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Abstract

This study examines food consumers in the capital of Romania. A study of 485 consumers using the Theory of Reasoned Action underpinned the investigation of determinants of food choice. Drawing on a Structural Equation Models approach, causal paths for six commodities are estimated.

Attitudes and habits tend to be significant predictors of intention to consume food. Intention is a significant, yet modest, predictor of actual behaviour. Although attitudes tend to be a key predictor in TRA, the higher paths for attitudes relative to habit contrast the study of Saba and Di Natale (1999). As reported elsewhere (Bagozzi and Warshaw 1990) the predictive power of the models in explaining behavioural intent exceeds the corresponding one for behaviour. The results of this empirical study support the notion that attitudes and habits influence behavioral intentions of food consumers in this emerging market. Competing structural models are discussed and the implications of the study for both food marketers and health campaigners are highlighted.

Key words: emerging economy, Central and Eastern Europe, Theory of Reasoned Action, consumer behaviour, food choice

1. Introduction

The significant changes in food consumption patterns in Romania during the transition from a centrally planned to a free market economy (Petrovici and Ritson 2000) increased the importance of understanding food consumers. Romania is expected to join the European Union (EU) in 2007. The expected increase in trade between this country and the EU enhanced the interest in this emerging market, which is, in demographic terms, second largest in Central and Eastern Europe (CEE). The understanding of the behaviour of food consumers in this country is crucial in developing successful penetration strategies and trade activities and improving customer orientation in the agri-food sector.

Despite the dramatic changes in food consumption in CEE (Šlaisová 2001) underpinned by economic hardship (Szabo 1999) or health concerns (Brosig and Ratinger 1999) there have been few attempts to model consumer behaviour underpinned by theoretical frameworks in this region. In particular determinants of food choices are still insufficiently explored. This paper employs the Theory of Reasoned Action (TRA) in order to investigate determinants of food choice in an East European context.

Structural Equation Models (SEM) have been used in lifestyles research, and the analysis of behavioural and attitudinal intentions (MacLean and Gray 2000). This study employs SEM in order to test the predictive power of the TRA in explaining food consumption in Romania. The objectives of this study are threefold: (1) to evaluate the role of attitudes, habit and intention in predicting food consumption; (2) to investigate whether the effects of attitudes and habit on behaviour are mediated by behavioural intention; (3) in a more general sense, to examine the predictive utility of the TRA in explaining food choice in an emerging economy expected to join the EU.

2. Conceptual framework

The TRA and its extension -the Theory of Planned Behaviour (TPB)- underpinned research concerned with determinants of a wide range of behaviours, including political and social behaviour (voting intentions, family planning) (Ajzen and Fishbein 1980), adoption of new technology (Shih and Fang 2004). There was a plethora of studies on food-related behaviour in developed economies (e.g. Miniard and Cohen 1983; Saba and Di Natale 1998; Tuorila and Pangborn 1988). These studies showed general support for the predictive utility of the TRA. Extensions of the TRA were nevertheless proposed (Sheppard, Hartwick and Warshaw 1988) and even the promoters of the model (Ajzen 1991) acknowledged that the TPB is open to inclusion of additional predictors.

The TRA states that one's intention to perform a behaviour is positively influenced by the attitude towards performing the behaviour and subjective norms (i.e. the perceived social pressure to perform a particular behaviour such as consuming a specific food product). The theoretical framework employed in this paper retains attitudes to performing the behaviour from the original TRA. The subjective norm was not measured. Although the role of attitudes on intention reached a consensus, the role of social influences (subjective norm) was more equivocal (Paisley and Sparks 1998; Shaw, Shiu and Clarke 2000).

Following previous extensions of TRA (Saba and DiNatale 1998, 1999; Tuorila and Pangborn 1988a) a measure of habit was added into the model. Habit can be regarded as frequently repeated past behaviour (Triandis 1977) and can be underpinned by actions performed without awareness (Mittal 1988). Given the high-frequency, low-involvement nature of most food purchases (Shepherd 1990) there is scope for a significant impact of habit on food choice. Habit was successfully used in predicting food choice. Although previous studies show mixed magnitude effects of habit relative to attitudes (Saba and Di Natale 1998; Towler and Shepherd 1991/1992), there is agreement over their significance in predicting food consumption.

The conceptual model which guides this study is represented in figure 1.

Insert Figure 1 approximately here

In the light of the previous studies the following hypotheses underpinned by the TRA and formulated.

H_1: Attitude has a positive effect on the intention to consume food.

