism (tradition, conformity) and Self-enhancement (power, achievement). Environmental concerns were more strongly related to willingness to pay and importance of sustainable attributes in product choice, than Schwartz's personal values. Our findings deviate in two directions from previous research: First, contrary to existing studies, values related to Self-enhancement and Conservatism were stronger predictors for consumer choice and willingness to pay for sustainable attributes than Self-transcendence values (universalism, benevolence). Second, Self-enhancement was positively linked to consumer choice and willingness to pay for sustainable attributes.*

**Practical implications:** *These results yield marketing recommendations for stimulating sustainable wine consumption. Communication efforts should focus on environmental concerns and not on general universalist values. For wine, communication efforts should be based on social status and power related to self-enhancement personal values, showing how drinking sustainable and more precisely organic wine enhances the person drinking it and fulfils personal health benefits.*

**Keywords:** sustainable wine attributes, Schwartz's personal values, environmental concern

## 1 INTRODUCTION

There is already an extensive body of research on sustainable food choice (de Boert et al, 2007) and organic food consumption (Aertsens et al., 2009). Only few of these studies so far aim to understand the underlying motivations of consumers who buy organic products, and the personal values embedded in these motivations. Together these studies found a number of personal value dimensions such as self-transcendence, conservatism and openness to change to be positively related with attitudes or intentions towards organic products. However, they do not yet agree on their findings regarding self-enhancement (Vermeir and Verbeke, 2006; Sirieix et al., 2006; Hoogland et al., 2007; Krystallis et al., 2008). A second research stream related organic food purchase behaviour to attitudes such as environmental consciousness (Storstad and Bjorkhaug, 2003). Questions remain concerning the link between both, so far separated, research streams of personal values, environmental concerns and, actual consumer behaviour (Wier et al., 2006).

Identifying relationships between personal values and consumer behaviour could play an important role in explaining consumer choice according to the means-end chain theory, which posits that core underlying values motivate consumers' purchasing decisions (Gutman, 1982). Understanding these underlying values and motives would be particularly useful for marketing communication of sustainable attributes, better addressing consumers' needs and desires. Further research is needed on the relations between personal values and sustainable attribute choice to provide insights regarding policy and communication efforts aiming to promote sustainable food consumption behaviour. This issue is particularly important in the wine sector, where the sustainable market share is lower than in other food sectors (e.g. for France, AgenceBio 2010).

## 2 LITERATURE REVIEW

### 2.1 Personal values

A personal value is an enduring belief that a specific end-state of existence or specific mode of conduct is preferred over others (Rokeach, 1973; Kahle, 1983). From the different conceptualisations and operationalisations of personal values, the LOV scale (Kahle, 1983) and the Schwartz Value Inventory (Schwartz, 1992) have been most commonly applied in research. The LOV scale has been successfully used to study organic consumers' personal values (e. g. Chrysosoidis and Krystallis, 2005); however a recent literature review by Aetsens et al. (2009) identified the Schwartz Value Inventory (Schwartz, 1992) as the most frequently used instrument to examine the link between organic consumers' values and attitudes or behavioural intentions (e. g., Dreezens et al., 2005; Vermeir and Verbeke, 2006).

In the Schwartz Value Inventory 56 value items represent ten value types, which can be further reduced to four value categories:

- *Conservatism* (Tradition, Conformity, Security) is the propensity to behave in such a way as to favour the stability of society and of social relationships. Respect of social norms and tradition is important to respondents scoring highly in this dimension.
- *Self-enhancement* (Power, Achievement) deals with social status and prestige, control or dominance over people and resources.
- *Self-transcendence* (Universalism, Benevolence) supposes the will to preserve the welfare of all people and nature (Universalism) or the welfare of those with whom one is in personal contact (benevolence).

- *Openness to change* (Hedonism, Stimulation, Self-direction) is the desire of excitement, pleasure, novelty and challenge in life and the need to have independent thoughts and actions.

## 2.2 Attitudes and intention to purchase organic food related to personal values

A number of studies have related the Schwartz value inventory to attitudes towards buying organic food or intentions to buy organic food (see Table 1 for an overview). The majority of studies agree in finding a positive correlation between Self-Transcendence and attitudes or purchase intent towards organic food. Two studies reported a positive relationship between Conservatism and the intention to purchase organic food (Vermeir and Verbeke, 2006 and Sirieix et al., 2006). For the interrelation between Openness to Change and intention to purchase organic food, one positive and two weak relationships were reported (Hoogland et al., 2007, Sirieix et al., 2006 and Krystallis et al., 2008). Although the correlation is usually insignificant, three studies agree that high scores for Self-enhancement are negatively correlated with attitudes and intention to buy organic food (Vermeir and Verbeke, 2006; Hoogland et al., 2007 and Dreezens et al. 2005 a,b).

