



Marketing Intelligence & Planning

Pro-Environmental Purchasing Behaviour during the economic crisis

Irene Tilikidou Antonia Delistavrou

Article information:

To cite this document:

Irene Tilikidou Antonia Delistavrou , (2014), "Pro-Environmental Purchasing Behaviour during the economic crisis", Marketing Intelligence & Planning, Vol. 32 Iss 2 pp. 160 - 173

Permanent link to this document:

<http://dx.doi.org/10.1108/MIP-10-2012-0103>

Downloaded on: 18 October 2014, At: 11:49 (PT)

References: this document contains references to 55 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 147 times since 2014*

Users who downloaded this article also downloaded:

Yi-Chun Huang, Minli Yang, Yu-Chun Wang, (2014), "Effects of green brand on green purchase intention", Marketing Intelligence & Planning, Vol. 32 Iss 3 pp. 250-268 <http://dx.doi.org/10.1108/MIP-10-2012-0105>

Shih-Tse Wang, (2014), "Consumer characteristics and social influence factors on green purchasing intentions", Marketing Intelligence & Planning, Vol. 32 Iss 7 pp. 738-753 <http://dx.doi.org/10.1108/MIP-12-2012-0146>

Thanika Devi Juwaheer, Sharmila Pudaruth, Marie Monique Emmanuelle Noyaux, (2012), "Analysing the impact of green marketing strategies on consumer purchasing patterns in Mauritius", World Journal of Entrepreneurship, Management and Sustainable Development, Vol. 8 Iss 1 pp. 36-59

Access to this document was granted through an Emerald subscription provided by 431837 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.



Pro-Environmental Purchasing Behaviour during the economic crisis

Irene Tilikidou and Antonia Delistavrou

Department of Marketing, TEI of Thessaloniki, Thessaloniki, Greece

Received 8 October 2012

Revised 23 May 2013

Accepted 29 May 2013

Abstract

Purpose – Examination of Pro-Environmental Purchasing Behaviour (PPB) and its potential components. Investigation of the number and the size of relevant consumer segments. Determining the factors able to describe the segment of frequent pro-environmental purchasers. This paper aims to discuss these issues.

Design/methodology/approach – Investigation of PPB as a total multi-item variable. Disclosure of the PPB components. Examination of the Purchase component and disclosure of its clusters. Focus on the cluster of frequent purchasers. Estimation of the demographic, attitudinal and psychographic variables able to describe and predict these consumers.

Findings – Two components of PPB were found, namely Conservation (high consumer engagement in this) and Purchase (low consumer engagement in this). Inside the Purchase component of PPB three clusters were found, indicating, respectively, low, average and relatively high consumers' involvement. Consumers in Cluster 3 (frequent pro-environmental purchasers) are fewer than in the past. They were found to be negatively influenced by environmental unconcern attitudes and Materialism, while they were positively affected by locus of control over politics and Universalism.

Research limitations/implications – No demographic profile of frequent purchasers. Geographical area limited (a potential) generalisation of results. Social desirability effect. Future research with reference to evolutions in pro-environmental post-purchasing or non-purchasing behaviours during the years of economic crisis.

Practical implications – Fewer consumers would buy ecological products if these were not comparable enough with the conventional products in terms of price and efficacy.

Originality/value – First effort to explore the impact of the economic crisis on PPB in Greece. Encompassed new categories of ecological products. Revealed two components inside PPB (Purchase and Conservation) as well as number and size of consumer segments inside the Purchase component. Formulation of a partial profile of the frequent pro-environmental purchasers. Impact of Universalism on PPB was for the first time examined.

Keywords Ecological market segmentation, Ecological marketing, Environmental unconcern, Green buying, Pro-Environmental Purchasing Behaviour

Paper type Research paper

Introduction

Among other socio-economic sciences, the marketing discipline “needs and wants” to offer its own contribution to the desired, although difficult, goal of sustainable economic development (Van Dam and Apeldoorn, 1996; Jackson, 2005, p. iv). It is to be acknowledged that ecologically related research has never been in the mainstream of the marketing academic community (Schlegelmilch *et al.*, 1996; Peattie and Crane, 2006). However, there has always been a small but dynamic team of scholars, who have paid attention to the ecologically related marketing research during the last three decades (see among others: Antil, 1984; Balderjahn, 1988; Roberts, 1996; Kilbourne and Beckmann, 1998; Cleveland *et al.*, 2005; Jackson, 2005, p. 3; Tadjewski and Wagnier-Tsukamoto, 2006; Cordano *et al.*, 2011).



Empirical research has been useful in understanding the broad area that has been named Ecologically Conscious Consumer Behaviour (ECCB) (Roberts, 1996; Tilikidou, 2001, p. 172). The challenge has always been to reach an efficient balance between consumers' preferences and business offerings. Some years ago Litvan (1995), in an effort to motivate business managers, advocated that ecologically concerned consumers would not get engaged in ecological consumer behaviour of any type, unless satisfactory alternative choices were offered in the market. Accepting this argument, Tilikidou (2001, p. 5) expressed complementary concerns that no firm would undertake the risk and the trouble to adopt and implement an ecological strategy, unless it was forced by regulations or convinced that there was a profitable segment of Ecologically Conscious Consumers (ECCs) in the market. Unfortunately, research results with reference to North America and Europe (Pickett *et al.*, 1993; Schlegelmilch *et al.*, 1996; Bhate, 2002; Cleveland *et al.*, 2005; Fraj and Martinez, 2006) verified both of the above worries as the ecologically related market is still marginal (Peattie and Crane, 2006). Therefore, there are still many challenges in front of the marketing academic community to provide reliable evidence with reference to the ECCs segment, as an optimum basis for ecologically related strategies.

