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Research report

Consumers' beliefs and behavioural intentions towards organic food. Evidence from the Czech Republic ☆

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ABSTRACT

Research has revealed that organic consumers share beliefs about positive health effects, environmentally friendly production and better taste of organic food. Yet, very little is known about the decisions of organic consumers in post-socialist countries with emerging organic food markets. In order to examine this area a representative data set ($N = 1054$) from the Czech Republic was used. Target group of the study has become the Czech consumers that purchase organic food on regular basis. The consumers' behaviour was conceptualised with the use of the theory of planned behaviour (ToPB). Firstly, the ToPB model was tested, and secondly, belief-based factors that influence the decisions and behaviour of consumers were explored. The theory proved able to predict and explain the behaviour of Czech organic consumers. The best predictors of the intention to purchase organic food are attitudes towards the behaviour and subjective norms. Decisive positions in consumers' beliefs have product- and process-based qualities.

Introduction

Official statistics show that, in the year 2009, a total of 9.3 million hectares of agricultural land in Europe was organically farmed on more than 250 thousand farms (Willer & Kilcher, 2011). Despite slowed growth in the past few years, organic farming and organic food production are among the fastest growing agricultural sectors and receive significant political support (Dabbert, Häring, & Zanoli, 2004; Padel & Lampkin, 2007). In addition to the Common Agricultural Policy, organic production is also a tool for agricultural product quality policy and is systematically promoted in EU member states through specific informational campaigns (EC, 2007, 2010). These trends are somewhat at odds with the level of organic food consumption, which remains fairly low. Even in countries with matured organic sectors (such as Switzerland, Austria, and Denmark), organic food consumption is barely more than 5% of total food consumption (Willer & Kilcher, 2011).

In the last two decades, numerous studies have examined organic food consumption and its determinants in order to understand the conditions under which organic consumers make their purchases. Excellent reviews of the findings can be found in the paper by Aertsens, Verbeke, Mondelaers, and Van Huylenbroeck (2009). The author also pointed out the role of the theory of planned behaviour (ToPB) in these studies (Ajzen, 1991, 2005), which has been widely used for understanding organic consumers' behaviour in diverse social and cultural contexts.

Looking at the decisions of consumers, available evidence suggest that consumer choices of organic food seem to be based on similar justification and reasons, whereas individual attitudes towards organic food are primarily based on beliefs about benefits (Thøgersen, 2009). These values are derived from beliefs about positive health effects, environmentally friendly production and better taste of organic food, as was found out by many studies undertaken in different parts of the world (Aschemann, Hamm, Naspetti, & Zanoli, 2007).

The above mentioned evidence suggests that the organic consumption in the developed countries in Europe somehow follows an identical pattern derived from common values that have put in practice original ideas of the organic movement. The notion of the "pan-European values" accentuates global character of the movement, which has significantly shaped demand for organic food in the second half of the 20th century (Conford, 2001; Reed, 2010; Vogt, 2007). At the same time, there is an ample evidence that value systems of consumers differ with regard to their cultural background (Ter Hofstede, Steenkamp, & Wedel, 1999). This thesis has been confirmed in different contexts, including the organic consumption – as was showed by Ruiz de Maya, Lopez-Lopez, and Luis Munuera (2011), who identified nuanced but numerous differences among different groups of consumers in selected European countries.

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Closer look on the ongoing discussion of this issue shows a clear limitation of the presented findings that predominantly refer to the Western-European countries. Indeed, so far there is not much available knowledge about organic consumers' behaviour in the Central and Eastern European regions, despite the fact that particularly in these countries (such as Bulgaria, Czech Republic, Estonia, Latvia) the organic sectors have rapidly grown (Willer & Kilcher, 2011). One can therefore ask: can we still expect organic consumers in the post-socialist European countries to follow the same consumption patterns known from the developed countries?

The purpose of this paper is to join the discussion by providing empirically-based information how consumers approach organic in a selected post-socialist country, which does not share the "organic history" typical of the English- and German-speaking countries from the Western Europe (Vogt, 2007). The study brings evidence from the Czech Republic, which is an example of a post-socialist country with a fast-growing organic sector that has been established in the early 1990s without previous connections to the organic movement.

Currently, 10.55% of agricultural land in the Czech Republic is registered in the organic farming system (MZe, 2011). This relatively high level contrasts with the actual level of organic food consumption. Overall turnover of the Czech organic sector is estimated at 70 million euros; however, the average annual expenditure for organic food is 7 euros per capita. This is much less than in neighbouring and similarly sized Austria, where approximately 16% of all agricultural land is registered in the organic system and expenditure for organic food reaches 100 euros per capita (Greenmarketing, 2010). Cross-sectional surveys in the Czech Republic (INCOMA, 2011; MZe, 2010) have found that almost one third of consumers state to buy organic food in the long term. The data also show that around 5% of all consumers are regular consumers of organic food.