H_2: Habit has a positive effect on the intention to consume food.

H_3: Intention has a positive effect on the actual behaviour (food consumption).

The structural specification of the model estimated in the study is (see Bollen 1996):

? = a + B? + G ? + ? [1]

where: a= vector of intercept terms; ? = m x 1 vector of latent endogenous random variables (intention and behaviour); ? = n x 1 vector of latent exogenous random variables (attitudes and habit); B = m x m matrix of coefficients of the ?– variables in the structural relationship (endogenous paths); G = m x n matrix of coefficients of the ? – variables in the structural relationship (exogenous paths); ? = m x 1 vector of random disturbances in the structural relationships between ?-variables and ?-variables.

The estimation of causal endogenous and exogenous paths underpins the testing of hypotheses.

3. Materials and methods

3.1. Subjects

Informants were recruited in a survey which was conducted with the assistance of the Romanian Institute of Economic and Social Research and Polls (IRECSON) during April-June 2000. A sample of 500 respondents in the capital Bucharest was targeted. Given a response rate of 97%, there were 485 usable questionnaires. The sampling method was based on quotas with a preliminary stratification of the city into approximately 120 residential areas. Quotas have been used to structure the sample based on age and level of formal education. The addresses were randomly selected in scattered subsamples of areas until quotas were filled. The breakdown of the sample is in line with the social and demographic statistics of Bucharest (IRECSON 2000). Thus about 11% were primary school leavers, 30% had a college degree, 44% were aged 35-54 years and 28% were above 55 years.

3.2. Research design

Six commodities were observed in the survey as follows: meat, eggs, fruit, butter, margarine and milk. These were selected as they represented a significant share of household food-related spending in Romania (42%, NCS 1997). Apart from being staple products, health implications are associated with imbalances in consumption (e.g. animal fat, Carroll 1998). Against a background of economic hardship and growing income inequality in Romania (UNDP 2003) the frustrations related to the inability to buy meat became more severe, particularly in low-income groups (Stanculescu 1999).

The attitude to intention was measured on a five-point semantic differential consisting of a set of bipolar adjective scales (1 = harmful; 5 = beneficial). Respondents were asked to evaluate each commodity on this scale. A measure of hedonic preference was included (1 = don't like at all; 5 = like very much). Liking of food can be regarded as a dimension of the attitude to consuming particular products (Eagly and Chaiken 1993) and was reported a significant predictor of behavioural intention (Tuorila and Pangborn 1988a, b). Including a measure of specific attribute (taste) in addition to a global evaluation can improve the reliability of the concept of attitude, as consumers may be less ambivalent when specific cues are prompted (Olsen 1999).

Habit was evaluated as a measure of qualitative habit (Saba and Di Natale 1999; Tuorila and Pangborn 1988a): "I consume 'X' because I used to eat it together with my family" (1 = strongly disagree; 5 = strongly agree).

The behavioural intention was measured as the likelihood to consume each of the selected six products during the week following the observation period (1 =

extremely unlikely; 5 = extremely likely). An item related to willingness to consume was also measured on an identical scale. Informants were asked if they would like rather than plan to consume particular foods.

Behaviour was evaluated based on a self-reported measure. They stated the frequency of consumption of the commodities in the cold and the hot season (1= once a month or less; 2= once a fortnight; 3=one a week; 4=2/3 times a week; 5=4/5 times a week; 6=almost every day; 7=more than once a day). Food frequency questionnaires provide satisfactory measures of food-related behaviour in addition to the simplicity to administer and its relatively low cost. Estimates of consumption based on food frequency questionnaire are converging towards those using dietary history for food groups (Cameroon and Van Staveren 1988).

The internal consistency reliability of the constructs is assessed based on Cronbach's alpha. A good reliability was indicated for actual behaviour (alphas greater than .9) and behavioural intention (alpha between .7 for fruit and .85 for milk). A weaker reliability of certain attitudes was found, highlighted by the following alpha values: eggs: .42; fruit: .31; meat: .39 and milk .46) with the other approaching satisfactory levels (fruit: .58; margarine: .62). As far as attitudes are concerned, reliability is low in the case of fruit, meat and eggs, which may probably imply an ambivalence between liking and perception of healthiness discussed in other studies such as Saba and DiNatale (1999).