The fact is that pro-environmental behavioural changes have been found very hard over time (Thøgersen and Ölander, 2002, 2003; Jackson, 2005, p. 18; Tadajewski and Wagner-Tsukamoto, 2006). It is to be mentioned that there have been certain suggestions that environmental protection demands – besides public policy regulations – a drastic decrease of overall consumption expenditures in western societies. Reduction of consumption has been suggested by Fisk (1973), who expected “the ‘socially responsible consumer’ to purchase products geared toward enhancement of social or environmental welfare”, by Shapiro (1978), who supported the perspective of “Canada becoming a conserver society rather than one following economic growth with an ever-increasing consumption” and by the “macromarketing approach” (Kilbourne and Beckmann, 1998, Kilbourne and Carlson, 2008 among others), who recommend caution because green buying might very well increase consumption.

With reference to Greece, the ecological marketing research has been introduced during the 1990s, which was rather late in comparison to other EU countries. Tilikidou (2001, p. 6) investigated three types of ECCB, namely Pro-Environmental Purchasing Behaviour (PPB), Recycling and Pro-Environmental Activities, their interrelationships and the impact of demographics and attitudes on them. Fotopoulos and Krystallis (2002) offered significant insights with regard to the organic product market. In later years, during a period of economic growth in Greece, suggestions about the overall consumption reduction were followed. In order to measure this behaviour, a relevant item was added in the PPB scale.

In this study, PPB is revisited for a number of reasons: first, there are new offers of ecological products on the market which should be included in a PPB scale, second, this extension of PPB might conceal some distinct components inside the overall concept of PPB, third, there must be some distinct consumer segments in the pro-environmental market and last but not least, a severe economic crisis erupted in Greece some years ago and its impact on pro-environmental behaviour has not been thoroughly examined yet.

This paper presents the results of a study that aimed to examine not just the level of adoption of PPB but reveal its potential components, investigate the number and size of consumer segments in the relevant market and indicate which demographic,

attitudinal and psychographic variables are able to describe frequent pro-environmental Greek purchasers during the period of economic crisis.

Literature review

Pro-environmental behaviour has been defined by Peattie (1995, p. 83) as “the purchasing and non-purchasing decisions made by consumers, based at least partly on environmental or social criteria”. In Greece, Tilikidou (2001, p. 67), based on Peattie (1995, p. 84), understood PPB as “the purchasing behaviour based at least partly on various environmental criteria and expressed by several choices, including primarily purchasing products considered by consumers environmentally friendly and avoiding to purchase products considered environmentally harmful”.

The review of the relevant literature indicated that early research (e.g. Kinnear *et al.*, 1974; Webster, 1975) focused mainly on conservation of energy or water. Later on, consumption choices were incorporated (Antil, 1984; Balderjahn, 1988) while even later the agenda was lengthened as more eco-friendly products appeared in the marketplaces (Schlegelmilch *et al.*, 1996; Roberts and Bacon, 1997; Tilikidou, 2001, p. 66). More recently, there have been some studies (Thøgersen and Ölander, 2003; Cleveland *et al.*, 2005) in which purchasing behaviour has been examined together with other pro-environmental behaviours (i.e. recycling and non-purchasing activities). There have also been a few other cases, which focused on product strategy (Pujari and Wriarth, 1996), or specific products (Fotopoulos and Krystallis, 2002; Fraj and Martinez, 2006).

A variety of demographic, attitudinal and other psychographic variables have been employed. With reference to demographics, previous results indicated that education has been found to be a positive predictor of pro-environmental purchase (Balderjahn, 1988; Arcury, 1990; Scott and Willits, 1994; Roberts, 1996; Tilikidou, 2001, p. 142; Tilikidou and Delistavrou, 2005; Gilg *et al.*, 2005). Other demographic characteristics, though, have provided contradictory results.

With regard to attitudes, positive relationships, usually moderate, have been reported between attitudes and self-reported purchasing behaviour (Antil, 1984; Balderjahn, 1988; Schlegelmilch *et al.*, 1996; Roberts, 1996; Tilikidou, 2001, p. 150; Fotopoulos and Krystallis, 2002; Fraj and Martinez, 2006). It has been many times indicated that there is a gap between “what people think and what people do” (Peattie, 1995, p. 154; Shrum *et al.*, 1995). In the ecologically related research, it is expected to estimate socially desirable high levels of concern and agreement to the necessity of environmental protection (Thøgersen and Ölander, 2003). When behaviour is examined though, the relevant scores are never high. We also observed that most of the scales, which have been used to measure attitudes so far, were designed to estimate positive “pro-environmental concern” scores (e.g. Bohlen *et al.*, 1993; Tilikidou, 2001, p. 64). On the other hand, it has been previously claimed that the examination of negative attitudes might hopefully be found very efficient in capturing more sincere beliefs; those beliefs that in overall express indifference, disinterest, recklessness about environmental issues (Tilikidou and Delistavrou, 2005). Indeed, it was at least once indicated that an Environmental Unconcern scale provided better understanding of how attitudes inhibit ecological buying (Tilikidou and Delistavrou, 2005), than positive attitudes indicated how attitudes motivate this type of behaviour (Tilikidou, 2001, p. 64).