**Table 1:** Studies relating personal values to attitudes and intention to purchase organic food

Authors	Method		Self-Transcendence (Universalism, Benevolence)	Conservatism (Tradition, Conformity, Security)	Openness to Change (Hedonism)	Self-enhancement (Power, Achievement)
Dreezens, et al. (2005 a, b)	Schwartz Inventory questionnaire	Value and	<b>Positive</b> correlation			<b>Negative</b> correlation
Sirieix et al. 2006	Means-End analysis	chain	Weak <b>positive</b> relation	<b>Positive</b> relation	<b>Positive</b> relation	No relation
Vermeir Verbeke 2006	Questionnaire and experimental design	and	<b>Positive</b> correlation with attitudes (sign.) and intention (not sig)	<b>Positive</b> correlation with attitudes (sign.) and intention (sig)		<b>Negative</b> correlation with attitudes (sig) and intention (not sign.)
Hoogland et al. 2007	Questionnaire	Correlation between values and <i>purchase intention</i> (organic logo with details)	<b>Positive</b> correlation (sign.)		<b>Positive</b> correlation (not sign.)	<b>Negative</b> correlation (not sign.)
Krystallis et al., 2008	17 item questionnaire	Schwartz Value-based segmentation	<b>Positive</b> relation		<b>Weak positive</b> relation	<b>Weak positive</b> relation

The results established for consumers of organic food may not be generalisable to organic wine. Indeed, organic wine is perceived by consumers as different from both conventional wine (Olsen et al, 2006) and organic food (Remaud and Sirieix, 2010). However, in the studies investigating specifically organic wine consumers' values (Fotopoulos et al., 2003) or the norm-behaviour relationship (Thøgersen, 2002) differences between organic food and wine were not explored.

### **2.3 Attitudes and intention to purchase 'sustainable' food related to environmental concern**

Environmental concern is seen as one of several motives for consumers to prefer and purchase food products with sustainable and organic claims. While traditionally it was mainly related to universal and benevolent (self-transcendent) concern for the environment, current research acknowledges that values and motives of human behaviour are inter-connected (Urien and Kilburne, 2011). Considering a long-term perspective, humans' universal concern for the environment can be one form of (self-enhancing) self-concern for their own future quality of life within this environment.

This dichotomy of universal and self-enhancing motives reflected in environmental concern is also reflected in the literature. Thereby one stream of research focuses on the specific relationship between environmental concerns and attitude towards/intention to purchase organic food (Biel and Grankvist, 2010; De Barcellos et al., 2011). A second research stream also links environmental concerns with health related issues to explain intention to purchase organic or sustainable food products (Saba and Messina, 2003). While environmental attitudes per se mainly embrace concerns for the external environment and not the individual itself (Lusk and Briggeman, 2009), environmental health related concerns are more directly connected to an individual's own personal or family's welfare.

As an example of the first stream of pure environmental concerns, Biel and Grankvist (2010) studied the impact of information about environmental impacts of food production on professional food purchasers in Sweden. They found that a greater level of information about environmental consequences generates a higher preference towards more eco-friendly products. The authors suggested that communicating environmental consequences could have a stronger effect on preference for environmentally benign alternatives than a single labelling system. Such findings are somewhat in line with the idea that consumers with a strong environmental concern would value labelling information about environmental consequences more highly (Grankvist et al., 2004).

The study by Urien and Kilbourne (2011) jointly analyses the relationship between self-transcendent and self-enhancing values on eco-friendly intentions and behaviours. Their construct of generativity relates to self-transcendence, expressing the desire to live in a way that is respectful to future generations. Analysing behavioural intentions and past behaviour of a French and US convenience sample, the authors found a stronger relationship between self-transcendent generativity and eco-friendliness than for self-enhancing values.

This finding contradicts with the majority of studies, in which self-enhancing health concerns appear as the most important reasons for purchasing and consuming organic food (Padel and Foster, 2005; Magnusson et al., 2003; Orquin and Scholderer, 2011). For example, Saba and Messina (2003) found the perception of risks and benefits associated with pesticide residues in food positively related to attitudes towards the consumption of organic fruits and vegetables, for consumers and non-consumers of organic food products. Similarly, Tsakiridou et al. (2008) identified environmental and health concerns as the main motivators to buy organic food (mainly fruits and vegetables), their relative strength varied between different socioeconomic groups of the Greek sample. While older consumers were more concerned about health issues, younger consumers were more driven by environmental concerns. These results indicate that egoistic self-enhancing motives are better predictors of the purchase of organic foods than self-transcendent altruistic motives.

