



Analysis

Theory of planned behavior approach to understand the green purchasing behavior in the EU: A cross-cultural study

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ABSTRACT

Due to the fast growth of consumption, the promotion of purchasing green products could be a way to minimize the environmental impact and achieve the sustainable consumption. Considering that there is a lack of studies about green purchase behavior and its determinants in all European Union countries (EU), the aim of this paper is to evaluate the main determinants of green purchase behavior by applying the Theory of Planned Behavior. Referring to Hofstede's cultural dimensions we revealed how cultural aspects contribute to purchase behavior. The results showed that there were observed big differences in terms of green purchase behavior in the EU countries and it did not depend on economic development significantly. The subjective norms and interaction of knowledge and confidence in green products significantly determined the green purchase behavior in all countries. According to the cross-culture studies, all cultural dimensions did not have significant influence on green purchase behavior. However, cultural dimensions are related to factors which directly influence green purchase behavior. Therefore, due to the process of the EU cultural convergence and economic crisis, it could have indirect impact on green purchase behavior. These findings have important implication for marketers and policy makers.

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1. Introduction

Increasing consumption causes the depletion of natural resources, climate change, air pollution and waste generation. The consumption of environmentally friendly products (in this paper we entitle them as green products (GPs)) could be a way to minimize the environmental impact (Mont and Plepys, 2008; Ritter et al., 2015; Elliott, 2013). GPs are referred to as products designed to lessen the consumption of required natural resources and minimize the adverse environmental impacts during the whole life-cycles of these products (Albino et al., 2009; Janssen and Jager, 2002; Tsai, 2012; Tseng and Hung, 2013; OECD, 2009; Biswas and Roy, 2015; Barber et al., 2014; Chairy, 2012; Zhao and Zhong, 2015). The main requirements for GPs (organic food or bio- (eco-friendly) cosmetic, etc.) are that the raw material should be environmentally-friendly, grow without pesticides and chemical manure, without toxic materials; the usage of genetically modified organisms are also restricted; the package should be environmentally friendly as well. Consequently, the demand of GPs (food, cosmetic, appliances, etc.) for consumers

and business clients has increased significantly (Dangelico and Pontrandolfo, 2010; Kong et al., 2014). Meanwhile Gleim et al. (2013) estimated that market share for GPs is less than 4% worldwide and may be decreasing.

Considering that the main aim of sustainable consumption is to achieve that growth of consumption of goods and services does not worsen the environmental quality. Thus environment-friendly services and products are given a preference (Akenji, 2014; Paço et al., 2013). Therefore the promotion of GPs purchase is one of the main aspects to achieve sustainable consumption (Zhao et al., 2014). Considering that the better understanding of determinants of consumer behavior would help producers, marketers and policy makers to promote consumer habits that are less harmful towards the environment (Lin and Huang, 2012; Ritter et al., 2015; Mont et al., 2014; Huang et al., 2014), the aim of this paper is to evaluate the main determinants of green purchase behavior.

There are many research studies concerning purchase behavior, especially about organic (sustainable) food purchase (Gracia and Magistris, 2007; Vermeir and Verbeke, 2008; de Maya et al., 2011; Grankvist and Biel, 2007). However, research studies exploring purchases of eco-friendly cosmetic, personal care or appliances products are rather scarce (Kim and Chung, 2011; Cervellon and Wernerfelt, 2012). Analyzing the determinants of GPs purchase, most studies cover developing countries: India (Biswas and Roy, 2015; Kumar,

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2012), Taiwan (Chen and Chang, 2012; Wu and Chen, 2014; Lin and Huang, 2012; Huang et al., 2014), Malaysia (Tan, 2011; Onwezen et al., 2014), Brazil (Ramayah et al., 2010; Ritter et al., 2015), Indonesia (Chairy, 2012), and China (Zhao et al., 2014). As for the developed countries, most studies analyzed GPs purchase in the USA (Matthes et al., 2014; Barber et al., 2014; Onwezen et al., 2014; Cho et al., 2013; Elliott, 2013). Meanwhile in terms of European Union (EU), most authors analyzed only separate countries as: Belgium (Vermeir and Verbeke, 2008), Italy (Gracia and Magistris, 2007), Sweden (Leire and Thidell, 2005; Grankvist and Biel, 2007), and United Kingdom (Kanchanapibul et al., 2014). Only de Maya et al. (2011) analyzed GPs consumption and its determinants in eight EU countries, Paço et al. (2013) in four, and Onwezen et al. (2014) in three EU countries. Thus there is a lack of studies about green purchase behavior and its determinants in the entire EU, where the consumption level is rather high. Moreover, all the EU countries committed to achieve the sustainable consumption, which is concurrent with promotion of GPs consumption.