As for the psychographics, a variety of personality traits and/or individual values have been employed to assist in the formulation of a more detailed profile of ecological consumers. It is to be noted though that each psychographic variable has been used in a limited number of studies. Alienation was used by Crosby *et al.* (1981), Balderjahn

(1988) and Pickett *et al.* (1993). Kahle's (1983) List of Values by Tilikidou (2001, p. 136) and Fraj and Martinez (2006). Spheres of Control over politics by Henion and Wilson (1976), Balderjahn (1988) and by Tilikidou and Delistavrou (2005). Another variable, Political Orientation, has been introduced by sociologists (Dunlap, 1975) and later it was adopted by some marketing scholars too (Bohlen *et al.*, 1993; Roberts, 1996; Schlegelmilch *et al.*, 1996). Universalism was employed by Thøgersen and Ölander (2002, 2003), while Materialism was introduced in the pro-environmental agenda by Tilikidou and Delistavrou (2005).

In spite of the above presented valuable contributions, the ecologically related marketing research has always been scant. It has offered, so far, incomplete results with reference to the appropriate theoretical framework and measurement of pro-environmental behaviours and also with reference to the demographics, attitudes and/or individual differences – such as psychographics and values – that are able to describe and predict this kind of behaviours. A relatively new meta-analysis of the determinants of pro-environmental behaviours by Bamberg and Moser (2007) indicated similar findings to those reported by Hines *et al.* (1987), who had found that the correlations between attitudes and behavior, for example, would not have exceeded a Pearson's r of 0.35.

In Greece, especially with reference to PPB, it has been indicated that frequent purchasers counted for somewhat <25 per cent. These consumers were found to be mostly women, between 35 and 44 years old, graduates with average incomes, who hold higher level of locus of control over politics, lower levels of environmental unconcern and mainly lower levels of materialistic values. Materialism was found to be the only variable able to predict PPB, explaining 12.5 per cent of the variance according to the adjusted R^2 (Tilikidou and Delistavrou, 2005). There are still large voids of course, which might hopefully be partially covered by studies like this one, with reference to the insights of PPB, as well as with reference to the factors that are able to affect this type of ECCB during the era of this severe economic crisis in Greece and all over Europe.

Research objectives

- To examine to what extent Greek consumers are engaged in PPB in overall.
- To indicate potential components inside PPB.
- To investigate the number and size of potential clusters in the sample.
- To reveal the impact of demographics and attitudes on the cluster of frequent purchasers.
- To reveal the influence of selected psychographic variables, namely Materialism, Universalism and Socio-Political Control scale on the cluster of frequent purchasers.

Methodology

Sampling

A survey was conducted among the households of the urban area of Thessaloniki, Greece during November 2011. Respondents were approached through personal interviews taken by senior marketing students. The sampling method was a combination of the two-stage area sampling and systematic sampling methods (Tull and Hawkins, 1993, p. 544; Zikmund, 1991, p. 471). A structured questionnaire that was administered to an adult person of each of 540 households provided 510 usable questionnaires.

Variable measurement

The main dependent behavioural variable of this survey was PPB. PPB is a multi-item measure of 27 items and was measured on a five-point scale from 0 = never to 4 = always. The scale has been initially developed by Tilikidou (2001, p. 119) and was later modified by Tilikidou (2007) in order to include preferences for recycled paper products and avoidance of GMOs. In this study, the construct was further lengthened in order to encompass some new ecological offerings in the Greek market, such as electrical equipment, a variety of organic food products, etc. The examination of “overall consumption reduction”, as well as conservation of energy and water, were included in the present form of the purchasing scale, too.

With regard to attitudes, it was decided to accept previously made suggestions that negative attitudes could be found to be a stronger predictor of behaviour than positive attitudes did and thus the Environmental Unconcern scale (Tilikidou and Delistavrou, 2005) was adopted. The scale contains 18 items and includes negatively phrased attitudes that in overall express consumers’ underestimation of environmental problems and environmental protection. It should be also mentioned that these attitudes do not concern general environmental issues, such as the greenhouse effect or the extinction of species. The scale contains consumption-oriented items, such as “I believe ecological products are more expensive” or “[...] hard to find”, or “[...] of lower quality”, or “I don’t believe that the environment would have been protected if we used less water, electricity and oil”, etc. Therefore, the content of the scale (negatively phrased, consumer-oriented items) might hopefully provide better evidence of negative impact on the behaviours under examination.

With regard to psychographics, the literature review indicated that socially oriented variables, like societal values, might be found better correlates of pro-environmental behaviours (Tilikidou and Delistavrou, 2005). So, materialistic values, universalistic values and locus of control over politics were selected for this study. All of them had indicated relationships with pro-environmental behaviours in the past. Therefore, we had better examine their relevant magnitude during this period of economic crisis.

