

The Components of Pro-Environmental Purchasing Behaviour

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Abstract: *There is no doubt that environmental expansive problems bring forward the urgent need for pro-environmental research in the agenda of almost all disciplines. It is to be acknowledged that the ecologically related research has never been in the mainstream of the marketing academic community. However, there has always been a small but dynamic team of scholars in the academic communities of EU and/or North America, who paid attention to the ecologically related marketing research, during the last three decades. So, ecological marketing research has been partially useful to understand better the broad area that has been named Ecologically Conscious Consumer Behaviour (ECCB) (Roberts 1996; Tiliakidou, 2001).*

One of the ECCB types, namely the Pro-environmental Purchasing Behaviour (PPB) has been considered to be the most important type; its examination might hopefully become a predictor of the actual market evolutions. The literature review indicated that there is much left to be further understood with reference to the insights of pro-environmental purchasing behaviour as well as with reference to the factors that are able to affect PPB.

In Greece PPB has been examined in a few studies since the middle of nineties. A number of market evolutions, such as offerings of new ecological products, make it necessary to examine a longer version of the PPB scale. Further, the severe economic crisis that has been torturing Greece since 2009, brings forward a number of unanswered issues with regard to the potential changes in consumers' pro-environmental behaviours.

This presentation includes parts of the results of an ongoing research study that aims to examine Pro-environmental Purchasing Behaviour (PPB) during the period of economic crisis in Greece. A survey was conducted in the Thessaloniki urban area, 510 questionnaires were gathered via a combination of the two-stage area sampling and the systematic sampling methods.

In an effort to examine PPB potential correlates, the following independent variables were added in the investigation: attitudes, namely Environmental Unconcern; psychographic variables, namely Materialism, Spheres of Control over politics and Universalism as well as demographics, namely Gender, Age, Education, Occupation and Income.

Further, in an effort to understand PPB better, the Principal Component Analysis (PCA) was employed. The results expanded our knowledge as they revealed two components inside the PPB scale; one that concerns actual Purchase Behaviour and one that concerns Conservation. Further analysis provided additional information with reference to the strength of negative attitudes to restrict both the above mentioned components of PPB. The results also indicated that Purchase is influenced positively and more strongly by Locus of Control than negatively by Materialism while on the contrary Conservation is more strongly inhibited by Materialism than positively affected by Locus of Control. Moreover, it was revealed that Universalism provided the stronger positive impact on Conservation while it was found unrelated to Purchase. It was also found that post-graduates are those who enhance Purchase, while women are those who enhance Conservation.

1. INTRODUCTION

The importance and urgency for environmental protection has been many times pointed out by the European Union office holders, by national Governments, society stakeholders and also by scientists coming from a plethora of disciplines. Among other socio-economic sciences, marketing discipline "needs and wants" to provide its own contribution to the desired, although difficult, goal of sustainable economic development (see among others: Van Dam and Apeldoorn, 1996; Jackson, 2005). It is to be acknowledged that the ecologically related research has never been in the mainstream of the marketing academic community (Schlegelmilch *et al.* 1996; Peattie and Crane, 2006). Nevertheless, there has always been a small but dynamic team of scholars, who paid attention to the ecologically related marketing research during the last three decades (Antil, 1984; Balderjahn, 1988; Roberts, 1996; Kilbourne, and Beckmann, 1998; Cleveland, Kalamas and Laroche, 2005; Jackson, 2005; Tadjajewski and Wagner-Tsukamoto, 2006).

Empirical research has been always partially useful to understand better the broad area that has been named *Ecologically Conscious Consumer Behaviour (ECCB)* (Roberts 1996; Tiliakidou, 2001). Some years ago, Litvan (1995) argued that no matter how much the consumers ecologically concerned are, it is questionable if anyone is going to engage in ecological consumer behaviour of any type, unless satisfying alternative choices are being offered in the market. Accepting

this argument Tilikidou (2001) suggested further that no firm would undertake the risk and the trouble to adopt and implement an ecological strategy unless it is forced by regulations or convinced that there is a profitable segment of *Ecologically Conscious Consumers* (ECCs) in the market. 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 those arguments as the ecologically related market remains marginal (Peattie and Crane, 2006) and the pro-environmental behavioural changes have been found very hard (Thøgersen and Ölander, 2002 and 2003; Jackson, 2005, p. 18; Tadjewski and Wagner-Tsukamoto, 2006).

The ecologically oriented consumer research was introduced in Greece in late nineties. Tilikidou (2001) investigated three types of ECCB, namely Pro-environmental Purchasing Behaviour, Recycling and Pro-environmental Activities, their inter-relationships and the impact of demographics and attitudes upon them. Fotopoulos and Krystallis (2002) offered more insights with regard to the market of organics. Later, during the years of economic development in Greece, it was found that Pro-environmental Purchasing Behaviour was influenced negatively by Environmental Unconcern and Materialism while positively by Spheres of Control (Tilikidou and Delistavrou, 2005).