Analyzing main determinants which influence the GPs purchase and consumption, the authors referred to different theories. The main factors included in their analyses are environmental concern, knowledge (Newton et al., 2015; Kanchanapibul et al., 2014), attitude, values (Gilg et al., 2005; Chairy, 2012; Barber et al., 2014; Paço et al., 2013; Ramayah et al., 2010), consciousness (Huang et al., 2014; Boztepe, 2012), and perceived consumer effectiveness (Zhao et al., 2014; Cho et al., 2013; Tan, 2011). These factors generally can be attributed to the environmental attitude and the perception of environmental friendly behavior. However these analyses are rather simplex whereas other factors, such as social context and different circumstances can also contribute to GPs purchase. Other authors who analyzed main determinants of GPs purchase were guided by Consumption Value Theory. It takes into consideration functional, social, conditional and environmental values (Lin and Huang, 2012; Ritter et al., 2015; Matthes et al., 2014; Biswas and Roy, 2015). However, the most applicable theory of GPs purchase determinants is the Theory of Planned Behavior (TPB) (Kumar, 2012; Vermeir and Verbeke, 2008; Gracia and Magistris, 2007; Wu and Chen, 2014; de Maya et al., 2011), which partially encompassed Consumption Value Theory as well. The TPB factors are divided into: a) attitude towards the behavior b) subjective norms and c) perceived behavioral control (Ajzen, 1991). All studies explain how aforementioned factors influence the intentions to purchase GPs (Gracia and Magistris, 2007; Wu and Chen, 2014; Kim and Han, 2010). Nevertheless in this study we analyzed how factors of TPB directly determine the GPs purchase behavior. Moreover we have renewed this theory including interaction of knowledge and confidence in GPs instead of attitude towards the behavior. Taking into account the factor of perceived behavior control, we included the convenience level and importance of price.

In addition, as we analyzed all EU countries, it is relevant to consider how cultural aspects contribute to green purchase behavior. Particularly it is very important as there are only a few studies that consider cultural aspects (mostly the level of individualism) (Onwezen et al., 2014; Cho et al., 2013). Thus further in this study referring to Hofstede's cultural dimensions we reveal how cultural aspects contribute to purchase behavior in the EU countries. At the same time we try to ascertain the implication of culture convergence and economic crisis, which are related to changes in values of cultural dimensions, to green purchase behavior and could brought the valuable further insights.

Therefore, this paper is organized as follows: Section 2 briefly reviews the literature on TPB and cross-cultural studies. Section 3 explains methodology. The results are presented in Section 4. The discussion and policy implications are to be found in Section 5. And Section 6 produces the main conclusions and the suggestions for future research.

2. Literature Review

2.1. Theory of Planned Behavior

The central dependent variable of TPB is consumer intention, which is an indication of a person's readiness to behave in a certain way (Ajzen, 1991). Many studies only explain intentions and generally assume that they are good predictors of behavior and fully mediate the impact of attitude and subjective norm towards the behavior (Gracia and Magistris, 2007; Wu and Chen, 2014). Furthermore, Kim and Han (2010) declared that intention is still accepted as the best available predictor of behavior. Meanwhile De Cannière et al. (2009) declared that the predictive power of intentions on real behavior is low. Other authors found the action gap between intentions and behavior. The most common explanations for this action gap are the confidence in GPs and higher price that these products usually command (Bazoche et al., 2008; Barber et al., 2014; Steg et al., 2014). Thus in this study we evaluate how factors of TPB directly contribute to the purchase of GPs.

2.1.1. Knowledge and Confidence in GPs

According to TPB, attitude towards the behavior refers to degree to which a person has a favorable evaluation of certain behavior. In our analysis we have expand attitude concept and analyze impact of interaction of knowledge and confidence in GPs on purchase behavior.

Knowledge is the amount of information held in one's memory that affects the way in which consumers interpret and assess available preferences (Tan, 2011). Environmental knowledge has frequently been assumed to be the main motivator of green consumer behavior (Peattie, 2010; Zhao et al., 2014). Consumers who are more knowledgeable about the problems associated with the environment as well as the advantages of using GPs may have more positive attitudes towards GPs (Bang et al., 2000; Tseng and Hung, 2013). Thus environmental knowledge and knowledge of GPs has a positive relationship with purchase of GPs (Kumar, 2012; Zhao and Zhong, 2015; Kanchanapibul et al., 2014; Tan, 2011; Gracia and Magistris, 2007). The environmental information guides consumers by pointing out the environmentally preferable products among otherwise equal ones and engage citizens to behave more environmentally friendly (Gilg et al., 2005; Tseng and Hung, 2013; Grankvist and Biel, 2007). Biswas and Roy (2015); Ritter et al. (2015) and Young et al. (2010) stated that lack of consumer information about GPs often results in an attitude-behavior gap between their environmental concern and actual buying behavior.

Meanwhile other authors indicated that there is no significant linkage between knowledge of GPs and green consumer behaviors (Zhao et al., 2014). Consumers do not think about GPs in a buying situation, suggesting that single 'green' message of the products is not enough to make it into the shoppers' set of considerations (Wheeler et al., 2013). Moreover the consumers are reported to be lacking in the time and financial resources for searching and examining environmental information during the purchase situation (Leire and Thidell, 2005).

The knowledge about GPs is related to confidence in these products (Kong et al., 2014; Leire and Thidell, 2005; Young et al., 2010; Godey et al., 2012; Vermeir and Verbeke, 2008). Confidence in GPs is defined as a level of trust and it is based on the expectation of its ability and reliability (Chen, 2010; Chen and Chang, 2012). Moreover, Harris and Goode, 2010; Chen and Chang, 2012 found that the confidence in GPs significantly affected the consumer purchase intentions. However corporations often make misleading claims of environmental benefits, thus consumers become hesitant to believe such claims (Kaufman, 2014).