Specific aim of this work is to explain behaviour of the organic consumers in the Czech Republic and provide an insight into how consumers make decisions about organic purchases. The empirical study is framed by the theory of planned behaviour. This study firstly tests the behavioural model, which accounts for people's intentions towards organic food consumption by examining their attitudes, subjective norms and perceptions of control, and then, for a more complete understanding, explores consumers' beliefs that reflect the foundation of the underlying constructs in the model and clarify *why* and *how* people hold given attitudes, subjective norms and perceptions of control over organic consumption. Findings from the analysis are at the end compared with the studies conducted in other European countries.

Research framework

Theoretical background

Consumers' food choices represent a complex issue. Behaviour of consumers is based on a specific relationship of trust, which enables them to valorise the quality of organic food (Janssen & Hamm, in press). This relationship is built through the reflexivity and conscientiousness of consumers who take into account the wider context of food production and pursue specific values (Johnston & Szabo, 2010; Singer & Mason, 2006). That is why behavioural studies on organic food consumption have often used the theory of values (Rokeach, 1973; Schwartz, 1992), the theory of reasoned action (Fischbein & Ajzen, 1975) and, since the late 1990s, the theory of planned behaviour (ToPB) (Ajzen, 1991, 2005).

The ToPB stems from extensive empirical confirmations and represents an extended model of the theory of reasoned action. The theory "postulates that a person's intention to perform (or not perform) a behaviour is the most important immediate determinant of that action" (Ajzen, 2005: 117). Intention is a function of three basic elements (determinants) that combine personal, social and control influences. The three major determinants are: *attitude toward the behaviour*, *subjective norm* and *perceived behavioural control*. Relationships between these determinants imply that the intention of people to behave in a certain way is supported by positive evaluation of the activity, by perceived pressure to perform such behaviour and by a subjective belief that there is an opportunity and available resources for such behaviour. A complete explanation of human behaviour must also take into account the bases for forming the major determinants. The entire model of the ToPB thus includes *beliefs*, which rest behind each of the three major determinants. Exploration of these beliefs (*behavioural beliefs*, *normative beliefs*, and *control beliefs*) requires specific observations. Addition of these beliefs in the ToPB model enables the linkage of personal values and attitudes because people's attitudes are formed by specific beliefs about the attributes of a given object and individual evaluation. At the same time, it is assumed that the remaining variables (such as age, education, income, etc.) may influence people's beliefs. However, any inclusion of the background factors in the analysis needs to be justified by an additional theory that extends the standard planned behaviour model.

Exploring organic consumption with the use of the ToPB

The ToPB postulates rationality of actors. However, it does not test whether the opinions or beliefs of the actors are truthful. This presumption is indeed in accordance with the nature of the demand for organic foods. The quality of organic foods is linked with credence attributes (Nelson, 1970), and the ways in which customers build their trust are always based on subjective interpretation (Zagata & Lostak, 2011). Investigation of the formative bases of consumers' attitudes clearly emphasises this fact. Application of the ToPB to organic food consumption can be then described in the following way.

Intention to purchase organic food is determined by the consumer's attitude toward organic consumption, social pressure to consume organic food (based on subjective belief) and perceived control over the consumption. The actual attitude is then formed by beliefs about how this step will benefit the consumer (e.g., by promoting his/her health) and by subjective significance (value), which the consumer attaches to these gains. The same logic is applied when observing the relationship between the subjective norm and normative belief as well as the relationship between the perceived behavioural control and control belief. The normative belief stems from expectations of social actors, who influence the consumer's decisions (e.g., his/her partner or children), and a motivation to comply with these expectations. The perceived behavioural control derives from subjectively perceived barriers (e.g., organic food is viewed as too expensive) and opportunities to overcome these inhibiting factors.

One of the early studies, conducted by Sparks and Shepherd (1992), investigated the applicability of the ToPB for understanding "green consumerism" in the UK. The authors modified the standard planned behaviour model by adding the self-identity component, which significantly contributed to prediction of intentions to consume organic vegetables. Magnusson, Arvola, Hursti, Aberg, and Sjoden (2003) examined the importance of perceived environmental, animal welfare and human health consequences for organic consumers in Sweden. Using the ToPB model authors concluded that "egoistic motives are better predictors of purchases of foods than are altruistic motives" (Magnusson et al., 2003: 115). Both of these studies have relatively neglected the role of subjective norms. This was criticised by Tarkiainen and Sundqvist (2005), who conducted study on Finish consumers with a particular focus on the role of the subjective norms in the model. Their analysis

proved that intentions to buy organic food can be sufficiently predicted with the standard components of the ToPB model, whereas the link between the subjective norms and attitudes towards the organic consumption view as a reflection of the moral decision-making aspects of the purchases. In line with this approach Dean et al. (2006) tested different elicitation methods for moral and affective beliefs in the ToPB model. Honkanen, Verplanken, and Olsen (2006) surveyed 1283 Norwegian consumers in order to confirm the relationship between personal values and attitudes towards organic consumption. Using a modified version of the ToPB model Honkanen et al. (2006) confirmed a significant relation between selected ethical values dimensions and attitude, and found a significant relationship between attitude and intention to consume organic food. The ToPB has been also used for predicting behaviour of organic consumers outside the European continent. Chen (2007) examined the consumer's behaviour in Taiwan. Contrary to other studies, Chen concluded that the health food choice motive does not contribute to the consumer's attitude to organic foods. Such result has been explained by specific understanding of the "health food", which in the eyes of local people did not necessary include organic products. Finally, an insight into the situation in Italy has been provided by de Magistris and Gracia (2008). Their results confirmed that the consumers' attitudes towards the health attribute and environment are the most important factors that explain consumer' decisions decision-making process for organic food products.