4. Results

Data were analysed using Lisrel 8.4 (Jöreskog et al. 2001) and one-step estimates generated by the maximum likelihood method. For each of the six commodities, three models have been estimated as follows. The baseline model (A) which specifies the relationships defined by the TRA: a direct effect of attitudes towards performing the behaviour (?$_1$, Figure 1) and behavioural intention (?$_1$); and between habit (?$_2$) and behavioural intention respectively; a direct effect of the latter on actual behaviour (?$_2$). The second model (B) which specified the path representing a direct effect of attitudes on behaviour; the third model which freed a direct effect of habit on behaviour (Model C). Model A can be regarded as a nested model relative to B and C, as it is more parsimonious.

The likelihood ratio test was used to select the model which provides the best goodness-of-fit. Apart from this test, models were compared based on the Adjusted Goodness-of- Fit Index (AGFI), the Expected Cross-Validation Index (ECVI) and the Akaike's Information Criterion (AIC). The last two may be regarded as measures of "badness of fit" of the model. Hence smaller values of AIC and ECVI are desirable (Diamantopoulos and Siguaw 1999). The model with the smallest ECVI indicates the model that "will cross-validate best" (Kaplan 2000, p.118). A multitude of indicators is used to assess competitive models, as they can provide a more solid basis for decisions regarding the most appropriate model (Table 1), but all models were informed by theoretical considerations (Baumgartner and Homburg 1996). Differences between nested models (Bacon 2000) can be evaluated based on the chi square statistics and degrees of freedom (df).

Insert Table 1 approximately here

The selected model according to the likelihood ratio tests provided the best fit to the data, as measured by the set of indicators (highest values for AGFI, lowest values for the rest of indicators). One exception is Model A for fruit, which did not display the lowest ECVI and AIC, but the differences between this model and the competing ones were marginal.

The ratio of chi square to the degrees of freedom (df), known as normed chi-square, is examined. A low ratio is desirable (Maruyama 1998) with values less than 10 regarded as acceptable fit (Bacon 2000) and values less than 3 regarded indicative of good fit (Kaplan 2000). As the chi-square test is sensitive to sample size, and there is disagreement over the threshold regarded as acceptable (Mavondo, Gabbott and Tsarenko 2003) this indicator is complemented by a set of other measures.

The most common indicators used to describe the goodness-of-fit of the structural models (Loehlin 1998) are the Goodness-of-Fit Index (GFI), Bentler's Comparative Fit Index (CFI), Bentler-Bonett's Normed Fit Index (NFI), Non-normed Fit or Tucker-Lewis Index (TLI), Standardised Root Mean square residual (SRMR) and Steiger's Root Mean Square of Approximation (RMSEA). Values of GFI, CFI, NFI, TLI above 0.90 suggest adequate fits, while greater than 0.95 indicate good fits (Diamantopoulos Siguaw 1999; Hulland, Chow and Lam 1996; Kaplan 2000).

RMSEA and the incremental fit indices CFI and TLI, as non-centrality goodness-of-fit indices (Kaplan 2000), represent population –based measures which acknowledge the hypothesised models as approximations of the population parameters. Unlike CFI, TLI penalises less parsimonious models (Baumgartner and Homburg 1996) by expressing fit per df.

Standardised Root Mean Residuals (RMR) below 0.05 indicate acceptable fit (Diamantopoulos and Siguaw 1999). Values of RMSEA less than 0.05 represent close fit of the model to the data, between 0.05 and 0.08 are satisfactory, between 0.08 and 0.10 indicate mediocre fit and greater than 0.10 suggests poor fit (Browne and Cudeck 1993). This thresholds used in interpreting this indicator do not lack controversy. Steiger (1989, p.81) regards values below 0.10 as good.

The structural models which provided the most excellent goodness-of-fit for the six commodities are outlined in Figure 2.

Insert Figure 2 approximately here

Standardised path coefficients are reported in the path diagrams to achieve comparability (Hair et al. 1998) measurement scales and enhance the interpretation (Bollen 1989) of cross-model parameter estimates.

5. Discussion

5.1. General discussion

Predictive utility of attitudes and habits as predictors of behavioural intention was found. This is an inverted pattern compared to studies carried out in Italy (Saba and Di Natale, 1998; 1999), but an ample discussion is restricted by the comparability between products in these studies. Overall attitudes emerge as the most significant predictor of consumption intention. Many previous studies reported attitudes as a key predictor of behavioural intention (Sheppard, Hartwick and Warshaw 1988; Thompson, Haziris and Alekos 1994). Notwithstanding the low Cronbach's alphas of attitudes for four commodities (eggs, fruit, meat and milk), the attitude-intention relations did not appear attenuated relative to the others, as could have been expected (Sparks et al. 2001) if ambivalence induced a bias in the model.