Materialism represents “the satisfaction in life and happiness derived by the possession of material goods” (Richins, 1987, p. 352; Ger and Belk, 1996). As environmental protection needs drastic decrease of over-consumption, pro-environmental behaviours are expected to be found negatively affected by consumers’ bond to material goods and pleasures (Moisander and Pesonen, 2002). The scale of Materialism contains 21 items and was adopted from Ger and Belk (1996). The Universalism sub-scale, six items, adopted from Schwartz’s (1992) List of Values, was included too, to examine “people’s concerns about other people’s problems and well-being”. Last, the Socio-Political Control scale of the Spheres of Control over politics was added in the investigation. This measure examines “the consumers’ perceptions about their own ability to affect and control the national and global socio-political evolutions” (Robinson *et al.*, 1991, p. 428). The scale contains ten items and was adopted from Paulhus (1983). All the aforementioned constructs were measured on a five-point Likert scale from 0 = completely disagree to 4 = completely agree.

With regard to demographics, gender, age, education, occupation and income were selected and measured on the NSSG scales.

Results

The demographics of the sample were tested through χ^2 and no statistically significant differences with the relevant parameters of the population were found. The internal consistency of each multi-item variable was approached through Cronbach’s α

calculation and provided the following results: PPB 0.912, Environmental Unconcern 0.852, while Materialism, Universalism and Socio-Political Control scale provided 0.7346, 0.8699 and 0.7607, respectively.

PPB during the economic crisis

Descriptive statistics

PPB takes theoretical values from 0 to 108. Providing a mean of 46.9175 indicated a rather low engagement of the sample in all pro-environmental behaviours as a whole. Observation (Table I) of the separate items' means indicated that some of them were found significantly higher than the majority of the others (see, e.g. A19, A20). For this reason, it was decided to employ principal component analysis (PCA) in order to explore distinct components inside the overall PPB concept.

165

PCA in PPB

The two necessary tests for PCA provided exemplary values ($KMO = 0.904$ and Bartlett's $p = 0.000$). As, expected the results of PCA indicated two sub-measures. It is observed (Table I) that the first component includes all items that concern preferences for ecological products, such as detergents, organic products, eco-labelled products, bulbs, electrical equipment, etc. The second component includes conservation of energy and water, overall consumption reduction, avoidance of GMOs and preference for large packages. Thus, the first component was named Purchase and the second Conservation. Purchase grouped 22 items ($\alpha = 0.928$), takes theoretical values 0-88 and, with a mean of 33.6798, indicates low consumer engagement. Conservation grouped five items ($\alpha = 0.741$), takes theoretical values 0-20 and, with a mean of 13.2510, indicates rather high consumer engagement.

Clustering the purchase component

In an effort to obtain a closer understanding of the Purchase component, K-means cluster analysis was utilised, as it classifies cases into relatively homogeneous groups, indicating distinct for each group degree of involvement in the behaviour under examination (Malhotra, 1999, p. 610). K-means is very useful to estimate the number and size of potential market segments. In this analysis, the five items of the Conservation component were omitted. It is obvious that these items do not express actual pro-environmental choices. Although the relevant behaviours might indeed protect the environment at least indirectly, the PCA separated them from the other purchasing behaviours. In fact, it should be discussed if behaviours like "reducing energy, water and overall consumption" were motivated by financial reasons during the period of the economic crisis and not by conscious pro-environmental choices. So, only the 22 items of the Purchase component were entered in the K-means analysis. This approach was followed in an effort to investigate the clusters of those consumers that can be faced as meaningful market segments of actual pro-environmental preferences vs conventional alternatives.

The most interpretable solution indicated three clusters (Table I). Cluster 1 joined 212 cases (41.65 per cent) of those consumers, who obtained the lower scores in all items, Cluster 2 joined 205 cases (40.27 per cent) of those, who obtained scores higher than those in the first cluster, but considerably lower than those in the next cluster and Cluster 3 joined 92 cases (18.08 per cent) grouping consumers, who obtained the highest scores in all cases. The three clusters indicated relatively lower, average and higher degree of involvement in the Purchase component of PPB, respectively.

Table I.
PPB Descriptives,
PCA loadings and
clusters' centers

	PPB descriptives		PCA loadings		Cluster centres		
	Mean	SD	Purchase	Conservation	Cluster 1 212 cases	Cluster 2 205 cases	Cluster 3 92 cases
A01	1.8961	1.20534	0.676	0.022	1.13	2.31	2.77
A02	1.3882	1.07218	0.718	-0.102	0.69	1.68	2.36
A03	1.5176	1.14159	0.692	0.046	0.75	1.83	2.60
A04	1.3811	1.20372	0.731	-0.059	0.54	1.64	2.74
A05	1.5922	1.25459	0.613	-0.016	0.89	1.82	2.67
A06	1.1686	1.17396	0.662	-0.298	0.39	1.50	2.24
A07	0.9471	1.07441	0.638	-0.362	0.23	1.27	1.89
A08	1.9647	1.31887	0.616	0.176	1.18	2.25	3.14
A09	1.7275	1.32315	0.712	0.056	0.71	2.24	2.95
A10	1.6098	1.29784	0.751	-0.025	0.58	2.10	2.92
A11	1.5765	1.33306	0.756	-0.048	0.51	2.06	2.98
A12	1.2647	1.19533	0.740	-0.147	0.40	1.55	2.64
A13	1.1529	1.20091	0.590	-0.284	0.44	1.34	2.36
A14	1.2510	1.16925	0.542	-0.213	0.68	1.35	2.35
A15	0.9471	1.12445	0.602	-0.323	0.21	1.28	1.91
A16	1.2078	1.20083	0.586	-0.154	0.60	1.28	2.47
A17	1.8902	1.18922	0.677	0.292	1.14	2.17	3.01
A18	1.8882	1.18656	0.592	0.301	1.18	2.23	2.74
A19	2.8431	1.09961	-0.005	0.756			
A20	2.8725	1.08093	0.024	0.728			