The above mentioned studies have provided evidence from single countries. There are only a few studies that have tested ToPB models on international samples and directly examine differences in consumption patterns between the countries. One of them has been presented by Thøgersen (2009), who analyzed determinants of buying intentions in eight European countries ((belonging to the former EU-15). He concluded that consumer choices of organic food are based on similar reasons, although "there are (mostly minor) differences" (Thøgersen, 2009: 187). Further analysis of the data pointed out differences mainly in relations and influences of subjective norms and moral attitudes (Arvola et al., 2008: 452). The author explained these differences by different influence of external social pressure and internalised norms among consumers in the analyzed countries. A recent comparative study conducted by Ruiz de Maya et al. (2011) provided a classification of these eight countries into four groups. Results of the study suggest that the subjective norms are the main factor causing differences among the segments. Influence of the social norms was convincingly explained by the different countries' cultural values (measured by the Schwartz's cultural dimensions). Contrary to other studies using the ToPB Ruiz de Maya et al. in this study identified relatively high importance of the social norms, which was explained by the lack of insufficient information for decision-making that makes consumers then rely on other people's opinion.

Regarding the above mentioned inquiries, the study on Czech consumers applies a confirmatory approach and uses the standard ToPB model, which presumes that the effects of other variables are mediated by beliefs and attitudes toward behaviour, which can better specify the observed behaviour (Ajzen, 2005).

Methods

Object of the study, sampling procedure and data collection technique

This study is focused on the social behaviour of organic consumers in the Czech Republic. Data were collected during April and May 2011 by the SC&C, one of the top research agencies in the Czech Republic. The target population included consumers who have their own household, are knowledgeable about organic food (e.g., recognise the organic logo) and buy organic food at least once a month. These criteria were checked at the beginning of the interview with a block of filter questions.

The sample consisted of 1060 respondents, with 1054 correctly filled-in answer sheets. The sample population was based on quota sampling (gender, age, education, and size category of municipalities) and is representative of the population of Czech organic consumers.

Data were collected through face-to-face interviews by trained interviewers. The most frequent places for interviewing were shopping malls, specialised shops for organic food and farmers' markets throughout the Czech Republic. Each interview took 25–35 min.

Data collection tool

Questions for the survey were prepared in accordance with a standard application of the ToPB (Davis, Ajzen, Saunders, & Williams, 2002; Francis et al., 2004). The subject of the measurement was the category of behaviours: *organic food purchases*, which had been defined by frequency and the four most-demanded goods – dairy products, vegetables, meat, and bread. Major constructs in the model – intentions to purchase organic food, attitudes toward organic consumption, subjective norms related to decision about purchases and the perceived behavioural controls over the observed behaviour – were measured through a series of items. At the same time, the informative bases (i.e., beliefs) of consumers' behavioural determinants were measured. Reliability of these measurements was checked using an item analysis. Results of this analysis are presented in the following two sections (Measuring the major determinants of intention and behaviour, and Measuring informational bases for determinants of intentions and behaviour).

Measuring the major determinants of intention and behaviour

Intention. Three items (i.e., scaling questions) were used for measuring intention. Using a 7-point scale (very unlikely – very likely), respondents answered whether they planned to buy organic foods during their next shopping trip. The average score of the three items was used as a direct measure of the intention to purchase organic food. Unidimensionality of the scale was tested using principal component analysis (Blunch, 2010). Results of the analysis confirmed a strong association of these three stimuli with the component *intention* (range of factor loading was 0.41–0.44) and weak relations with remaining components in the model – *attitude*, *social norm* and *perceived behavioural control* (range of factor loadings was −0.96 to −0.02). Internal consistency of the measuring tool was tested using the indicator Cronbach alpha. According to Norusic (2008), it is feasible to accept scales with a Cronbach alpha higher than 0.8. The calculated value, 0.93, thus confirmed the assumed unidimensionality of the scale and the high reliability of the measurement.

Attitude. Four questions were used to measure attitude toward organic food consumption. Respondents used 7-point scales (strongly disagree – strongly agree) and answered to what extent they consider the purchase of organic food be right, reasonable, useful and pleasant. Average score of the responses was used to provide direct attitude measure. Principal component analysis confirmed the relationship between the four stimuli and the component *attitude* (range of factor loadings was 0.24–0.38). At the same time, there was only weak association between the stimuli and the remaining components (factor loading was −0.12 to 0.07). The Cronbach alpha was 0.86, meaning that the measurement's reliability was acceptable.