The variation accounted by the model was generally higher for intention compared to behaviour, except margarine. This pattern was expectable (see Saba and Di Natale 1998), as a single latent variable was hypothesised to predict behaviour. In more general terms, the models based on the TRA attested it as a valid instrument in predicting intention rather than behaviour (Bagozzi and Warshaw 1990). Notwithstanding the low R^2 for intention to consume margarine and consumption of meat, the values may be regarded as satisfactory and in line with many studies previously acknowledged (e.g.

Saba and Di Natale 1998; 1999). Higher multiple square coefficients were found for the intention to consume butter, fruit, and milk, suggesting that the models explain well the variability in these variables. Other factors such as the level of subject's determination and unforeseen events can influence the impact of intention on behaviour. Concepts such as "intention stability" were proposed to bridge the gap between intention-behaviour (Conner et al. 2003).

5.2. Individual performance

The goodness of fit presented in this study generally follow the recommendations from the literature (Hu and Bentler 1995; Steiger 1989; Tanaka 1993). Although most of the indicators in the six models indicate an acceptable goodness-of-fit, differences between them persist.

The baseline model was validated in the case of butter, fruit and milk. However, in the case of eggs, margarine and meat, the less parsimonious model B, which allowed a direct effect of attitudes on behaviour, in addition to the indirect effect via intention, has outperformed. Results partly corroborate other studies (Saba and Di Natale 1999). They reported a better fit of the baseline model in the prediction of consumption of meat. Nevertheless, the goodness-of-fit of their competing models was comparable. Moreover, for white meat, the model which specified a mediated and a direct effect of attitude on behaviour had outperformed the baseline model.

RMSEA shows a weaker fit in the case of butter and meat. Only in the case of meat, the suboptimal TLI is consistent with the fact that the selected model is less parsimonious. TLI for butter (0.88) approaches the threshold regarded as acceptable. There is therefore less confidence in the model regarding meat. As far as eggs and milk are concerned, although the values of RMSEA indicated poor fit, the rest of indicators indicate a good or at least acceptable fit. As for fruit and margarine, all goodness-of-fit indicators validated the model.

Results for meat should be interpreted with caution, given the high normed chi-square and RMSEA, and low TLI, in addition to a low R^2 for behaviour. Furthermore the direct effect of attitude on behaviour is negative according to Model B, whereas the indirect effect mediated by intention is positive in all three models. The hypotheses regarding behaviour for this product are therefore regarded as inconclusive and paths related to intention should be treated with caution.

The path coefficients in the valid structural models presented in Figure 2 provide evidence for testing the hypotheses of the study with regards to each commodity. There is evidence that attitudes have significant positive effects on behavioural intention in the case of butter, eggs, fruit, meat and milk. Thus H_1 is accepted in five cases. No influence of attitudes on intention to consume margarine were found. In this case the insignificance of path attitude on intent may be partly due to freeing the path between attitude and behaviour, as Saba and Di Natale (1999) discussed. Nevertheless in this study the corresponding path for eggs has not been significantly altered by specification searches.

Evidence of significant positive effects of habit on behavioural intention is reported in the case of butter, eggs, margarine, meat and milk. H_2 is accepted again in five cases, There is statistically insignificant evidence regarding H_2 regarding fruit.

A positive endogenous path between intention and behaviour was found for butter, eggs, fruit and milk. Therefore H_3 is accepted in these cases and evidence for margarine and meat regarded as inconclusive.

6. Conclusions and implications

The study found predictive utility of the TRA in predicting food consumer behaviour in Romania. Attitudes and habit tend to be significant determinants of food consumption. Intention is also a significant, yet modest, predictor of behaviour. However, differences between products remained. For butter, eggs, fruit and milk both paths effects of attitude on intention and the path effects of intention on behaviour were significantly positive as hypothesised. Habit had positive effects on consumption intent for five products (butter, eggs, margarine, meat and milk). The models highlighted a higher predictive power of the intention to consume butter, fruit, and milk relative to the other two commodities.

Priester et al. (2004) suggested that "consideration" can mediate the relation between attitude strength and choice. Strongly held attitudes can define the alternatives evaluated by consumers. In the light of the findings of this study, achieving behavioural (i.e. dietary) change may require communication campaigns aiming to induce strong positive attitudes to specific products. Following the elaboration of attitudes as conceived by TRA promoters (beliefs x evaluations) and developments in marketing communications theory (Fill 2002), there is scope for changing attitudes by changing performance salient beliefs, attribute priorities or strengthening the existing ones). Consumers' cognitive structures can be influenced by advertisements which entice consumers to elaborate them (Haugtvedt and Priester 1997). For example, a significant number of subjects in the survey believed eggs are beneficial for health. Disseminating information about cholesterol, dietary guidelines and nutrient content may alter perception and beliefs about foods.