2.1.2. Subjective Norms

Subjective norms can be comprehended as the perceived social force to carry out a particular behavior (Ajzen, 1991). Moreover, it reveals the extent to which an individual feels morally responsible for others by buying GPs and how positive social image is important to him/her

(Barber et al., 2014). Vast number of research studies declared that social pressure encourages consumers to purchase GPs and is one of the dominant factor influencing sustainable consumption (Biswas and Roy, 2015; Zhao et al., 2014; Lorek and Fuchs, 2013; Wang et al., 2014; Ritter et al., 2015). Vermeir and Verbeke (2008) revealed that subjective norms positively influence behavioral intention towards purchasing sustainable dairy products.

However other authors found that subjective norms are related to purchase intention insignificantly (Kumar, 2012). Lin and Huang (2012) declared that social value does not have a significant impact on choice behavior. This may occur because some respondents did not feel that “going green” increases social approval or makes a good impression.

2.1.3. Convenience Level and Importance of Price

According to TPB, perceived behavioral control indicates whether the consumer can easily consume a certain product or whether its consumption is difficult or impossible (Ajzen, 1991). In our analysis, instead of perceived behavioral control, we encompassed two factors: convenience level and the importance of price.

The convenience level reveals if green product is easily available and if they have good value for money. Thus it is very important that green brands should be familiar and more accessible (Leire and Thidell, 2005; Grankvist and Biel, 2007; Wheeler et al., 2013; Lin and Huang, 2012) whereas labels are an important kind of manifestation of symbolic value of products (Liu et al., 2015; Godey et al., 2012; Tseng and Hung, 2013; Young et al., 2010; Kong et al., 2014). Vast number of studies shows that GP features can help differentiate products and increase green purchase behavior (de Maya et al., 2011; Boztepe, 2012; Kaufman, 2014; Ramayah et al., 2010; Liu et al., 2015; Kong et al., 2014). However, historically ‘green’ brands have had associations of low quality (Vantomme et al., 2004). On the other hand Kumar (2012) found that perceived benefit (to environment and health) of GPs was the most effective factor triggering green consumption behavior. Moreover “going green” becomes fashionable which also promotes the GPs purchase (Wheeler et al., 2013).

Due to additional cost for better raw materials and labeling authentication, green products are usually sold at a higher price as compared with conventional products (Ling, 2013; Zhao and Zhong, 2015). However price level is the main reason not to buy GPs (Young et al., 2010; Boztepe, 2012; Steg et al., 2014; Wheeler et al., 2013). On the other hand researchers found that consumers would be willing to pay a higher price for “green” goods, but only if they were of higher quality than conventional goods (Barber et al., 2014; Brecard et al., 2009; Kaufman, 2014). Additionally in terms of price it is very important to consider income level as well. Grankvist and Biel (2007) showed that income was significantly associated with the tendency to buy and use organic foods.

2.2. Cross-Cultural Studies of Green Purchase Behavior

Culture plays a significant role in environmental impacts and influences the consumption of green products (Tseng and Hung, 2013; Ritter et al., 2015; de Maya et al., 2011). Onwezen et al. (2014) found that there are differences between collectivistic and individualistic cultures in how emotions are evoked and how they affect intentions to purchase GPs. Cho et al. (2013) revealed that collectivism and individualism are important influencers of perceived consumer effectiveness. Voldnes et al. (2012) stated that individualism/collectivism moderated the effect of trust and performance in long-term orientation by investigating buyer–supplier relationships in international markets. However generally there is a lack of studies where culture aspects are included in exploring GP purchase behavior in the EU countries.

The vast number of research studies analyzing cultural influence on behavior referred to the Hofstede's cultural dimensions (Millan et al., 2013; Engelen and Brettel, 2011). Moreover, in the marketing field

Hofstede's dimensions have been linked to phenomena such as acculturation to global consumer culture (Cleveland and Laroche, 2007; Millan et al., 2013; Perner et al., 2014). In this paper we analyzed influence of six Hofstede's cultural dimensions (Hofstede, 2001) on GP purchase behavior and its determinants:

- 1) *Masculinity* — refers to values associated with the distribution of emotional gender roles in a society. Masculine societies place greater importance on assertiveness, competition, performance, achievement, and success;
- 2) *Power distance* — is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally. High power distance societies emphasize wealth, power, prestige, privileges, and status symbols;
- 3) *Individualism* — is the culture where loose ties among people prevail. These cultures nurture independence, personal achievement, pleasure, self-reliance, and competition;
- 4) *Uncertainty avoidance* — indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. In cultures with high uncertainty avoidance people feel anxious about ambiguous and risky situations and seek stability and predictability. In cultures with low uncertainty avoidance people tolerate unstructured situations and tend to be innovative, entrepreneurial, and less apprehensive.
- 5) *Long term orientations* — foster pragmatic virtues oriented towards future rewards such as saving, persistence, and adapting to changing circumstances in particular.
- 6) *Indulgence* — stands for a society that allows relatively free gratification for basic and natural human drives related to enjoying life and having fun.

Furthermore, Melnikas (2014) revealed that due to globalization and convergence integral cultural space in Europe exists as a general system of priority values, stereotypes of social behavior, lifestyle patterns and moral and spiritual standards. Moreover the EU enlargement determined that the new EU members quickly adopted Western lifestyle (Liobikienė and Mandravickaitė, 2011). Thus the process of culture convergence in the EU, when Central and Eastern European countries are integrating into common European cultural space, could contribute to changes in GP purchase behavior.