(continued)

	PPB descriptives		PCA loadings		Cluster centres		
	Mean	SD	Purchase	Conservation	Cluster 1 212 cases	Cluster 2 205 cases	Cluster 3 92 cases
A21	1.1549	1.15818	0.492	-0.101	0.57	1.47	1.78
A22	2.4804	1.17714	0.099	0.641			
A23							
A24	2.7980	1.21403	0.161	0.645			
A25	2.3216	1.13462	0.446	0.422	1.91	2.49	2.92
A26	2.2569	1.05017	0.323	0.480			
A27	1.8255	1.15708	0.521	0.236	1.32	2.01	2.59
	1.9745	1.14445	0.496	0.236	1.47	2.14	2.77

PPB during the
economic crisis

Cluster 1 joined more than four out of ten consumers, who never or very rarely choose to buy any ecological product or adopt any ecological alternative purchasing behaviour. Cluster 2 joined four out of ten consumers, who are occasional pro-environmental purchasers, rarely buy organic food or toiletry but they would buy eco-friendly detergents and/or recycled paper products, if those were not more expensive than the conventional products. Of course, Cluster 3 (higher cluster centres) is the most important in terms of pro-environmental actual purchases. However, it is observed that even in Cluster 3 there are hardly any behaviours that are always adopted by consumers. Relatively more frequent purchasers (Table I) often buy those eco-detergents that can guarantee environmental protection (A08), often buy products in recyclable packaging (A17), recycled paper products (A11, A09, A10) and energy saving light bulbs (A24). It is to be mentioned that the most preferable behaviours in all three clusters are those that concern preference of energy saving light bulbs, electrical equipment and avoidance of disposable products (A24, A26, A27).

Analysis of the results

First, the one-way ANOVA was employed in order to examine the differences in the means of the Purchase component of PPB across the categories of each demographic variable. No statistically significant relationships were found.

Then Pearson's parametric correlations were applied in order to explore the sign and strength of any statistically significant relationships between PPB (as a whole) and each one of the independent variables (attitudes and psychographics), and each one of the Purchase clusters and each one of the independent variables (attitudes and psychographics).

In Table II it is observed that PPB (as a whole) provided the following statistically significant ($p < 0.001$) relationships: a negative and moderate relationship with Environmental Unconcern ($r = -0.376$), a positive and moderate relationship with the Socio-Political Control scale ($r = 0.295$), a negative and weak relationship with Materialism ($r = -0.200$) and a positive and weak one with Universalism ($r = 0.143$). On the other hand, the Purchase component in Cluster 3 (frequent purchasers) indicated a considerable negative relationship with Materialism ($r = -0.388$) and two positive, moderate relationships with the Socio-Political Control scale and with Universalism ($r = 0.295$ and 0.297 , respectively). The stronger relationship (negative, moderate) was

	Pro-environmental Purchasing Behaviour (PPB)	Purchase component of PPB			
		Cluster 1	Cluster 2	Cluster 3	
Environmental Unconcern	r	-0.376	-0.338	0.155	-0.482
	Sig.	0.000	0.000	0.026	0.000
Materialism	r	-0.200	0.021	0.012	-0.388
	Sig.	0.000	0.764	0.867	0.000
Socio-Political Control scale	r	0.295	-0.005	0.015	0.295
	Sig.	0.000	0.943	0.834	0.004
Universalism	r	0.143	0.085	-0.196	0.297
	Sig.	0.001	0.219	0.005	0.004

Table II.
The correlates of
pro-environmental
purchasing behaviour
and the purchase clusters

indicated between the Purchase component in Cluster 3 (frequent purchasers) and Environmental Unconcern with ($r = -0.482$).

Multiple regression analysis (stepwise method) was then applied in the sub-sample of Cluster 3 (frequent purchasers) vs all the above mentioned independent variables. The analysis revealed that the interaction between Environmental Unconcern (EU) and Materialism (M) can explain 24.9 per cent of the variance of Purchase in the sub-sample of frequent purchasers. The other variables were excluded by the results of the following final equation:

$$\text{Purchase in Cluster 3 (frequent purchasers)} = 69.123 - 0.385 \text{ EU} - 0.205 \text{ M}$$

(Adjusted $R^2 = 0.249$)

Discussion, conclusions and implications

This study, at least to an extent, updated our knowledge with reference to one of the ECCB types, namely the PPB in Greece. The examination encompassed new categories of ecological products and revealed two components inside PPB, namely Purchase and Conservation. Consumers declared high adoption of Conservation and low involvement in actual Purchase. Focus on the Purchase component of PPB indicated that there are three segments in the market. It is to be mentioned that the size of Cluster 3 (frequent purchasers) in this study (18.08 per cent) is certainly lower than a previous measurement (24.10 per cent), while these consumers make green choices less frequently than in the past; also, the size (41.65 per cent) of Cluster 1 (consumers, who almost never act pro-environmentally) is definitely larger than the relevant segment some years ago (34.14 per cent) (see: Tilikidou and Delistavrou, 2005). Besides the fact that some of the ecological products are usually considerably more expensive than the conventional products, it should be also taken into consideration that during the economic crisis the incomes of the Greek working classes are being dramatically reduced, while the prices of main commodities are constantly increasing. Therefore, we might reasonably conclude that conservation behaviours are largely driven by financial motives rather than environmental concerns while financial reasons also restrict actual pro-environmental purchasing choices.