## 2.4 Attitude-Intention-Behaviour Gap

Most previous research related environmental concern or personal values to attitudes towards sustainable or organic food and/or purchase intentions. From these measured relationships researchers aimed to conclude a congruent effect for actual purchase behavior of sustainable food products. So far this has been of limited success. Addressing the attitude-behaviour gap by linking consumers' choices for pork in a conjoint experiment to their environmental concerns, De Barcellos et al. (2011) concluded that general environmental concern is a good predictor for specific attitudes towards environmental pork production, but is only weakly related to consumers' product choices.

Unfortunately, there is ample evidence that responses to simple purchase intention scales poorly predict actual purchases (e.g. see Morrison 1979; Morwitz 1997). Purchase intentions and attitudes have previously been found to be only weakly related to actual purchase behaviour and to have a low external validity (Jamieson and Bass, 1989; Manski, 1990).

This is one of the first studies to relate personal values and environmental concern to attribute importance and willingness to pay for environmental claims revealed in a stated preference experiment. Although discrete choice experiments may suffer from social desirability bias for normative attributes such as environmental claims (Lusk, 2010; Lusk and Norwood, 2009), they were repeatedly found to have a high external validity (Louviere, et al. 2000). For example, there is growing literature to show that people's stated preferences revealed in discrete choice experiments are similar to people's revealed preferences when shopping (Lusk and Schroeder, 2004; Grunert et al., 2009; Mueller et al., 2010a; Miller, et al., 2011).

Compared to previous research, which was mainly limited to attitude and purchase intention scales, this study uses dependent variables from a discrete choice experiment which are assumed to be more closely related to respondents' realistic purchase behaviour. This paper will relate Schwartz's personal values and environmental concern to revealed preferences from consumer choices from wine product alternatives, differing in sustainable attributes.

## 2.5 Research questions

The study addresses three research questions:

- 1) To what degree are personal values and environmental concerns related to revealed differences in consumers' stated preference choice behaviour? This question addresses the shared variance between personal values and choice behaviour, providing insight into the strength of their relationship.
- 2) How is the importance of sustainable product attributes related to personal values and environmental concern? This question examines if personal values and environmental concern are reliable predictors for the importance of sustainability in consumers' wine choice.
- 3) How is the willingness to pay for different sustainable attributes revealed in choice experiments related to personal values and environmental concern? This question assesses if personal values and degree of environmental concern are a reliable predictor for differences in the willingness to pay for sustainable attributes.

### 3 MATERIALS AND METHODS

#### 3.1 Choice experiment

A discrete choice experiment (DCE) with visual shelf simulations of product concepts was used to measure how consumer choice is influenced by a wide array of relevant wine attributes, including sustainability claims (see Figure 1 for an example).



Figure 1: Example of a discrete choice set (UK market)

Table 2 presents all attributes included in the experiment, as well as the number of levels for each attribute. The study considered a very wide range of attributes for consumer wine choice, ensuring that the measured impact of attributes was not biased by neglecting potentially relevant characteristics. For the wine *sustainability* attribute five levels were chosen to cover claims already available on the market (None, Organic, Carbon Zero, 10% less Glass Weight, Protect the Planet) and one claim (Socially Responsible) not yet available. The survey was created as an internet based questionnaire.

**Table 2:** Attributes and levels of shelf simulation discrete choice experiment

#	Attribute	#Levels	Levels
1	Brand	16	Cuvée Mythique, Jeanjean, Arrogant Frog, etc
2	Grape Variety	8	Syrah, Pinot Noir, Chardonnay, etc
3	Region + sign of quality	8	Pays d'Oc IGP, Bordeaux AOP, Vin de France, etc
4	Alcohol	8	Covering range 10.0% to 14.0%
5	Medal	4	Gold medal, none
6	Price	8	Covering range 3.49€ to 12.24€
7	Sustainability	8	Organic, Protect the planet, Carbon Zero, 10% less glass weight, none (4x)
8	Sensory style	4	Fruity and aromatic, complex and well structured
9	Bottling	8	Estate bottled



### 3.2 Sample

A total of 11,312 wine consumers across seven countries and cultural markets, recruited via a panel provider, completed the online experiment in December 2009 (see Table 3). The samples are representative for wine consumers in each country. In order to qualify, respondents were not allowed to work in marketing, market research or in the wine industry, were required to have drunk red or white wines in the last two months, and had to have purchased a bottle of red or white wine in the last three months.