3. Methodology

In order to evaluate the main determinants of green purchase behavior in the EU countries, we referred to Eurobarometer survey conducted in 2012. This survey encompassed even 23 questions concerned the topics of environmental friendly and green purchase behavior and attitudes. However in this study we involved only these items which correspond to the theory of Planned Behavior. Furthermore this survey was carried out by TNS political & social network in 28 member states of the European Union. Respondents from 15 years were interviewed via telephone in their mother tongue on behalf of Directorate-General for Environment. The detailed interview methods and confidence intervals of separate EU country are presented in the report of European Commission (European Commission, 2013). The study covers all the EU countries: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (GE), Greece (GR), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SL), Spain (ES), Sweden (SE), and United Kingdom (UK). In this study due to the lack of data only Luxemburg is excluded.

Analyzing the impact of economic development on green purchase behavior and its determinants, the GDP per capita in PPP (constant 2005 international \$) was used, which is suitable for comparison of the EU countries' economic development.

The generalized linear regression model was applied to evaluate the main direct determinants of green purchase behavior. Applying the TPB, which is presented in Fig. 1, we analyzed impact of interaction of knowledge and confidence in GPs, subjective norms, convenience level and importance of price on green purchase behavior.

The items of scale corresponding to the TPB are presented in Table 1. The scale's (knowledge of GP, Confidence in GPs, subjective norms, convenience level) reliability statistics in the EU countries applying Cronbach's alpha vary from 0.5 to 0.86 and could be used to the generalized linear regression model. The independent variable of green purchase behavior revealed how often person buys the GPs (scale from often to never). Respondents, who did not know that GPs are products that have less negative impacts on the environment during production, use and disposal compared to other products, are excluded from this analysis.

In order to evaluate impact of cultural dimensions on green purchase behavior and its determinants, there was referred to six Hofstede's cultural dimensions (masculinity, power distance, individualism, uncertainty avoidance, long term orientations, indulgence). The data was received from <http://geert-hofstede.com/lithuania.html> webpage. The intervals of values of cultural dimensions were from 0 to 100. For evaluating the relationship between values of cultural dimensions and the green purchase behavior and its determinants, the Spearman correlation coefficient was applied. Moreover the correlation coefficient was used analyzing the impact of economic development on green purchase behavior and its determinants.

4. Results

4.1. The GDP Impact on Green Purchase Behavior and its Determinants

In the EU there was observed a big difference in terms of green purchase behavior. Austria is the only country where the relative majority of citizens often buy GPs. This behavior is also prevalent in Germany and Slovenia. Meanwhile in Bulgaria, Italy, Lithuania and Romania citizens purchase GPs the most seldom. Furthermore the results revealed that the level of green purchase behavior did not depend on economic development significantly (Fig. 2). Thus the income level is not the main factor determining the green purchase behavior, i.e. there are other factors which have impact on purchase behavior.

Table 1
Items of scale, corresponding to the TPB.

Construct	Items
Knowledge of GPs	<ul style="list-style-type: none"> In general how much do you know about the environmental impact of the products you buy and use? Do you agree that buying environmentally-friendly products can make a real difference to the environment?
Confidence in GPs	<ul style="list-style-type: none"> How confident are you that when you buy a product labeled or otherwise indicated as environmentally friendly, it will cause less damage to the environment than other products? In general how much do you trust producers' claims about the environmental performance of their own products? In general how much do you trust companies' reports on their own environmental performance?
Subjective norms	<ul style="list-style-type: none"> Do you feel that using environmentally-friendly products is 'the right thing to do'? Do you agree that buying environmentally-friendly products sets a good example? Will your family or friends think it's a good thing if you use environmentally-friendly products?
Convenience level	<ul style="list-style-type: none"> Do you agree that environmentally-friendly products are easily available in shops? Do you agree that it is easy to differentiate environmentally-friendly products from other products? Do you agree that environmentally-friendly products are good value for money?
Importance of price	<ul style="list-style-type: none"> Would you say that, when making a decision on what products to buy, the price of the product is important?

The values of TPB factors differ in the EU countries as well. Taking into account the knowledge of GPs, the highest level was observed in Slovenia, Portugal and Austria, the lowest in France, United Kingdom, Finland and Sweden. Thus in the latter countries people know about GPs the least. The impact of economic development on the level of knowledge of GPs was insignificant (Fig. 3A). In turn the mean of confidence level in GPs in all EU countries was rather average – about 2.5 score (1 – strong, 4 – weak confidence level). In addition, in Germany citizens have the lowest level of confidence in GPs. Meanwhile people from Malta and Portugal trust GPs and their supply companies the most. The level of economic development has insignificant impact in this instance as well (Fig. 3B).