Differences were also found with reference to the factors that might be able to affect Cluster 3 (frequent purchasers) in comparison to the whole sample. Almost all independent variables (Environmental Unconcern, Materialism and Universalism) seem to provide stronger correlations in Cluster 3 than in the whole sample, or in any other cluster. The Socio-Political Control scale is an exception, as it seems to equally affect both Cluster 3 and the whole sample (see Table II). These results seem to be in line with previous estimations in the same geographical area (see: Tilikidou and Delistavrou, 2005). The impact of Universalism on PPB was for the first time investigated within Greek consumers. The correlation found (positive, moderate) is consistent with the results of Thøgersen and Ölander (2002, 2003). The latter authors came to the conclusion that those Danish consumers, who declared respect toward other people's rights and toward nature, were more likely to make environmentally friendly purchasing choices.

In an effort to provide useful implications to the green market, it is to be noted that from 2007 to 2008 the increase in the organics' market had reached 30 per cent (ICAP, 2011), while the relevant percentage dropped down to 5 per cent between 2009 and 2010 (ICAP, 2012). Unfortunately there is a great chance that the forthcoming

sector studies will evince larger decline in demand for ecological products. Marketers should realize that over time fewer consumers would buy ecological products if these were not comparable enough with the conventional products in terms of price and efficacy.

On the other hand, as Pujari and Wrigth (1996) predicted some years ago, these days it is getting harder than ever to estimate the overall impact of social corporate responsibility or any type of “greenness” on any company’s total profitability. It is to be noted that gross profits of domestic SMEs, in the organic product sector, decreased by 49.4 per cent due to a decline of 10.9 per cent in sales between 2009 and 2010 (ICAP, 2012).

Limitations and future research suggestions

It is a limitation of this research that the analysis failed to formulate any demographic profile of frequent pro-environmental purchasers, as consecutive studies in the same geographical area have many times indicated that those, who enhance pro-environmental behaviours, are better educated consumers, who hold relatively higher incomes (Tilikidou and Delistavrou, 2005; Tilikidou, 2001, p. 186, 2008, p. 135). Another limitation of this study is that the generalisation of results to the whole Greek population is limited as this study has been conducted in the Thessaloniki urban area. Also, a social desirability effect must be always taken into account in self-reported surveys, especially in topics related to social welfare.

It is to be further noted that academic research in the future should be particularly careful with the suggestion for overall reduction of consumption as a prerequisite of environmental behavioural change. As stated in the introduction of this paper, the relevant suggestions have guided the theoretical basis of excellent research papers during a considerable number of years within the marketing academic community. It seems, however, that the decrease in overall consumption does not facilitate a shift to either eco-products or environmental protection of any kind. With reference to the Greek economy, there was a steady annual increase in consumption until the outbreak of the economic crisis. For example, there was an increase of 8.86 per cent from 2007 to 2008 (EL.STAT, 2012). During the years of economic crisis consumption is decreasing. For example, there is a certain decrease of 4.15 per cent in overall consumption of households between 2010 and 2011. However, certain environmental indices do not indicate improvement. For example, Greece is far away from the European goals with reference to recycling, share of renewable resources in gross final energy consumption, while energy dependence increased by 1.35 per cent between 2009 and 2010 (Eurostat, 2012) despite the constantly increasing depression in the Greek economy. The “Greek paradigm” indicates more or less that the economic crisis is most probably hostile to the environment. So, it is to be noted that we should be really cautious to suggest overall consumption reduction in the future. This suggestion might be considered as a scrupulous imperative for certain over-consuming parts of the population in certain western countries. However, with regard to countries, which suffer from depression, it cannot and should not be suggested to limit their social safety net, while masses of people lose their jobs or the main part of their annual incomes.

Nevertheless, future research is needed in order to expand our knowledge with regards to evolutions in the other types of ECCB during the years of the economic crisis; pro-environmental post-purchasing or non-purchasing behaviours should be accordingly examined. More potentially influential factors should be added to the investigation, while the demographics of ECCs need to be further revealed.