**Table 3:** Wine consumption frequency of consumer sample

<b>Consumption frequency</b>	<b>Germany</b>	<b>UK</b>	<b>Canada English</b>	<b>Canada French</b>	<b>France</b>	<b>US Chicago</b>	<b>US New York</b>
<i>Total number of respondents</i>	2,015	2,021	1,036	982	2,027	1,614	1,617
≥ once a week	31.7	46.8	36.7	33.6	39.9	42.4	53.9
Once a week	32.4	28.7	29.1	29.8	32.1	30.0	27.5
Once or twice a month	28.1	18.9	25.0	25.1	21.3	21.2	14.0
< once a month	7.8	5.6	9.3	11.5	8.7	6.4	4.7
Total %	100	100	100	100	100	100	100

After removing respondents, who would not realistically purchase any of their preferred alternatives presented in the choice experiment, respondents' choices were analysed for each country with a latent class scale adjusted model (Mueller et al., 2010b), resulting in six to seven segments per country and a total of 45 segments. These segments were derived from differences in consumers' choices in the experiment, following a finite-mixture approach. Details of the segmentation solution cannot be provided here because of space limitations.

The attribute importance for each attribute and willingness to pay for each attribute level were calculated for all 45 segments across all countries. With the exception of the UK, there was at least one segment in each country, for which sustainable attributes had an importance of at least five percent in their wine choice decision. Table 4 gives an example of the segment specific attribute importance for one of the seven countries.

**Table 4:** Example of attribute importance for segments of one country

	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>	<b>C6</b>	Aggregated
Characterisation	<b>Green - awards</b>	<b>Green - red Bordeaux</b>	<b>Red</b>	<b>White</b>	<b>Low price white</b>	<b>Price sensitive</b>	
Segment size	21%	28%	11%	7%	10%	22%	100%
Grape variety	15%	18%	74%	90%	68%	5%	31%
Price	5%	11%	7%	2%	27%	88%	27%
Brand	24%	28%	12%	5%	3%	4%	16%
Medal	35%	15%	1%	1%	0,4%	2%	12%
Region	9%	19%	5%	1%	1%	1%	8%
<b>Sustainable</b>	<b>8%</b>	<b>5%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>1%</b>	<b>0.1%</b>	<b>3%</b>
Filling	1%	2%	0.0%	0.0%	0.0%	0.0%	1%
Sensory Style	2%	0.1%	0.0%	1%	0.1%	0.1%	1%
Alcohol	0.1%	0%	0.2%	0.4%	0.1%	0.0%	0.2%

### 3.3 Personal values and environmental concern

In this study, personal values were elicited with a reduced ten items battery on a 7-point bipolar scale (-3 not at all important, +3 very important), corresponding to the ten value types from the Schwartz (1992) values model. A principal component analysis resulted in four dimensions (see Table 5) corresponding to Schwartz's four value categories (without the item "security" since it was loading on two dimensions). The factor structure was robust across all seven markets but later re-analysis should test for measurement invariance across all countries. In accordance with Schwartz, the dimensions were named 'Self-Transcendence', 'Openness to Change', 'Self-enhancement' and 'Conservatism'.

**Table 5:** Personal value items and loading on four principal components (rotated component matrix) n=11,322

	Extraction	Openness to change	Univer-salism	Self-enhancement	Conser-vatism
% of Total Variance explained		43.7	14.2	11.8	8.6
To have pleasure and enjoy life	.795	.873	.135	.067	.107
To have an exciting and varied life	.818	.868	.090	.219	.093
Independence of thinking and action: being autonomous	.587	.619	.409	.121	.150
To care about relatives' welfare	.756	.274	.774	.147	.245
To care about people' welfare, social justice, protecting the environment and/or a world at peace	.827	.113	.879	.127	.163
To achieve a social status: social Self-enhancement (Power, Achievement) and wealth	.841	.104	.050	.894	.168
To search for personal success and socially valued competences	.789	.219	.238	.814	.145
To respect Traditions	.815	.305	.219	.059	.819
To respect and adhere to social norms	.817	-.005	.193	.296	.832

Personal environmental concerns were measured on a six-item scale, loading on one factor (see Table 6).