The convenience level also did not depend on economic development. The highest value of convenience level was observed in

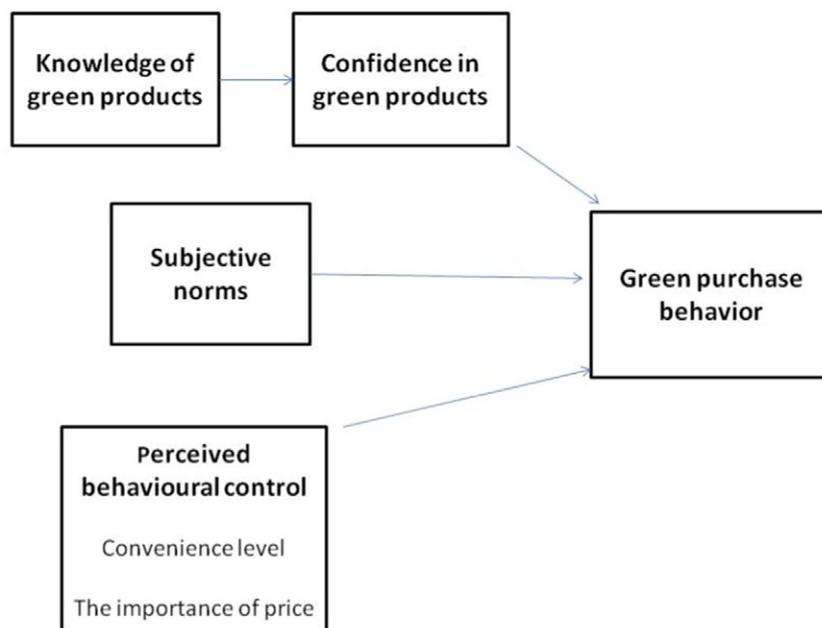


Fig. 1. Scheme of TPB.

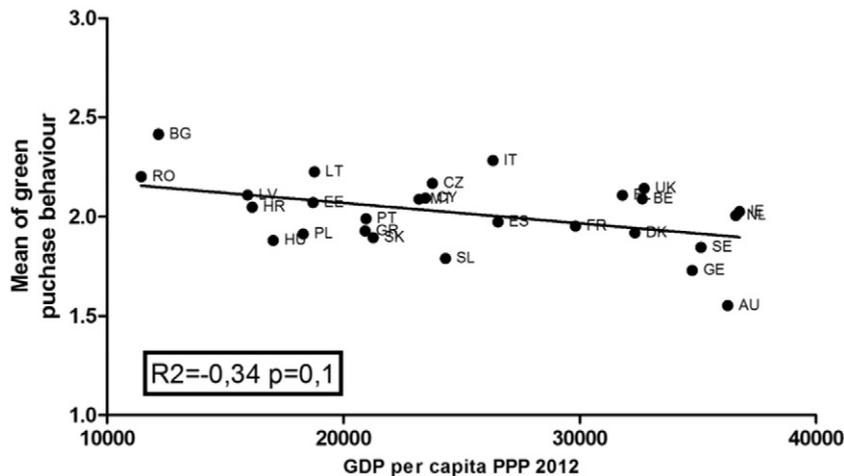


Fig. 2. Relationship between mean values of green purchase behavior (1 – often buy GPs, 5 – never buy GPs) and GDP level.

Romania. Meanwhile in Estonia, Spain and Germany the level of convenience are the lowest. Consequently in the latter EU countries GPs are less available and people declare that GPs are not worth their money (Fig. 3C). The importance of price also differs in the EU countries and did not depend on economic development. In the decision process the price is most important for citizens in Estonia and Portugal and the least important in Denmark, Sweden and Germany (Fig. 3D).

Only the level of subjective norms significantly depended on economic development. Thus in less developed EU countries the individual feels more morally responsible for others by buying GPs. The highest level of subjective norms was observed in Portugal, Slovenia, Malta and Romania, the lowest in Netherlands (Fig. 3E).

4.2. Determinants of Green Purchase Behavior

Applying the TPB results there was revealed that in all the EU countries subjective norms had the biggest influence on green purchase behavior. The interaction of knowledge and confidence of GPs also significantly determined the purchase behavior in all the EU countries (except Estonia), however, in lower level than subjective norms (Table 2).

Meanwhile the convenience level had impact on green purchase behavior only in Austria, Sweden, Denmark and Czech Republic. The importance of price level negatively determined the green purchase behavior in Italy, Sweden, Bulgaria, Estonia, Czech Republic and Croatia. Thus in these countries people whom price is more important buy green products more seldom (Table 2).

4.3. The Cultural Dimension Impact on Green Purchase Behavior and its Determinants

Referring to the data presented by Hofstede Centre, results revealed that all cultural dimensions did not have significant influence on green purchase behavior in the EU. However, cultural dimensions are related to factors which directly influence green purchase behavior. Results show that people in higher Power distance cultures had stronger subjective norms. Meanwhile the EU countries characterized with higher level of individualism had less knowledge of GPs and less subjective norms (Table 3).

Furthermore, people in the EU countries where uncertainty avoidance is higher had more knowledge of GPs, gave more importance to subjective norms and as well as prices. The level of cultural dimension regarding long term orientation had negative significant impact on the level of confidence in GPs in the EU (Table 3).