References

- Antil, J.A. (1984), "Socially responsible consumers: profile and implications for public policy", *Journal of Macromarketing*, Vol. 4 No. 2, pp. 18-39.
- Arcury, T.A. (1990), "Environmental attitude and environmental knowledge", *Human Organisation*, Vol. 49 No. 4, pp. 300-304.
- Balderjahn, I. (1988), "Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns", *Journal of Business Research*, Vol. 17 No. 1, pp. 51-56.
- Bamberg, S. and Moser, G. (2007), "Twenty years after Hines, Hungerford and Tomera: a new meta-analysis of psycho-social determinants of pro-environmental behaviour", *Journal of Environmental Psychology*, Vol. 27 No. 1, pp. 14-25.
- Bhate, S. (2002), "One world, one environment, one vision: are we close to achieving this? An exploratory study of consumer environmental behaviour across three countries", *Journal of Consumer Behaviour*, Vol. 2 No. 2, pp. 169-184.
- Bohlen, G.M., Diamantopoulos, A. and Schlegelmilch, B.B. (1993), "Consumer perceptions of the environmental impact of an industrial service", *Marketing Intelligence and Planning*, Vol. 11 No. 1, pp. 37-48.
- Cleveland, M., Kalamas, M. and Laroche, M. (2005), "Shades of green: linking environmental locus of control and pro-environmental behaviours", *Journal of Consumer Marketing*, Vol. 22 No. 4, pp. 198-212.
- Cordano, M., Welcomer, S., Scherer, F.R., Pradenas, L. and Parada, V. (2011), "A cross cultural assessment of three theories of pro-environmental behaviour", *Environment and Behavior*, Vol. 43 No. 5, pp. 634-657.
- Crosby, L.A., Gill, J.D. and Taylor, J.R. (1981), "Consumer/voter behavior in the passage of the Michigan container law", *Journal of Marketing*, Vol. 45 No. 2, pp. 19-32.
- Dunlap, R.E. (1975), "The impact of political orientation on environmental attitudes and actions", *Environment and Behavior*, Vol. 7 No. 4, pp. 428-454.
- EL.STAT (2012), "National accounts, final consumption, EL.STAT", available at: www.statistics.gr/portal/page/portal/ESYE/PAGE- (accessed 13 September 2012).
- Eurostat (2012), "Statistics, environment and energy, Eurostat", available at: http://eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed 13 September 2012).
- Fisk, G. (1973), "Criteria for a theory of responsible consumption", *Journal of Marketing*, Vol. 37 No. 1, pp. 24-31.
- Fotopoulos, C. and Krystallis, A. (2002), "Purchasing motives and profile of the Greek organic consumer: a countrywide survey", *British Food Journal*, Vol. 104 No. 9, pp. 730-765.
- Fraj, E. and Martinez, E. (2006), "Environmental values and lifestyles as determining factors of ecological consumer behaviour: an empirical analysis", *Journal of Consumer Marketing*, Vol. 23 No. 3, pp. 133-144.
- Ger, G. and Belk, R.W. (1996), "Cross-cultural differences in materialism", *Journal of Economic Psychology*, Vol. 17 No. 1, pp. 55-77.
- Gilg, S., Barr, D. and Ford, N. (2005), "Green consumption or sustainable lifestyles? Identifying the sustainable consumer", *Futures*, Vol. 37 No. 6, pp. 481-504.
- Henion, K.E. II and Wilson, W.H. (1976), "The ecologically concerned consumer and locus of control", in Henion, K.E. II and Kinneary, T.C. (Eds), *Ecological Marketing*, American Marketing Association, Austin, TX, pp. 131-144.
- Hines, J.M., Hungerford, H.R. and Tomera, A.N. (1987), "Analysis and synthesis of research on responsible behavior: a meta-analysis", *Journal of Environmental Education*, Vol. 18 No. 2, pp. 1-8.