The study has implications for both health campaigners and food marketers. Inducing healthy eating in this transitional economy should acknowledge difficulties to break previous unhealthy eating habits, focus on health benefits of dietary change and provide social support in later stages. New product launches should provide, in addition to advertising aiming to induce positive attitudes toward the product, opportunities for testing aiming to encourage the formation of new habits, particularly relevant when consumers are price sensitive, as it is likely to be the case in a low-income environment. An illustrative example of entrenched habit is consumption of pickled and preserved vegetables (Petrovici 2003). Part of the difficulties faced by Unilever in Romania in launching the brand of bottled tomato sauce Calvé in 1999 (later withdrawn, Unilever, 1999, 2001) can be attributed to the preservation of tomatoes in many Romanian households and the habit of consuming home produce believed as being cheap and less artificial. Marketers should remain aware of ambivalence in attitudes and perceptions and achieve credibility on the marriage between palatability and healthiness when elaborating messages in their campaigns.

7. Limitations and future research

The internal reliability of attitudes to eggs, fruit, meat and milk was low. The paths linking these exogenous variables with the other in the models remain subject to this limitation. Results regarding meat should be interpreted with caution, given the suboptimal values of certain indicators. The poor fit of the meat model can be linked to the high level of aggregation of this group. Respondents may have positive attitudes to one type of meat and negative to other. Future research may examine specific types of meat such as red, white (Saba and Di Natale, 1999) or specific products (pork, beef). Extensions of the model with variables such as perceived behavioural control may provide opportunities to examine whether the TPB provides an improved fit and can be successfully used in explaining consumer behavior and particularly food choice transition economies.

Tables

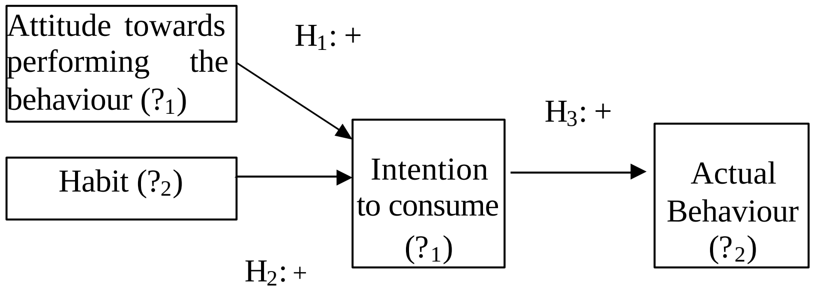
Table 1. Goodness-of-fit indicators of competing theoretical models

		Likelihood ratio test	AGFI	ECVI	AIC
Butter	Model A	-	0.86	0.32	106.5
	Model B	0.29 (df=1, ns)	0.85	0.32	108.3
	Model C	2.18 (df=1, ns)	0.85	0.32	106.4
Eggs					
	Model A	-	0.88	0.27	114.9
	Model B	13.85 (df=1, p<0.01)	0.89	0.25	103.4
	Model C	11.65 (df=1, p<0.01)	0.88	0.25	105.2
Fruit					
	Model A	-	0.91	0.22	114.9
	Model B	1.9 (df=1, ns)	0.91	0.22	103.4
	Model C	1.51 (df=1, ns)	0.91	0.22	105.2
Margarine					
	Model A	-	0.85	0.31	120.4
	Model B	66.1 (df=1, p<0.01)	0.96	0.14	56.3
	Model C	68.85 (df=1, p<0.01)	0.85	0.14	115.6
Meat					
	Model A	-	0.61	0.78	321.4
	Model B	13.85 (df=1, p<0.01)	0.81	0.37	151.4
	Model C	11.65 (df=1, p<0.01)	0.57	0.79	325.1
Milk					
	Model A	-	0.86	0.31	117.8
	Model B	13.85 (df=1, p<0.01)	0.85	0.31	119.3
	Model C	11.65 (df=1, p<0.01)	0.85	0.31	118.4

Note: Likelihood ratio test: reports differences between chi-square between Model A and Model B, respectively Model A and Model C. A statistically significant reduction in chi-square relative to the differences in df provides evidence of the improvement in fit relative to the baseline model (Hayduk 1987), therefore support for the alternative model.