5. Discussion, Policy Implications and Limitations

Applying the TPB in all the EU countries, the subjective norms had the biggest influence on green purchase behavior. Thus the more European people agree that buying GPs is the right thing to do, set a good example to others, and their family or friends supports this behavior, the more often they buy GPs. That the social pressure encourages consumers to purchase GPs found other authors as well (see Biswas and Roy, 2015; Zhao et al., 2014; Lorek and Fuchs, 2013; Wang et al., 2014; Ritter et al., 2015). However, the subjective norms are the only variables which significantly depend on economic development. The EU countries where the GDP level is higher are characterized with lower subjective norms. This tendency is not favorable in terms of EU convergence process (Liobikienė and Mandravickaitė, 2011) when less economically developed countries approach GDP level of the developed countries. Therefore it is very important that in the case of economic growth the level of subjective norms would be uniform or better – increase. Thus marketers need to emphasize the central role of social force in green purchase behavior. Meanwhile the policy should support the incentives of marketers in order to promote the green purchase behavior highlighting a positive social image.

According to the cross-cultural study, the subjective norms have higher influence in high power distance EU countries, where societies emphasize wealth, power, prestige, privileges, and status symbols more. Considering that wealth and power are values which are inherent in the Western EU countries and consequently in the case of cultural convergence in the EU, the level of subjective norms should increase and indirectly contribute to the enhancement of green purchase behavior.

Moreover, cultural dimension of uncertainty avoidance has an impact on subjective norms as well. In the cultures where people feel more anxious about ambiguous and risky situations, they have stronger subjective norms. However, this cultural dimension is related to economic situation and particularly to economic crisis, when people experienced the uncertainty about economic situation and the future even in the countries which have low uncertainty avoidance. Therefore current economic crisis can contribute to the increased level of subjective norms and indirectly to GPs purchase as well. Moreover there is very important that in the case of economy recovery policy should promote that people experiencing the economic crisis should more seek stability and predictability.

The level of subjective norms significantly depends on individualism level of the EU countries as well, however, dependence is negative. Other authors also confirmed that subjective norms are negatively related to the level of individualism (Kumar, 2012). Thus the more individualistic people are the less subjective norms they accept. However, the

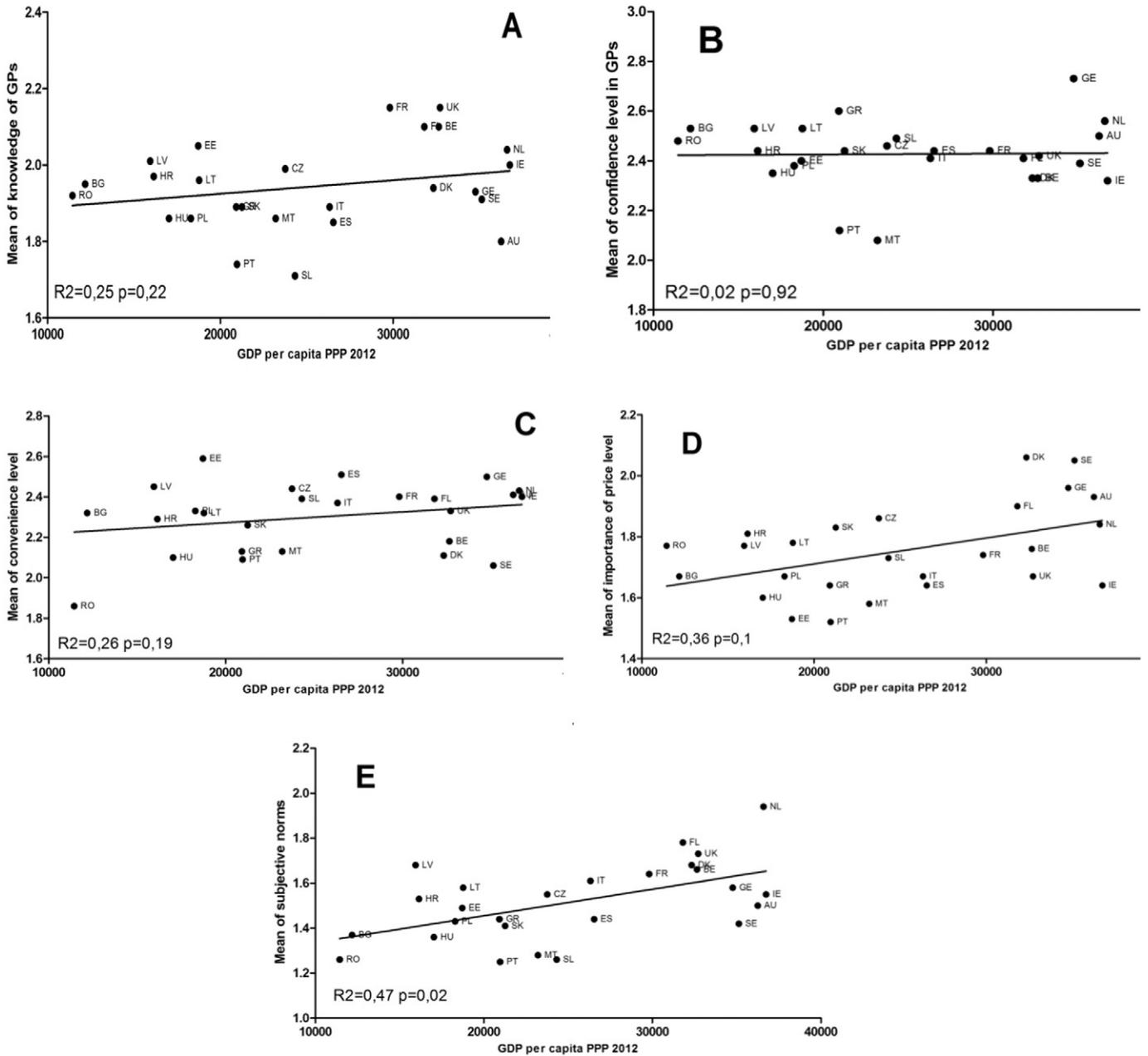


Fig. 3. Relationship among mean of knowledge of GPs (A), confidence in GPs (B), convenience level (C), importance of price (D), subjective norms (E) (1 – strong level, 4 – weak level) and GDP level.