- ICAP (2011), "Organic farming – organic products", available at: www.icap.gr/ECPage.aspx?id=1842&nt=149&lang=1&tabID=3 (accessed 13 September 2012).
- ICAP (2012), "Slowdown in the domestic market for organic products due to crisis", *Kathimerini*, 26 January, available at: http://news.kathimerini.gr/4dcgi/_w_articles_economyepix_2_26/01/2012_470138 (accessed 13 September 2012).
- Jackson, T. (2005), "Motivating sustainable consumption: a review of evidence on consumer behaviour and behavioural change", report to the Sustainable Development Research Network, SDRN, Surrey.
- Kahle, L.R. (Ed.) (1983), *Social Values and Social Change: Adaptation to Life in America*, Praeger, New York, NY.
- Kilbourne, W.E. and Beckmann, S.C. (1998), "Review and critical assessment of research on marketing and the environment", *Journal of Marketing Management*, Vol. 14 No. 6, pp. 513-532.
- Kilbourne, W.E. and Carlson, L. (2008), "The dominant social paradigm, consumption, and environmental attitudes: can macromarketing education help?", *Journal of Macromarketing*, Vol. 28 No. 2, pp. 106-121.
- Kinnear, T.C., Taylor, J.R. and Ahmed, S.A. (1974), "Ecologically concerned consumers: who are they?", *Journal of Marketing*, Vol. 38 No. 2, pp. 20-24.
- Litvan, L.M. (1995), "Going "Green" in the '90s", *Nation's Business*, Vol. 83 No. 2, pp. 30-32.
- Malhotra, N.K. (1999), *Marketing Research: An Applied Orientation*, 3rd ed., Prentice Hall Inc, Englewood Cliffs, NJ.
- Moisander, J. and Pesonen, S. (2002), "Narratives of sustainable ways of living: constructing the self and the other as a green consumer", *Management Decision*, Vol. 40 No. 4, pp. 329-342.
- Paulhus, D. (1983), "Sphere-specific measures of perceived control", *Journal of Personality and Social Psychology*, Vol. 44 No. 6, pp. 1253-1265.
- Peattie, K. (1995), *Environmental Marketing Management*, Pitman Publishing, London.
- Peattie, K. and Crane, A. (2006), "Green marketing: legend, myth, farce or prophesy?", *Qualitative Market Research: An International Journal*, Vol. 8 No. 4, pp. 357-370.
- Pickett, G.M., Kangun, N. and Grove, S.J. (1993), "Is there a general conserving consumer? A public policy concern", *Journal of Public Policy & Marketing*, Vol. 12 No. 2, pp. 234-243.
- Pujari, D. and Wriarth, G. (1996), "Developing environmentally conscious product strategies: a qualitative study of selected companies in Germany and Britain", *Marketing Intelligence & Planning*, Vol. 14 No. 1, pp. 19-28.
- Richins, M.L. (1987), "Media, materialism, and human happiness", in Wallendorf, M. and Anderson, P. (Eds), *Advances in Consumer Research*, Vol. 14 Association for Consumer Research, Provo, UT, pp. 352-356.
- Roberts, J.A. (1996), "Green consumers in the 1990s: profile and implications for advertising", *Journal of Business Research*, Vol. 36 No. 3, pp. 217-231.
- Roberts, J.A. and Bacon, D.R. (1997), "Exploring the subtle relationships between environmental concern and ecologically conscious consumer behavior", *Journal of Business Research*, Vol. 40 No. 1, pp. 79-89.
- Robinson, J.P., Shaver, D.R. and Wrightsman, L.S. (1991), *Measures of Personality and Social Psychological Attitudes*, Academic Press, San Diego, CA.
- Schlegelmilch, B.B., Bohlen, G.M. and Diamantopoulos, A. (1996), "The link between green purchasing decisions and measures of environmental consciousness", *European Journal of Marketing*, Vol. 30 No. 5, pp. 35-55.
- Schwartz, S.H. (1992), "Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries", in Zanna, M. P. (Ed.), *Advances in Experimental Social Psychology*, Vol. 25 Academic Press, San Diego, CA, pp. 1-65.

- Scott, D. and Willits, F.K. (1994), "Environmental attitudes and behavior. A Pennsylvania survey", *Environment and Behavior*, Vol. 26 No. 2, pp. 239-260.
- Shapiro, S.J. (1978), "Marketing in a conserver society", *Business Horizons*, Vol. 21 No. 2, pp. 3-13.
- Shrum, L.J., Lowrey, T.M. and McCarty, J.A. (1995), "Buying characteristics of the green consumer and their implications for advertising strategy", *Journal of Advertising*, Vol. 24 No. 2, pp. 71-82.
- Tadajewski, M. and Wagner-Tsukamoto, S. (2006), "Anthropology and consumer research: qualitative insights into green consumer behaviour", *Qualitative Market Research: An International Journal*, Vol. 9 No. 1, pp. 8-25.
- Thøgersen, J. and Ölander, F. (2002), "Human values and the emergence of a sustainable consumption pattern: a panel study", *Journal of Economic Psychology*, Vol. 23 No. 5, pp. 605-630.
- Thøgersen, J. and Ölander, F. (2003), "Spillover of environment-friendly consumer behaviour", *Journal of Economic Psychology*, Vol. 23 No. 3, pp. 225-236.
- Tilikidou, I. (2001), "Ecologically conscious consumer behaviour in Thessaloniki, Greece", unpublished doctoral dissertation, University of Sunderland, Sunderland.
- Tilikidou, I. (2007), "The effects of knowledge and attitudes upon Greeks' pro-environmental purchasing behaviour", *Corporate Social Responsibility and Environmental Management*, Vol. 14 No. 3, pp. 121-134.
- Tilikidou, I. (2008), *Ecological Marketing: A Research Approach*, Sofia Publications, Thessaloniki.
- Tilikidou, I. and Delistavrou, A. (2005), "Pro-environmental purchasing behavior: the inhibiting influence of the materialistic values", in Ziamou, P. and Zotos, Y. (Eds), *Marketing Contributions to Prosperity and Peace. Proceedings of the 9th International Conference on Marketing and Development*, International Society of Marketing and Development (CD), Thessaloniki.
- Tull, D.S. and Hawkins, D.I. (1993), *Marketing Research*, 6th ed., McMillan, New York, NY.
- Van Dam, Y.K. and Apeldoorn, A.C. (1996), "Sustainable marketing", *Journal of Macromarketing*, Vol. 16 No. 2, pp. 45-56.
- Webster, F.E. Jr (1975), "Determining the characteristics of the socially conscious consumer", *Journal of Consumer Research*, Vol. 2 No. 3, pp. 188-196.
- Zikmund, W.G. (1991), *Exploring Marketing Research*, 4th ed., The Dryden Press, Orlando, FL.

Further reading

- Tilikidou, I. (2013), "Evolutions in the ecologically conscious consumer behaviour in Greece", *EuroMed Journal of Business*, Vol. 8 No. 1, pp. 17-35.

Corresponding author

Professor Irene Tilikidou can be contacted at: irene.tilikidou@gmail.com