Subjective norm. Four scaling questions were prepared to determine whether they believe that people who are important to them

think they should buy organic food, expect them, wish or want them to buy organic food. The respondents used 7-point scales (strongly disagree – strongly agree) to indicate the extent of these subjectively perceived norms. Again, responses to the four questions were averaged to yield a direct measure of subjective norm. Principal component analysis confirmed that the four stimuli are related with the construct *subjective norm* (range of factor loading was 0.25–0.360) and showed weak association with the remaining components (factor loading −0.10 to 0.02). The scales also proved inner consistency, with a Cronbach alpha of 0.84.

Perceived behavioural control. In order to measure this construct, four items evaluated on 7-point scales (strongly agree – strongly disagree) were used. Respondents answered whether the organic food was easily available to them and whether they could purchase it whenever they wanted or needed it. Their responses were averaged and served as a direct measure of the perceived behavioural control. Unidimensionality of the scales was again checked using principal component analysis. The four stimuli were clearly associated with the expected component *perceived behavioural control* (range of factor loading was 0.25–0.37) and had only weak relationships to remaining components (−0.09 to 0.09). This measurement also showed an acceptable level of reliability (Cronbach alpha was 0.82).

Measuring informational bases for determinants of intentions and behaviour

In addition to the responses used for directly measuring the main constructs in the model, the data collection tool included questions that were designed to uncover informative bases for intention and its determinants (i.e., beliefs of respondents). As was already stated in section 'Theoretical background', these bases represent respondents' beliefs that influence their attitudes, subjective notions of norms and perceived behavioural control. For measuring the people's beliefs, special techniques are usually used (for more, see e.g., Dean et al., 2006). This study used findings from a previous inquiry focused on motives of organic consumers (Zagata, 2012), which included four one-hour focus groups that explored consumers' interpretations of organic food quality as well as factors that influenced their purchasing of organic food. Content analysis of the transcripts from the group discussions led to identification of major points that were then used in the formulation of question for this survey.

Behavioural beliefs. Beliefs about the consequences of organic consumption were measured with the use of the 10 items. Respondents were first asked to evaluate outcomes of organic consumption on a 7-point scale; for example, how important taste is when purchasing organic. To asses belief strength respondents rated likelihood that organic purchases will lead to the selected outcomes; for instance, how likely it is that the organic food they purchase will taste good. Answers to all questions were again provided on a 7-point scale. A list of the questions related to the behavioural beliefs can be found in the results section of Table 5. Quantitative estimates of the beliefs were computed using the expected value model. Each outcome evaluation score was multiplied by the score of the belief strength measurement. The overall score for each respondent (i.e., belief-based measure of attitude) was based on the summated scores of the ten products. Scales that were aimed at behavioural beliefs were optimised in order to increase the correlation between the directly measured determinant *attitude* and its basis in the form of *behavioural beliefs*. The original 7-point scales for outcome evaluation and belief strength were transformed by adding constants (3.56 and 2.19), which were computed in accordance with recommended procedures (Ajzen, 1991; O'Keefe, 2002).

Normative beliefs. The formative basis for the social norm was measured through 4 pairs of questions. The first question indicated the influence of actors that could shape the decisions of consumers concerning organic food purchases (see Table 6 within the section Results). Respondents indicated their answers on a 7-point scale, such as "My partner thinks that I should buy organic food". The second question then dealt with the motivation to comply with the selected normative referents; answers were again indicated on a 7-point scale. As with the measurement of behavioural beliefs, the computation of the overall score used the expected value model. The score from the first scale was multiplied with the score from the second scale. Summation of the products then resulted in quantitative estimate of the normative beliefs.

Control beliefs. Formative bases for perceived behavioural control were measured using the stimuli derived from the previous qualitative study on organic food consumers. Overall, there were six stimuli that represented factors that create barriers and opportunities for the purchase of organic food (see Table 7 in the results section). Each respondent indicated on a 7-point scale how likely it is that the factor will be present; for example, "How often is it that the organic food you encounter in shops seems expensive to you?" The power of each factor was then measured using a 7-point scale; for example, "If I encounter organic food that seems expensive, I will not purchase it". As with the previous two constructs, quantitative estimate of the control beliefs was again computed in accordance with the expected value model.

Results

Descriptive statistics and correlations of the main constructs

Basic descriptive statistics provide a first look at the main constructs in the model (Table 1). Attitudes toward the organic purchases are on average positive. Consumers perceive relatively low social pressure from others to buy organic food and are, on average, highly confident about their ability to purchase organic food. The same holds for the construct *intention*, which also has a high average value. The average value for organic food purchases reaches only a moderate level and in aggregate, shows that Czech consumers buy organic food less than once a week.