This paper presents parts of a study, which is being implemented during the years of the severe economic crisis in Greece, aiming to focus again on Pro-environmental Purchasing Behaviour (PPB) for a number of reasons. There are new offerings of ecological products in the market, which expanded the items that should be included in a PPB measurement. This expansion in the PPB length might hide some distinct components inside the whole concept of PPB. Also, there is a need to explore the impact of the economic crisis on Greeks' adoption of PPB as well as to reveal which demographical, attitudinal and psychographical variables are able to affect PPB this period of time.

2. 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, understood Pro-environmental Purchasing Behaviour (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). More recently there have been some cases (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 been some other case in which research focused on specific products' buying (Fotopoulos and Krystallis, 2002; Fraj and Martinez, 2006).

A variety of demographical, attitudinal and other psychographical variables have been utilized to explore their potential impact on behaviour. With reference to demographics, previous research 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 and 2007; Tilikidou and Delistavrou, 2005; Gilg *et al.*, 2005). The other demographical characteristics, though, provided contradictory results and the overall picture of ecological consumers remains rather ambiguous.

With regard to attitudes, positive relationships, usually moderate, have been reported between pro-environmental attitudes and purchasing behaviour (Antil, 1984; Balderjahn, 1988; Schlegelmilch *et al.*, 1996; Roberts, 1996; Tilikidou, 2001; Fotopoulos and Krystallis, 2002; Fraj and Martinez, 2006). It has been previously claimed that the examination of negative attitudes provided better understanding of how attitudes inhibit pro-environmental behavioural change (Tilikidou and Delistavrou, 2005).

As for the psychographics, a number 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 a fact however that each psychographic variable has been used in a limited number of studies. *Alienation* was used Crosby *et al.* (1981), Balderjahn (1988) and by Pickett *et al.* (1993). Kahle's *List of Values* (1983) by Tilikidou (2001) and Fraj and Martinez, (2006). *Spheres of Control over politics* by Henion and Wilson (1976), Balderjahn (1988) and by Tilikidou and Delistavrou (2005 and 2008). Another variable, *Political Orientation*, has been introduced by sociologists (Dunlap, 1975) and later was followed by some marketing studies as well (Bohlen *et al.*, 1993; Roberts 1996; Schlegelmilch *et al.*, 1996). *Materialism* was used by Tilikidou and Delistavrou (2005) and by Tilikidou (2007) while *Universalism* was employed by Thøgersen and Ölander (2002 and 2003).

In spite of the above presented valuable contributions, it is true that there is much left to be further understood with reference to the insights of pro-environmental purchasing behaviour as well as with reference to the factors that are able to affect this type of pro-environmental behaviour at present time.

3. RESEARCH OBJECTIVES

- To examine to what extent Greek consumers are engaged in Pro-environmental Purchasing Behaviour (PPB) in overall
- To reveal potential components inside PPB
- To explore the impact of demographics and attitudes on PPB and its potential components
- To examine the influence of selected psychographic variables, namely Materialism, Universalism and Spheres of Control over politics on PPB and its potential components

4. METHODOLOGY

4.1 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 the systematic sampling (Tull and Hawkins 1993, p. 544; Zikmund 1991, p. 471). A structured questionnaire was administered to an adult person of each of 540 households and provided 510 usable questionnaires.

4.2 Variables Measurement

The main depended behavioural variable of this survey was the **Pro-environmental Purchasing Behaviour (PPB)**. **PPB** is a multi-item measure of 27 items and was measured on a 5-point scale from 0=*Never* to 4=*Always*. The scale has been initially developed by Tilikidou (2001) and was later modified by Tilikidou and Delistavrou (2008) 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 the “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*, the Environmental Unconcern scale (Tilikidou and Delistavrou, 2005) was employed, following previously made suggestions that negative attitudes would hopefully be found a stronger predictor of behaviour than positive attitudes have been. The scale contains 18 items and includes negatively phrased attitudes that in overall express indifference, disinterest, recklessness and thus they may be found able to inhibit pro-environmental behavioural changes.

With regard to *psychographics*, three variables which had indicated relationships with pro-environmental behaviours in the past were added in the inventory. These were materialistic values, universalistic values and Spheres of Control over politics.

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, the pro-environmental behaviours should be negatively affected by consumers’ bond to material goods and pleasures (Moisander and Pesonen, 2002). The scale of **Materialism** contains 21 items and it was adopted from Ger and Belk (1996). Further, the **Universalism** sub-scale, 6 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** was adopted from Paulhus (1983) and it 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 10 items. All the above mentioned constructs were measured on a 5-point Likert scale from 0=*Completely Disagree* to 4=*Completely Agree*.