**Table 6:** Environmental concern scale

	Extraction	Loading
I am concerned about environmental problems	.651	.807
I am concerned about how environmental problems will have a negative impact on my health	.699	.836
People I know have encouraged me to become more environmentally responsible through their words and actions	.438	.662
I am concerned about how media and advertising might encourage us to consume in an environmentally irresponsible way	.585	.765
I have recently been paying more attention to news stories about the environment	.637	.798
I am concerned about how farming might be harmful to the environment	.606	.779

## 4 ANALYSIS AND RESULTS

### 4.1 Relationship of personal value dimensions and environmental concern

Factor scores of personal value dimensions were correlated with individual factor scores for environmental concern. Because of the large sample size, all correlations are significant at  $p < 0.01$ , but only the correlation of environmental concern with Universalism is of small to medium effect size (see Table 7).

**Table 7:** Correlation between value dimensions and environmental concern (n=11,322)

	Openness to change	Universalism	Self-enhancement	Conservatism
Correlation with environmental concern	.057	.375	.075	.043

All  $p > 0.001$

### 4.2 Degree by which choice segments differ in their personal values and environmental concern (RQ1)

To determine the degree by which personal values and environmental concern are related to differences in consumers' choice behaviour, a univariate analysis of variance for personal values and environmental concern (dependent variable) by choice segment (factor) was conducted. The effect size provides an indication of how much variance in personal values and environmental concern is explained by membership to distinct choice segments.

**Table 8:** Effect size (explained variance) of individual personal values by choice segment membership

Country/market	N	#segm.	Principal component personal values				Environ concern
			Openness to change	Univer-salism	Self-enhancement	Conser-vatism	
US New York	1,617	6	0.027	0.009	0.062	0.023	0.091
US Chicago	1,614	6	0.022	0.007	0.060	0.012	0.062
UK	2,021	6	0.021	0.012	0.035	0.007	0.055
CAN Anglophone	1,035	7	0.029	0.018	0.036	0.024	0.047
CAN Francophone	982	7	0.007	0.005	0.013	0.031	0.028
France	2,027	6	0.007	0.012	0.004	0.021	0.026
Germany	2,025	7	0.010	0.018	0.017	0.017	0.027
Average			0.018	0.012	0.032	0.019	0.048

Results in Table 8 indicate that on average only 1.2% (universalism) to 4.8% (environmental concern) of variation in personal values and concerns is explained by choice segment membership. That is, personal values and environmental concern are only very weakly related to consumers' differences in product choice. This confirms previous findings on the attitude-behaviour gap (De Barcellos et al., 2011). Values and attitudes were not found to be a strong predictor for consumers' choice behaviour of sustainable food.

#### 4.3 Relationship between personal values, environmental concern and attribute importance for environmental concern (RQ2)

To determine the degree and direction of the relationship of personal values and environmental concern with the importance of sustainable claims, average segment factor scores were correlated with attribute importance over all 45 (non-random) segments.

Results in Table 9 indicate that choice revealed importance of sustainable attributes is significantly related to environmental concern ( $r=0.495$ ), Conservatism (Tradition, Conformity) ( $r=0.460$ ) and Self-enhancement (Power, Achievement) ( $r=0.371$ ). There was no significant relationship with the value dimension Universalism. The value dimension of Self-enhancement (Power, Achievement) is also positively related to the importance of region, filling and brand, but negatively related to price. This suggests that sustainable attributes might fulfil the need for social distinction and image display. It is interesting to observe that environmental concern is not only related to sustainable attribute importance, but also highly correlates with the importance of brand, region, filling and sensory style, which can be classified as high involvement attributes (Lockshin et al. 2007).

**Table 9:** Pearson correlation between personal values and attribute importance (n=45 segments)

Attribute	Openness to change	Universalism	Self-enhancement	Conservatism	Environm. concern
Grape variety	.190	-.124	.155	.002	-.032
Price	-.199	.041	-.418	** -.210	-.370 *
Brand	.048	.108	.352	* .170	.562 **
Medal	.045	.061	.122	.054	.264
Region	-.014	.153	.407	** .243	.553 **
Sustainable	-.043	.101	.371	* .460 **	.495 **
Filling	-.056	.086	.401	** .362 *	.512 **
Sensory Style	.053	.035	.268	.338 *	.439 **
Alcohol	.175	-.111	.260	.225	.372 *

Significance level: \*\* $p<0.01$ , \* $p<0.05$

The fact that Conservatism is highly related with sustainability can potentially be interpreted as an indication of social demand effects in the DCE (Lusk, 2010). Although not significant, Openness to change (Hedonism, Stimulation, Self-direction) and the importance of sustainability are slightly negatively related, agreeing with similar findings by Lusk (2011) and potentially pointing to less preferred taste characteristics of sustainable (particularly organic) wine related to its less favourable image (Olsen et al., 2006) or limitations in pesticide usage.