The construct *organic food purchase* represents a latent variable composed of four manifest variables. During the survey, respondents were asked to asses how often they buy organic food staples, namely, dairy products, meat, fruit and vegetables and bread (more than once a week – once a week – once or twice a month). In accordance with results from similar cross-sectional surveys (Greenmarketing, 2010; MZe, 2010), it appeared that consumers most frequently buy dairy products and fruit and vegetables and less frequently purchase meat and bread. Frequency of purchases for all the selected goods are correlated (correlation coefficient matrix includes values in range 0.28–0.33 and the coefficients are statistically significant for $p < .01$).

The correlation coefficients in Table 1 further document that consumers who purchase organic food are mainly driven by positive attitudes toward the behaviour. This finding is supported by the evidence in the Table 2, which additionally tests the adequacy of the assumed relationships. If we split the sample of consumers into two groups, less frequent and more frequent buyers (defined in terms of the median value of the variable measuring purchases of organic food), one can see that the two groups significantly differ in all values of the main constructs of the model.

Higher mean values for more-frequent organic buyers are in line with the rationality of the ToPB. The figures show that the Czech consumers who buy organic food more frequently have more positive attitudes toward organic consumption, feel higher

Table 1
Mean, standard deviation and correlation coefficients for the main constructs of the model (N = 1054).

Variable	Mean	SD	*A*	*SN*	*PBC*	*I*
Attitude (*A*)	5.522	1.175	–			
Subjective norm (*SN*)	3.922	1.349	.391	–		
Perceived behavioural control (*PBC*)	5.287	1.313	.388	.222	–	
Intention (*I*)	5.220	1.414	.518	.497	.388	–
Behaviour – organic food purchase (*B*)	1.212	0.633	.239	.272	.204	.338

Note: Major determinants of the behaviour (*A*, *SN*, *PBC*, *I*) were measured with bipolar 7-point scale. Behaviour (*B*) was measured with four items and 3-point frequency scale. All correlation coefficients are statistically significant ($p < .01$).

Table 2
Mean and standard deviation of the main constructs of the model for the two groups of consumers.

	Less-frequent organic buyers (N1)		More-frequent organic buyers (N2)	
	Mean	SD	Mean	SD
Attitude	5.250	1.180	5.801	1.103
Subjective norm	3.580	1.294	4.272	1.315
Perceived behavioural control	5.052	1.338	5.528	1.242
Intention	4.772	1.433	5.682	1.235

Note: N1 = 535, N2 = 519; ANOVA confirms that the groups significantly differ in mean scores for each construct in the model ($p < .01$).

social pressure to purchase organic food and have greater resources for coping with existing barriers to doing so.

Predicting intention and behaviour of organic consumers

Testing for the model was carried out with structural equation modelling, statistical methodology that applies confirmatory approaches and analyses a given structural theory, i.e., in our case, the ToPB (schematically depicted in Fig. 1). The structural model includes two endogenous variables: *intention* and *behaviour*. Exogenous variables are represented by the direct measures of *attitude*, *subjective norm* and *perceived behavioural control*.

Core parameters in the model that focus on the analysis of covariance are the regression coefficients. The parameters for the direct links between the constructs were computed using the software AMOS. Main results are presented in the Tables 3 and 4.

Values of indicators for the evaluation of the adequacy of the model were calculated and interpreted in accordance with Byrne (2010). A look at the obtained values for absolute fit measures indicates that, for the given model (df = 144, χ^2 = 570.74, $p < .000$), it is not possible to deny the null hypothesis concerning a difference between the predicted and obtained covariance structure. Results

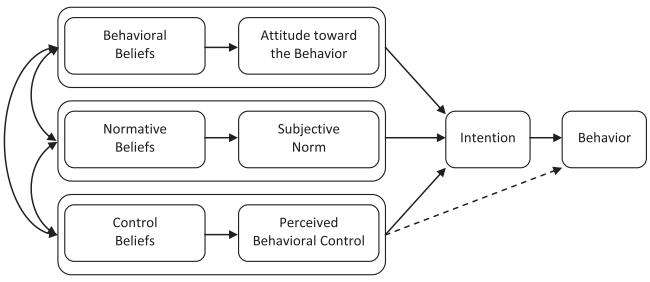

Fig. 1. Predictive behavioural model including beliefs that represent informative bases of intention and behavior (Ajzen, 2005).

Table 3
Parameters of the model (standardised regression weights) ToPB for organic purchases.

Model path	*b*
Intention ← Attitude	0.329
Intention ← Subjective norm	0.374
Intention ← Perceived behavioural control	0.182
Behaviour ← Intention	0.398
Behaviour ← Perceived behavioural control	0.122

Note: All estimates of parameters are statistically significant ($p < .01$).

Table 4
Parameters of the model (squared multiple correlations) ToPB for organic purchases.

Exogenous variable	R^2
Intention	0.470
Behaviour	0.214

Note: Ad hoc indicators for the model extending χ^2 statistics: *CFI* = 0.96; *RMSEA* = (0.05–0.06); *CN* 0.5 = 320; *CN* 0.1 = 344.

of this test undermine the adequacy of the model, but this result is expected due to the size of the sample and the model's degrees of freedom. Under these conditions, it is more appropriate to evaluate the model using ad hoc indicators that extend χ^2 statistics.