With regard to *demographics*, **Gender**, **Age**, **Education**, **Occupation** and **Income** were measured on the N.S.S.G. scales.

5. RESULTS

The internal consistency of all variables was approached through Cronbach’s alpha calculation. Pro-environmental Purchasing Behaviour (PPB) provided an alpha value of 0.912, Environmental Unconcern 0.852 while Materialism, Universalism and Spheres of Control provided 0.7346, 0.8699 and 0.7607 respectively.

Table 1: PPB (Item descriptives and PCA loadings)

	PCA Loadings		Whole Sample	
	1	2	Mean	Std. Dev.
A01 I choose the environmentally friendly alternative of a product, if there is no significant price difference	0.676	0.022	1.8961	1.20534
A02 I choose the environmentally friendly alternative of a product, if there is one, regardless of price	0.718	-0.102	1.3882	1.07218
A03 I am interested in asking about the environmental consequences of a product before buying it	0.692	0.046	1.5176	1.14159
A04 I try to find eco-label products	0.731	-0.059	1.3811	1.20372
A05 I prefer to buy organic fruits and vegetables	0.613	-0.016	1.5922	1.25459
A06 I prefer environmentally friendly detergents, even if they are more expensive	0.662	-0.298	1.1686	1.17396
A07 I prefer to buy environmentally friendly detergents, even if they are not equally effective	0.638	-0.362	.9471	1.07441
A08 I would change my usual detergent brand for another, if I knew for sure that it is more friendly to the environment	0.616	0.176	1.9647	1.31887
A09 I prefer to buy recycled paper stationary	0.712	0.056	1.7275	1.32315
A10 I prefer recycled toilet paper, tissues	0.751	-0.025	1.6098	1.29784
A11 I choose the recycled paper products, although they are not as white	0.756	-0.048	1.5765	1.33306
A12 I prefer the recycled paper products, even if they are more expensive	0.740	-0.147	1.2647	1.19533
A13 I prefer organic wine	0.590	-0.284	1.1529	1.20091
A14 I prefer organic pasta	0.542	-0.213	1.2510	1.16925
A15 I prefer organic clothing	0.602	-0.323	.9471	1.12445
A16 I buy ecological toiletry	0.586	-0.154	1.2078	1.20083
A17 I buy products in recyclable packages	0.677	0.292	1.8902	1.18922
A18 I buy products in reusable containers	0.592	0.301	1.8882	1.18656
A19 I try to use less water	-0.005	0.756	2.8431	1.09961
A20 I try to use less energy	0.024	0.728	2.8725	1.08093
A21 I carry my own bags so that I don't get plastic bags from the supermarket	0.492	-0.101	1.1549	1.15818
A22 I reduce overall consumption	0.099	0.641	2.4804	1.17714
A23 I try to avoid products containing genetically modified organisms (mutants)	0.161	0.645	2.7980	1.21403
A24 I prefer energy saving bulbs (halogen, fluorine)	0.446	0.422	2.3216	1.13462
A25 I buy products in big economic packaging	0.323	0.480	2.2569	1.05017
A26 In case I am about to buy electric equipment I am interested in ascertaining it is environmental friendly	0.521	0.236	1.8255	1.15708
A27 I avoid using disposable products	0.496	0.236	1.9745	1.14445

Pro-environmental Purchasing Behaviour (PPB) takes theoretical values from 0-108. Providing a Mean of 46.9175 indicated a rather low engagement of the sample in all pro-environmental behaviours as a whole. Observation (Table 1) of the separate items' Means indicated that some of them were found significantly higher than the majority of the others (see A19, A20). For this reason it was decided to employ the Principal Component Analysis (PCA) in order to explore distinct components inside the overall PPB concept. The two necessary tests for PCA gave very well acceptable values (KMO=0.904 and Bartlett's $p=0.000$). The results of PCA in fact, indicated two sub-measures. It is observed (Table 1) that the first component includes all items that concern preferences of ecological products such as detergents, organics, eco-labelled products, bulbs, electrical equipment etc. The second component includes conservation of energy and water, overall consumption reduction etc. Thus, the first component was named **Purchase** and the second one was named **Conservation**. Purchase grouped 22 items (alpha=0.928), takes theoretical values 0-88 and providing a Mean of 33.6798 indicates low engagement of consumers. Conservation grouped 5 items (alpha = 0.741), takes theoretical values 0-20 and providing a Mean of 13.2510 indicates a rather high consumers' engagement.