propagation of individualistic culture which is established in the Western EU countries can negatively contribute to the increased impact of subjective norms. Despite that the spread of individualism can aggravate enhancement of subjective norms, the best approach for policy and marketers would be to increase social awareness of the relevance of purchasing GPs. (de Maya et al., 2011; De Canniere et al., 2009).

One more factor which significantly influences the green purchase behavior in all EU countries (except Estonia) is interaction of knowledge and confidence in GPs. Other authors also confirmed that environmental knowledge (Kumar, 2012; Ritter et al., 2015; Zhao and Zhong, 2015; Kanchanapibul et al., 2014; Tan, 2011; Gracia and Magistris, 2007) and confidence in GPs (Tseng and Hung, 2013) have positive impact on green purchase behavior. Therefore these findings highlight the necessity for policymakers to promote the ecological education and provision of more information about green products and its impact on environment. Moreover policy should contribute to enhance the confidence

of GP via promotion of clarify and trustful eco-labeling policy implementation.

Taking into account the cross-cultural studies, the results showed that the level of knowledge of GPs is significantly influenced by cultural dimension, i.e. individualism and uncertainty avoidance. High uncertainty avoidance has positive impact on GPs knowledge. Therefore, current economic crisis could contribute to bigger interest on GPs and indirectly enhance the green purchase behavior. Individualism likewise subjective norms had a negative impact on the level of knowledge of GPs. Therefore, as the spread of individualism occurs, in seeking promotion of GPs purchase it is very important to engage people to have more interest in GPs. Moreover, providing knowledge in order to translate environmental concern into environmental purchase behavior is essential as well (Newton et al., 2015; Kumar, 2012).

The confidence level in GPs is rather average in the EU countries. Moreover, according to cross-cultural studies it significantly depends

Table 2
Regression of green purchase behavior.

	Interaction of knowledge and confidence in GPs	Subjective norms	Convenience level	Importance of price	R2
Austria	0.063*	0.23*	0.118*	-0.006	0.22
Belgium	0.116*	0.502*	-0.014	-0.034	0.32
Bulgaria	0.123*	0.42*	-0.017	-0.152*	0.23
Croatia	0.15*	0.218*	-0.002	-0.165*	0.24
Cyprus	0.113*	0.326*	0.09	0.023	0.35
Czech Republic	0.107*	0.403*	0.142*	-0.095*	0.29
Denmark	0.1*	0.172*	0.345*	-0.041	0.42
Estonia	0.021	0.429*	0.084	-0.17*	0.29
Finland	0.172*	0.308*	0.109	-0.054	0.35
France	0.102*	0.514*	0.034	-0.058	0.34
Germany	0.109*	0.254*	0.087	0.011	0.36
Greece	0.089*	0.141*	0.057	0.027	0.25
Hungary	0.133*	0.217*	0.009	-0.052	0.27
Ireland	0.147*	0.303*	0.095	-0.073	0.35
Italy	0.122*	0.39*	0.012	-0.092*	0.27
Latvia	0.072*	0.465*	0.003	-0.015	0.25
Lithuania	0.156*	0.208*	0.012	0.025	0.27
Malta	0.125*	0.336*	0.109	-0.08	0.31
Netherlands	0.113*	0.223*	0.041	-0.063	0.29
Poland	0.121*	0.364*	0.094	-0.031	0.29
Portugal	0.148*	0.33*	-0.029	0.013	0.22
Romania	0.179*	0.279*	-0.043	-0.003	0.24
Slovakia	0.112*	0.286*	0.075	-0.045	0.25
Slovenia	0.113*	0.236*	-0.053	-0.035	0.21
Spain	0.123*	0.244*	0.017	-0.004	0.22
Sweden	0.085*	0.469*	0.097*	-0.066*	0.4
United Kingdom	0.12*	0.456*	-0.013	-0.057	0.37

* $p < 0.005$.

only on cultural dimension of long term orientations. Thus in the EU countries where long term orientations are the lowest, people live neglecting their future, confidence level in GPs and their suppliers are higher and perceived as more trustable. The long term orientation fosters pragmatic virtues, oriented towards future rewards, i.e. adapting to changing circumstances in particular. Consequently in the context of economic crisis and its lessons, when long term orientation is propagated, it could have negative impact on confidence in GPs and indirectly on the green purchase behavior. Therefore companies must enhance their green trust in order to raise green purchase behavior (Chen and Chang, 2012). Meanwhile policymakers should promote the implementation of strict, clarify and fair green labeling policy.

Taking analysis further, the convenience level had significant impact on green purchase behavior only in Austria, Sweden, Denmark and Czech Republic. Thus it is very important that in these countries green products would be readily accessible, easy to differentiate and be worth their money. This factor did not depend on economic development or separate cultural dimensions significantly. Thus for policy it is very important to develop marketing of GPs and to enhance the supply of these products in all EU.