Information about complete covariance of the data provides the Comparative Fit Index (*CFI*). Acceptable models should reach the level *CFI* > 0.90, but recommended is *CFI* > 0.95 (Bentler, 1990). The index for this model is 0.96 and thus meets this criterion.

One of the most informative criterion for evaluation of models is the index *RMSEA* (Root Mean Square Error of Approximation), which reflects the error of approximation in the population and tests how well the model with unknown but optimally chosen parameter values would fit the population covariance matrix if it were available (Browne & Cudeck, 1993). The assumed discrepancy is indicated by the *RMSEA*, whereas values smaller than 0.05 denote good fit, values up to 0.08 denote reasonable fit and values above 0.10 denote weak fit. According to this criterion, the model fits well, because the 90% confidence interval for *RMSEA* includes values 0.05–0.06.

The adequacy of the sample size for the given model can be checked using the Hoelther Critical N (*CN*), which should have values *CN* > 200. Computed values for the given model reach *CN* 0.5 = 320 and *CN* 0.1 = 344; this model safely meets this criterion.

Tables 3 and 4 show the main results of the structural equation modelling. The intention to purchase organic food has been predicted with the use of the direct measures of the main determinants (*A*, *SN*, *PBC*) that account for 47% of variance in the consumers' intention. The highest coefficients are located on the links that go from attitude toward the behaviour and subjective norm to the intention. Intention to purchase organic food can be best explained with respect to the attitudes of consumers and their evaluation of organic food and with respect to the expectations of other important people. The relatively lower explanatory capability provides the construct perceived behavioural control, with respect to the confidence that these barriers can be overcome by consumers. The Table 4 informs about the predictive power of the ToPB model. The intention to buy organic food together with the perceived behavioural control account for more than 21% of the variance in behaviour (i.e., the indicator of the real organic purchases). Intention is a better predictor than perceived behavioural

control; however, even the latter variable contributes to the explanation of consumers' behaviour.

Behavioural, normative and control beliefs

The above presented results prove the ability of the model to predict the intentions of the Czech consumers to buy organic food. However, more detailed understanding of the decision process (that is also the aim of the paper) requires analysing the informative basis of the major behavioural determinants. The ToPB explicitly presumes that the attitudes towards the behaviour, subjective norms and perceived behavioural controls are formed by beliefs, which are associated with each of these determinants. The relationship between a behavioural determinant and its beliefs can be formally verified through correlation analysis. Reliable and valid measuring of the beliefs implies high correlation between the observed consumers' beliefs and the direct measure of the related behavioural determinant.

The summated products of the outcome evaluation and the belief strength, which are the cores of the expectancy value model (explained in the methodological section 'Measuring informational bases for determinants of intentions and behaviour'), are highly correlated with the direct measure of the attitude toward the behaviour. The correlation coefficient is 0.66 and is statistically significant at $p < .01$. A similar association can be found between the summated products of scores for selected normative referents and motivation to comply with their expectations. The correlation coefficient in this case is 0.65 ($p < .01$). The association between the control beliefs and the direct measure of the perceived behavioural control is relatively smaller. The correlation coefficient is 0.16 ($p < .01$). In comparison to the previous measurements of beliefs, it seems that the questions for the direct measures of perceived behavioural control were not adequately formulated in the data collection tool. It is very likely that reformulation of the questions would increase the validity of this direct measurement.

Behavioural beliefs. Attitude toward the behaviour is formed by behavioural beliefs. The expected value model enables a review of the attributes of organic food recognised by consumers. Table 5 shows that consumers' evaluations are thoroughly positive. This is a result of the fact that the subjects are consumers who already buy organic food. A closer look reveals that consumers are convinced that organic food products are rich in vitamins and nutrients and have been processed without artificial additives and GMOs. All of these attributes are also given a high priority when deciding whether to purchase organic food. One can see that those three attributes are related to health. High correlation coefficients also indicate that attitudes toward a purchase are among the best predictors of consumers' intention to consume organic food. Evaluations made by respondents favour the product-based qualities before the process-based qualities. Czech consumers' beliefs about consequences of organic consumption are particularly related to the health aspects than to the other ones. Concerns about production methods and their implications for sustainable development and localisation of food production are given less importance. The figures also suggest that the Czech consumers are not so strongly convinced that organic food production can indeed mediate the product-based qualities, e.g., outcome evaluation for the items related to local production and rural development are among the lowest.

Normative beliefs. In addition to the attitude toward the behaviour, another good predictor in the model is the subjective norm. The content of this determinant is formed by selected normative referents who share the values of consumers. Table 6 includes the main referents forming the consumers' beliefs and their influence. The more important the referent/reference group and the higher the consumer's motivation to comply with their expectations, the higher the probability that the consumer will intend to purchase organic food. The analysis generated evidence that the main expectations come from families – from a partner or other members of the family. Co-workers are less important. The respondents show that the greater motivation to comply with expectations comes from the members of primary groups, i.e., their families. Intention to purchase organic food and actual organic food consumption are thus closely related to the expectations of these referents. These findings accentuate the importance of food and eating as cultural phenomena and prove that the family plays an important role in shaping consumer behaviour.