#### 4.4 Relationship between personal values, environmental concern and willingness to pay for environmental concern (RQ3)

To determine the degree and direction of the relationship between personal values and environmental concern with willingness to pay for sustainable attribute levels, the average value factor scores were correlated with the revealed segment-specific willingness to pay, which was transferred into one currency; Euro (at the exchange rate at the time of the study).

Of all sustainable attribute levels, organic wine has received the highest average willingness to pay. A strong relationship was found between the willingness to pay for organic wine and environmental concern ( $r=0.477$ ), see Table 10. As for the attribute importance of sustainability (Table 9), high scores for the value dimensions of Self-enhancement (Power,

Achievement) and Conservatism (Tradition, Conformity) were also positively related to the willingness to pay for organic wine. Segments high in Conservatism were significantly more likely to display higher willingness to pay for socially responsible and carbon zero claims. For the willingness to pay of the claim 'Protect the planet' we only found a positive relationship with environmental concern.

**Table 10:** Pearson correlation between personal values scores and willingness to pay for sustainable attribute levels (n=45 segments)

Attribute level	Openness to change	Universalism	Self-enhancement	Conservatism	Environm. concern
Socially responsible	-.031	.207	.178	.357 *	.193
Carbon zero	.297 *	-.124	.215	.353 *	.254
10% less glass	.238	-.003	.099	.288	.133
Protect the planet	.017	.005	.150	.259	.362 *
Organic	-.186	.234	.347 *	.404 *	.477 **

Significance level: \*\*p<0.01, \*p<0.05

The positive effect observed between Openness to change (Hedonism, Stimulation, Self-direction) and carbon zero is likely an artefact of the negative correlation of the willingness to pay for organic and carbon zero wine. In most segments, where the willingness to pay for organic was positive we found a negative willingness to pay for carbon zero. This explanation is supported by the negative (although not significant) relationship between Openness to change and willingness to pay for organic wine. Of all sustainable claims analysed here, the organic claim received the highest consumer valuation (willingness to pay) and was the main driver for attribute importance of the sustainable claim. Accordingly, correlations for organic in Table 10 reflect those found for the overall sustainable attribute in Table 9.

## 5 CONCLUSION

In this study, we found that personal values were weakly related to differences in choice behaviour, confirming the previously observed value-behaviour gap. Although specific environmental concern shows a slightly stronger relationship to consumers' simulated choices, the explained variance in choice is low, suggesting a weak translation of concerns into behaviour.

Regarding attribute importance in product choice, two personal value categories were positively related to the importance of sustainability: Self-enhancement (power, achievement) and Conservatism (tradition, conformity). Environmental concern seems again to be more strongly related to sustainable attribute importance than personal values. For consumers' revealed willingness to pay for sustainable attribute levels, the same two personal value categories self-enhancement and conservatism were positively related, with environmental concern again having a more significant relationship.

The findings of this study provide new evidence for the (weak) links between values and consumer choices. Contrary to what was found in previous studies we observed:

- (1) values related to Conservatism (conformity) and Self-enhancement (power, achievement) were a stronger predictor for consumer choice of sustainable wine than self-transcendence values and;
- (2) self-enhancement had a positive impact on the likelihood to choose sustainable wine.

Environmental concern but also Self-enhancement (power, achievement) and Conservatism values played an important role in consumer choice for sustainable wine while Self-transcendence and Openness to change did not impact it significantly.

These results yield marketing recommendations for stimulating sustainable wine consumption. Communication efforts should focus on environmental concerns and not only on general universalist values. With regard to benevolence values, contrary to other organic food markets, in which family health is an important motivation to buy organic products, this motivation is likely to be less relevant for wine.

Because sustainable wine claims do not seem to create very much value for Universalist people, it is recommended that all communication efforts cover a large base of wine consumers. More than convincing people of the benefits of these sustainable claims, we would suggest communicating sustainable claims more strongly to increase their general awareness. With regards to organic wine (more precisely), communication efforts could be based on self-enhancement (social status and power), showing how drinking organic wine enhances the person drinking it and makes it socially distinct. This is an important insight, suggesting that organic wine is potentially perceived differently compared to other organic food. These results might also contribute to the explanation of why the organic market share for wine is lower than for other food products.

The aim of this study was to investigate the link between values, environmental concern and purchase intentions. The absence of a measure of actual behaviour is a limitation of this study; even if purchase intentions and actual behaviours are correlated, other factors play an important role in actual decision-making process. Our findings should be tested in real life purchase situations to counter this in future research.