The importance of price negatively determined the green purchase behavior in Italy, Sweden, Bulgaria, Estonia, Czech Republic and Croatia. Thus in these countries people whom price is more important buy green products more seldom. Other authors also confirmed that

price level is the main reason not to buy GPs (Young et al., 2010; Boztepe, 2012; Steg et al., 2014; Wheeler et al., 2013; Barber et al., 2014).

However, the importance of price level did not depend on economic development. Thus in the rich EU countries the price is not less important as in rich countries where price level is rather high (Liobikienė and Mandravickaitė, 2011). According to the cross-cultural studies, in the EU the importance of price was significantly related to uncertainty avoidance. In the cultures where people feel more concern about risky situations, there was observed higher level in importance of price. However, seeking that the price level should not be a barrier from buying GPs, government policies should narrow the price gap by subsidizing the consumption of the GPs or taxing the consumption of the conventional products (Kaufman, 2014; Lin and Huang, 2012).

The limitation of our study is that the R square and reliabilities of scales could be better and there should be more items revealed the scales of dependent variables. However referred to Eurobarometer survey we revealed the main determinants of GPs behavior in all EU countries applying the partial TPB model. Moreover general green purchase behavior there is considered in the analysis. The findings of analysis could be valuable in analyzing the purchase behavior of separate categories as: green (organic) food, drink, cosmetic, personal care and appliance products. Furthermore referred to Hofstede's cultural dimensions in separate EU country we could approximately reveal how cultural aspects contribute to purchase behavior and its determinants. However there is need more elaborate analysis of culture impact on green purchase behavior.

6. Conclusion and Suggestions for Future Research

The level of green purchase behavior differs in all the EU countries. Austria was the only country where majority of citizens often buy GPs. Meanwhile in Lithuania, Italy, Romania and Bulgaria people buy GPs the most seldom. Moreover the level of green purchase behavior did not significantly depend on economic development. Thus income is not the main factor determining the green purchase behavior.

Application of the TPB results revealed that in all the EU countries subjective norms have the biggest influence on green purchase behavior. However, subjective norms are the only variable which significantly depends on economic development. This tendency is not favorable in terms of the EU convergence process. The interaction of knowledge and confidence in GPs also significantly determine the green purchase behavior in all the EU countries (except Estonia), however, at lower level than subjective norms. Meanwhile the convenience level had significant impact on green purchase behavior only in Austria, Sweden, Denmark and Czech Republic. The importance of price level negatively determined green purchase behavior in Italy, Sweden, Bulgaria, Estonia, Czech Republic and Croatia. Analyzing the main determinants of green purchase behavior, for future research we suggest including in analysis more internal variables, such as: perceived consumer effectiveness, attitude towards the behavior; or variables concerned with perceived behavioral control as: the sufficiency of GPs. Moreover, it would be useful to apply the TPB in analyzing the determinants of different categories of GPs, for example, organic personal care, beauty

Table 3
Matrix of correlation coefficient.

Cultural dimensions	Power distance	Masculinity	Individualism	Uncertainty avoidance	Long term orientation	Indulgence
Knowledge of GPs	0.21	0.21	-0.51*	0.43*	-0.34	-0.05
Confidence in GPs	-0.11	0.11	0.23	0.04	-0.48*	0.31
Subjective norms	0.51*	0.14	-0.68*	0.53*	-0.22	-0.27
Convenience level	0.26	-0.02	-0.1	0.25	-0.36	0.14
Importance of price	0.29	0.23	-0.17	0.53*	-0.28	-0.22
Green purchase behavior	-0.15	0.16	-0.03	-0.04	-0.18	0.37

* $p < 0.05$.

products, etc., as the purchase of different categories of products could be determined by distinct factors.

According to the cross-cultural studies, all cultural dimensions did not have significant influence on green purchase behavior in the EU. However, cultural dimensions are related to factors which directly influence green purchase behavior. Power distance had a significant impact on subjective norms. Thus in the case of cultural convergence, when all the new EU members achieve the level of the Western EU countries with their main values of power and wealth were evaluated rather favorably. Additionally, cultural convergence via the promotions of subjective norms could contribute to the increase of GPs purchase indirectly. Meanwhile level of individualism had negative impact on knowledge of GPs and subjective norms. Consequently the propagation of individualistic culture which is established in the Western EU countries could indirectly but negatively contribute to the green purchase behavior.

Cultural dimension of uncertainty avoidance has significant impact on subjective norms, knowledge of GPs and importance of price level. This cultural dimension is related to economic crisis, when people experience the uncertainty about economic situation and the future even in the countries with low uncertainty avoidance. Thus, taking into account the knowledge of GPs and subjective norms, current economic crisis could indirectly contribute to the increase of green purchase behavior. However, in terms of the importance of price, economic crisis could have negative outcomes. The long term orientation had a negative impact on confidence in GPs. Consequently in the context of economic crisis and its lessons, when long term orientation is propagated, it could indirectly and negatively impact green purchase behavior as well. However there is need more elaborate analysis of culture impact on green purchase behavior. Moreover considering that the cultural dimension in time could shift, the question about real contribution of the EU cultural convergence and the sequences of economic crisis, to green purchase behavior is left for the future research to reveal as well.

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