Control beliefs. As a source of inspiration for the elicitation of factors that potentially hinder purchases of organic food was used the qualitative study by Zagata (2012). Most frequently, consumers encounter organic foods that seem expensive to them. In fact, organic consumers have no doubts about organic certification and the appearance of organic food. Currently, the availability and range of products are not seen as major barriers to the purchasing of organic food, but convenience of purchase (i.e., availability of organic food) clearly influences consumers' intentions to buy organic food. It is also important for the consumers to see the organic food products as being distinct from conventionally produced foods in order to pay premium prices. Subjective beliefs that, for example, organic food is relatively expensive have a direct effect on consumers' intention and behaviour, as the results show in Table 7.

Discussion

Organic food production has turned into a global phenomenon (Reed, 2010). At the beginning of this paper, there was a question of how the decisions of Czech organic consumers are made and whether their orientation correlates with the "pan-European" values of consumers. The ToPB was employed to explain the behaviour of consumers using representative data set from the Czech Republic, as a representative of a post-socialist country with a developing organic sector.

Overall, the theory proved able to predict and explain the behaviour of Czech organic consumers. According to the review study that compared the application of the ToPB (Armitage & Conner, 2001), the multiple square coefficient of intention and its major determinants is on average $R = 0.63$. The multiple square coefficient of behaviour and a pair of predictors, i.e., intention and perceived behavioural control, is on average $R = 0.52$. In the presented model of the Czech organic consumers, the two coefficients are $R = 0.69$, and $R = 0.46$, respectively. Those results confirms that it is possible to predict organic consumer's behaviour with intentions to buy organic food, which can be further explained by their attitudes, subjective norm and perceived behavioural control, i.e., with the standard ToPB model.

In the Czech context, the intention to purchase organic food is determined mainly by positive attitudes of consumers towards organic food. This basic finding corresponds with the vast majority of studies from other countries (Arvola et al., 2008; de Magistris & Gracia, 2008; Ruiz de Maya et al., 2011; Shepherd, Sparks, & Guthrie, 1995; Tarkiainen & Sundqvist, 2005), and supports the thesis of the "pan-European values" shared by organic consumers in Europe. The major behavioural beliefs of the Czech consumers are related to health aspects and taste, and accentuate thus the "egocentric" orientations of the consumption described by Magnusson et al. (2003).

Contrary to other studies (e.g., Shepherd et al., 1995) the explanatory power of the social norm appeared to be relatively high for the Czech behavioural model. The social norms are also strongly correlated with the attitude toward the organic purchases. Such relationship was confirmed in studies that dealt with ethical

Table 5
Descriptive statistics for measures of behavioural beliefs and correlations with the predicted constructs.

Outcome	Belief strength (b)		Outcome evaluation (e)		Correlation	
	Mean	SD	Mean	SD	b_ie_i – intention	b_ie_i – behaviour
Purchasing organic means that I get products that …						
Include many vitamins and nutrients	8.252	1.134	9.613	1.186	.342	.152
Are processed without chemical additives	8.216	1.170	9.364	1.378	.313	.195
Lack chemical residuals	8.202	1.221	9.449	1.321	.351	.182
Do not include any GMOs	7.987	1.354	9.151	1.547	.317	.157
Taste good	7.954	1.276	9.603	1.287	.341	.165
Are environmentally-friendly produces	7.930	1.291	9.010	1.466	.357	.171
Support animal welfare	7.789	1.394	9.002	1.535	.328	.199
Look good	7.572	1.417	9.065	1.482	.271	.142
Support rural development	7.558	1.446	8.627	1.641	.298	.218
Are locally produced	7.477	1.514	8.667	1.601	.333	.203

Note: Bipolar 7-point scale for belief strength (very unlikely – very likely) was transformed to unipolar optimised scale (3.19–9.19), bipolar 7-point scale for outcome evaluation (very important – very unimportant) was transformed to unipolar optimised scale (4.53–9.19); b_ie_i is the product of individual belief strength and outcome evaluation; all correlation coefficients are statistically significant ($p < .01$).

Table 6
Descriptive statistics for measuring normative beliefs and correlations with the predicted determinants.

Normative referents	Belief strength (n)		Motivation to comply (m)		Correlation	
	Mean	SD	Mean	SD	n_im_i – intention	n_im_i – behaviour
Partner	4.21	1.855	5.04	1.681	.405	.210
Other family members	3.90	1.739	4.64	1.567	.338	.212
Close acquaintances	3.83	1.772	4.13	1.792	.295	.165
Colleagues at work	3.01	1.751	3.25	1.695	.237	.176

Note: Bipolar 7-point scale for belief strength (strongly want – strongly do not want) and bipolar 7-point scale for motivation to comply (very high – very low); n_im_i is the product of individual belief strength and outcome evaluation; all correlation coefficients are statistically significant ($p < .01$).