It should also be considered that the specific daily situation chosen for the DCE is only one of several potential purchase occasions of wine and further research should analyse the generalisability of these findings for other purchase occasions.

## REFERENCES

- Agence Bio, (2010), Baromètre de consommation et de perception des produits biologiques en France, Rapport n°0901164 – Edition 2009, www.agencebio.org
- Aertsens, J. W. Verbeke, K. Mondelaers, G. Van Huylenbroeck, (2009), "Personal determinants of organic food consumption: a review", *British Food Journal*, 111, 10, 1140 – 1167.
- Biel A., Grankvist G. (2010), "The effect of environmental information on professional purchasers' preference for food Products", *British Food Journal*, Vol. 112, No. 3, pp. 251-260.
- Chryssohoidis, G. M. and Krystallis, A. (2005), "Organic consumers' personal values research: Testing and validating the list of values (LOV) scale and implementing a value-based segmentation task", *Food Quality and Preference*, Vol. 16, No. 7, pp. 585-599.
- De Barcellos M., Krystallis A, de Melo M, Kügler J.O. and Grunert K. (2011), "Investigating the gap between citizens' sustainability attitudes and food purchasing behaviour: empirical evidence from Brazilian pork consumers", *International Journal of Consumers Studies*, forthcoming.
- De Boer, J., C. T. Hoogland, et al. (2007), "Towards more sustainable food choices: Value priorities and motivational orientations." *Food Quality and Preference*, 18(7), pp. 985-996.
- Dreezens, E., C. Martijn, et al. (2005a), "Food and the relation between values and attitude characteristics.", *Appetite* 45(1), pp. 40-46.
- Dreezens, E., C. Martijn, P. Tenbult, G Kok and N K de Vries (2005b), "Food and values: an examination of values underlying attitudes toward genetically modified- and organically grown food products.", *Appetite* 44(1), pp. 115-122.
- Fotopoulos, C., Krystallis, A. and Ness, M. (2003), "Wine produced by organic grapes in Greece: using means-end chains analysis to reveal organic buyers' purchasing motives in comparison to non-buyers", *Food Quality and Preference*, Vol. 14, pp. 549-66.
- Grankvist, G., Dahlstrand, U. and Biel, A. (2004), "The impact of environmental labelling on consumer preference: negative vs positive labels", *Journal of Consumer Policy*, Vol. 27, No. 2, pp. 213-30.
- Grunert, K. G., Juhl, H. J., Esbjerg, L., Jensen, B. B., Bech-Larsen, T., Brunsø, K., et al. (2009), "Comparing methods for measuring consumer willingness to pay for a basic and an improved ready made soup product", *Food Quality and Preference*, 20(8), pp. 607-619.
- Gutman, J. (1982), "A Means-End Chain Model Based on Consumer Categorization Processes", *The Journal of Marketing*, 46(2), pp. 60-72.
- Hoogland, C.T., de Boer, J. and Boersema, J.J. (2007), "Food and sustainability: Do consumers recognize, understand and value on-package information on production standards?", *Appetite*, 49, pp. 47-57.
- Jamieson, L. F., & Bass, F. M. (1989), "Adjusting stated intention measures to predict trial purchase of new products: A comparison of models and methods", *Journal of Marketing Research (JMR)*, 26(3), pp. 336-345.
- Kahle (1983), *Social values and social change: Adaptation to life in America*, New York, Prager.
- Kihlberg, I. and E. Risvik (2007), "Consumers of organic foods - value segments and liking of bread.", *Food Quality and Preference*, 18(3), pp. 471-481.
- Krystallis, A, M. Vassallo, G. Chryssohoidis & T. Perrea (2008), "Societal and individualistic drivers as predictors of organic purchasing revealed through a portrait value questionnaire (PVQ)-based inventory", *Journal of Consumer Behavior*, 7, pp. 164-187.

- Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000), *Stated choice methods: Analysis and application*. Cambridge: Cambridge University Press.
- Lusk, J. (2011), "External validity of the food values scale", *Food Quality and Preference*, forthcoming.
- Lusk, J. (2010), "Social Desirability in Traditional and Inferred Valuation Experiments", *AAEA, CAES, & WAEA Joint Annual Meeting*, Denver, CO, July 25-27.
- Lusk, J. and B. Briggeman (2009), "Food values.", *American Journal of Agricultural Economics* 91(1), p. 184.
- Lusk, J. and Norwood, B. (2009), "Bridging the gap between laboratory experiments and naturally occurring markets: an inferred valuation method", *Journal of Environmental Economics and Management* 58, pp. 236-250.
- Lusk, J. L., & Schroeder, T. C. (2004), "Are choice experiments incentive compatible? A test with quality differentiated beef steaks", *American Journal of Agricultural Economics*, 86(2), pp. 467-482.
- Magnusson, M. K., A. Arvola, U.-K. K Hursti, L. Aberg, P-O Sjöden (2003), "Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour.", *Appetite*, 40(2), pp. 109-117.
- Manski, C. F. (1990), "The use of intentions data to predict behavior: A best-case analysis", *Journal of the American Statistical Association*, 85(412), pp. 934-940.
- Miller, K. M., R. Hofstetter, et al. (2011), "How Should Consumers' Willingness to Pay Be Measured? An Empirical Comparison of State-of-the-Art Approaches.", *Journal of Marketing Research (JMR)* 48(1), pp. 172-184.
- Morrison, D.G. (1979), "Purchase intentions and purchase behavior," *Journal of Marketing*, 43, pp. 65-74.
- Morwitz, V.G. (1997), "Why consumers don't always accurately predict their own future behavior.," *Marketing Letters*, 8, pp. 57-70.
- Mueller, S., Osidacz, P., Francis, L., Lockshin, L. (2010a), "Combining discrete choice and informed sensory testing of extrinsic in a two-stage process: Can it predict wine market share?", *Food Quality and Preference*, 21(7), pp. 741-754.
- Mueller, S., Lockshin, L., Saltman, Y., and Blanford, J. (2010b), "Message on a bottle: The relative influence of wine back label information on wine choice", *Food Quality and Preference*, Vol. 21(1), pp. 22-32.
- Olsen, J., L. Nowak and, E. Thach, (2006), "Integrating Environmentally Friendly Behavior with Hedonic Consumption: The Case of Organic Wine", *13th Academy of Marketing Science World Marketing Congress*, Verona, Italy.
- Orquin, J.L. and Scholderer, J. (2011), "Persuasive health branding of food: are we mislead? Working paper department of marketing and statistics", Aarhus Business School.
- Padel S, Foster C. (2005), "Exploring the gap between attitudes and behaviour. Understanding why consumers buy or do not buy organic food", *British Food Journal*, Vol. 107, No. 8, pp. 606-625.
- Remaud H., L. Sirieix (2010), "Consumer perceptions of eco-friendly vs. conventional wines in Australia", *5th International Conference of the Academy of Wine Business Research, Auckland*, 8-10 February.
- Rokeach M. (1973), *The Nature of Human Values*, New York, Free Press.
- Saba A. and Messina F. (2003), "Attitudes towards organic foods and risk/benefit perception associated with pesticides", *Food Quality and Preference*, 14, pp. 637-645.
- Schwartz, S. H. (1992), "Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries", *Advances in Experimental Social Psychology*, 25, pp. 1-65.
- Sirieix L., Persillet, V., and Alessandrin, A., (2006), "Consumers and organic food in France: A means-end chain study", in *Sociological Perspectives of Organic Agriculture*, eds. G.C. Holt and M.J.Reed, CABI: Wallingford, UK.



- Storstad, O. and Bjorkhaug, H. (2003), "Foundations of production and consumption of organic food in Norway: common attitudes among farmers and consumers?", *Agriculture and Human Values* 20, pp. 151-163.
- Thøgersen, J. (2002), "Direct experience and the strength of the personal norm - Behavior relationship", *Psychology & Marketing*, Vol. 19, No. 10, pp. 881-893.
- Tsakiridou E., Boutsouki C., Zotos Y., Mattas K. (2008), "Attitudes and behaviour towards organic products: an exploratory study", *International Journal of Retail & Distribution Management*, Vol. 36, No. 2, pp. 158-175.
- Urien B. And Kilbourne W. (2011), "Generativity and Self-Enhancement Values in Eco-Friendly Behavioral Intentions and Environmentally Responsible Consumption Behavior", *Psychology & Marketing*, Vol. 28(1), pp. 69-90.
- Vermeir, I., Verbeke, W., (2006), "Sustainable food consumption: exploring the consumer attitude-behavioural intention gap", *Journal of Agricultural and Environmental Ethics* 19 (2), pp. 169-194.
- Wier M., M. Andersen and K. Millock, (2006), "Information provision, consumer perceptions and values. The case of organic foods", in *Environment, Information and Consumer Behaviour*, S Krarup and C. Russell eds., Edward Elgar Publishing.