Firstly, One-way ANOVA was employed in order to examine the differences in the Mean of each component across the categories of each demographical variable. Statistically significant results were found at $p<0.05$ between Purchase and Education (post-graduates obtained the larger Mean) and at $p<0.10$ between Conservation and Gender (women obtained the larger Mean).

Then Pearson's parametric correlations were applied in order to explore the sign and the strength of any statistically significant relationships between each behavioural component and each one of the independent variables (attitudes and psychographics). In Table (2) it is observed that both Purchase and Conservation indicated at $p < 0.01$ negative and moderate relationships with Environmental Unconcern (-0.314 and -0.356 respectively). On the opposite, their relationships with the psychographic variables of the respondents differ clearly. Materialism indicated a stronger negative impact on Conservation (-0.277) than on Purchase (-0.147). On the opposite Spheres of Control indicated a stronger positive impact on Purchase (0.282) than on Conservation (0.128). However, these four relationships are all rather weak. Universalism, on the other hand, indicated a moderate, positive relationship with Conservation (0.461) while no relationship with Purchase.

Table 2: The Correlates of PPB

		<i>PPB</i>	<i>Component 1 Purchase</i>	<i>Component 2 Conservation</i>
<i>Environmental Unconcern</i>	r	-0.376	-0.314	-0.356
	Sig.	0.000	0.000	0.000
<i>Materialism</i>	r	-0.200	-0.147	-0.277
	Sig.	0.000	0.001	0.000
<i>Spheres of Control</i>	r	0.295	0.282	0.128
	Sig.	0.000	0.000	0.004
<i>Universalism</i>	r	0.143	0.043	0.461
	Sig.	0.001	0.334	0.000

6. DISCUSSION AND CONCLUSIONS

This study enriched our knowledge with relevance to one of the Ecologically Conscious Consumer Behaviour (ECCB) types, namely Pro-environmental Purchasing Behaviour (PPB) as it encompassed new categories of ecological products, as well as new information with reference to the factors that were found able to influence this behaviour during the years of the economic crisis in Greece. The results of this study indicated that Greeks rather rarely get involved in PPB in overall.

Further analysis indicated that there are two meaningful components inside PPB, one that concerns actual Purchase Behaviour and one that concerns Conservation. Both components were found to be inhibited by consumers' Environmental Unconcern, which means by those attitudes that make consumers feel that environmental problems are of no much importance. This finding is consistent with previous results in the same geographical area (Tilikidou and Delistavrou, 2005; Tilikidou, 2007)

On the other hand, some clear differences were indicated between these two components. Firstly, it was found that consumers are often engaged in conservation actions while they are rather rarely engaged in ecological purchases. It has been previously commented that (Tilikidou and Delistavrou, 2005) upon measuring pro-environmental purchasing one can never be sure whether the relevant behaviours are driven by a conscious decision to help the environmental protection or they are motivated by traditional conservatism or by financial motives. The findings of this study however indicate clear preference towards conservation versus purchase, a fact that should be attributed to the economic crisis. Although incomes of Greek working classes have been cut off dramatically, the prices of the main commodities keep increasing. Given the fact that in many cases (i.e. organics) the ecological alternatives are even more expensive than the conventional products, it is hypothesized that the forthcoming sector studies will evince significant decline of the ecological products' demand. It was stated in the introduction of this paper, that consumers would not buy ecological products if these were not comparable enough with the conventional products in terms of price and efficacy. This statement should be underlined during this period as the majority of consumers could not afford high prices for almost no product, even if they wanted to buy it.

Secondly, the differences in the psychographic variables that were found able to affect each one of the PPB components, namely Purchase (locus of control/materialism) and Conservation (materialism/locus of control but mostly universalism) are to be commented. The relevant findings most probably indicate that mostly women, who are interested in equity for all people in the world, who do not hold strong materialistic values (strong bonds with possessions) are those consumers, who try to consume less. On the other hand, people who are better educated and feel powerful towards politics and politicians are those, who might actually prefer ecological product choices.

7. LIMITATIONS AND FURTHER RESEARCH SUGGESTIONS

This study has been conducted to the Thessaloniki urban area and for this reason the generalization of the results to the whole Greek population has been limited. A social desirability effect must be always taken into account in self-reported surveys with reference to topics related to social welfare. Further data analysis might provide more details with relevance to the profile of Greek pro-environmental purchasers as well as with reference to the number, the size and the profile of all other segments in this sample. Additional analyses might facilitate comparisons between the results of this study and previous findings either in the same geographical area or elsewhere. Research effort should be paid on segmenting consumers and reveal the demographic and psychographic profile of those consumers, who are the most frequent pro-environmental purchasers even during the period of economic crisis in Greece. Future research is also needed in order to expand our knowledge with reference to other types of ECCP, namely pro-environmental post-purchasing or non-purchasing behaviours during the years of the economic crisis.

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