Table 7
Descriptive statistics for measuring control beliefs and correlations with the predicted determinants.

Control factors	Belief strength (c)		Power of factor (p)		Correlation	
	Mean	SD	Mean	SD	c_ip_i – intention	c_ip_i – behaviour
High price	2.350	1.477	2.945	1.711	.143	.200
Limited range of goods	3.582	1.623	1.434	1.773	.081	.109
Not different from conventional products	3.763	1.562	3.499	1.710	.086	.033
Unavailability	3.863	1.618	3.417	1.698	.118	.139
Distrust in organic brand	3.994	1.686	2.715	1.613	.071*	.130
Unappealing	4.234	1.585	2.830	1.699	.065*	.104

Note: Bipolar 7-point scale for belief strength (very rarely – very often) was inverted, bipolar 7-point scale for power of factors (strongly agree – strongly disagree) was also inverted to order to make sure that the measurement of the perceived behavioural control accords with conditions supporting intention to purchase organic foods; c_ip_i is the product of individual belief strength and power of factors; except the marked ones (*), all correlation coefficients are statistically significant ($p < .01$).

or moral decision-making, as was spotted by Tarkiainen and Sundqvist (2005). Plausible interpretation also suggests that decisions about the purchases are shared within the family setting and thus, family expectations intensively affect the willingness of consumers to buy organic food.

The high importance of the social norm in the behavioural model likely reflect specific context of the Czech organic market. Despite the targeted informational campaigns, the consumers' knowledge about organic food remain fairly low and the organic quality is often challenged in public discourse. Under this situation, as was explained by Ruiz de Maya et al. (2011), it is likely that many consumers do not have sufficient information to build trustful relationship towards organic food. Consumers might then rely more on other people's judgment to decide about purchases of organic food.

Perceived behavioural control accounts for relatively less of consumers' intentions and such finding again goes along with other studies applying the ToPB (Armitage & Conner, 2001). Overall, the analysis suggest that Czech organic consumers cope relatively well with disabling factors. Findings from this study show that the availability of organic food and its price are only moderate barriers for its purchase, at least for those consumers who already buy organic food. Czech organic food consumers may, in this way, signal a satisfaction with the quality and availability of organic food and its prices. This fact might imply that organic food becomes more available for wider societal groups due to its sale in conventional retail-chain stores. One disadvantage of this situation is that it may confirm the meaning of organic food as a common market commodity without any awareness of other social relationships between food production and consumption (Reed, 2010). This conscientiousness is indeed a key for elaboration of new approaches of citizen-consumers (Johnston & Szabo, 2010), which is seen as an important driving force for the future development of sustainability.

In order to explain informative bases of the major determinants of behaviour, consumers' behavioural beliefs were analysed. As with patterns observed in other European countries, it appeared that the main qualities of organic food recognised by consumers are those that are associated with health (Magnusson et al., 2003; Padel & Foster, 2005; Zanoli & Naspetti, 2002). In terms of the product-based quality, Czech consumers mainly appraise the

qualities that are believed to bring health benefits, such as the higher expected volume of vitamins and nutrients in organic foods. Czech consumers also pay attention to qualities that can be subsumed under process-based quality and that are implied by the organic methods of production, such as the absence of GMOs and artificial additives. Much less importance is given to attributes that are related to environmental aspects and issues of sustainable rural development and localisation of food production. A chronological view of the development of consumers' concerns about food quality in the second half of the 20th century shows a shift from concerns about product qualities and methods of production toward concerns about the actual production systems and their producers (Holt & Reed, 2006). Findings from the study suggest that, in the case of Czech consumers, the concerns about product and process-based qualities prevail.

The postulated existence of the pan-European values of organic consumers can be confirmed with regards to the importance of health aspects and a generally shared notion of the quality of organic food. However, it can be assumed that a closer look at attitudes of consumers towards purchasing organic food, with respect to the moving boundaries of sustainability thinking (Murdoch & Miele, 2004), would uncover differences in the perspectives of consumers from post-socialist countries and the Western European countries.

Conclusions

The theory of planned behaviour proved its applicability in explaining social behaviour aimed at organic food purchases. The ToPB model was tested on a large representative sample of consumers from the Czech Republic and its predictive ability corresponds with other examples. The best predictors of the intention to purchase organic food are attitudes towards the behaviour and subjective norms. Decisive positions in consumers' beliefs have product- and process-based qualities. Regular consumption of organic food is promoted by increased availability of the goods.

Despite the different historical context in the post-socialist countries the findings suggest that the Czech organic sector follows the developing patterns identified in the Western European countries. This implies that the promotion and practical support for organic sector should focus on strengthening positive attitudes towards organic purchases. It is very likely that under these conditions the consumers' willingness to pay premium for organic quality will increase.

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