Figures

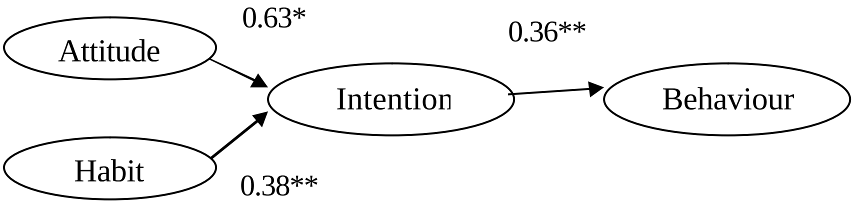
Figure 1. The modified theory of reasoned action in the field of food choice



Source: Adapted from Ajzen and Fishbein (1980) and Saba and DiNatale (1999)

Figure 2. Path diagrams of the selected models

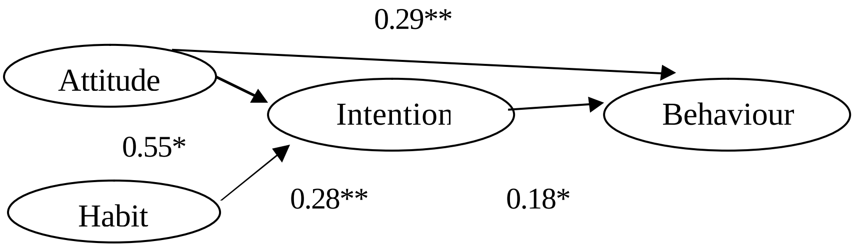
a) Butter



χ^2 =74.58
R^2 of constructs
Intention $(?_1)$ = 0.54
Behaviour $(?\ _2)$ =0.13

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model A	6.215	0.94	0.93	0.92	0.88	0.11	0.125

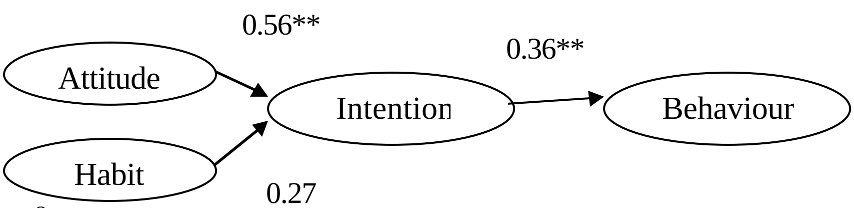
b) Eggs



χ^2 =69.46
R^2 of constructs
Intention $(?_1)$ = 0.37
Behaviour $(?\ _2)$ =0.18

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model B	6.314	0.95	0.95	0.94	0.90	0.10	0.112

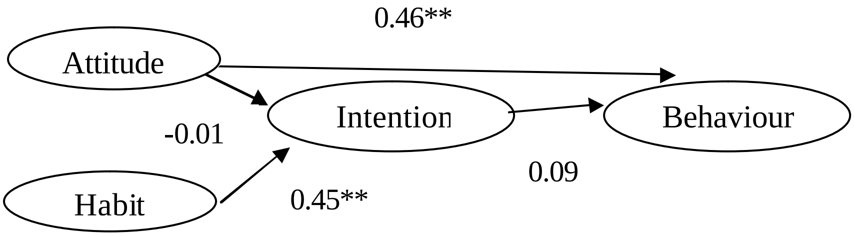
c) Fruit



χ^2 =43.26
R^2 of constructs
Intention $(?_1)$ = 0.54
Behaviour $(?\ _2)$ =0.13

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model A	3.932	0.97	0.96	0.95	0.92	0.051	0.09

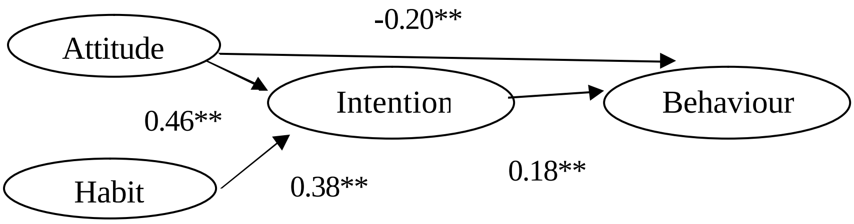
d) Margarine



χ^2 =20.3
R^2 of constructs
Intention (?$_1$) = 0.20
Behaviour (? $_2$) =0.22

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model B	2.03	0.99	0.99	0.98	0.97	0.036	0.051

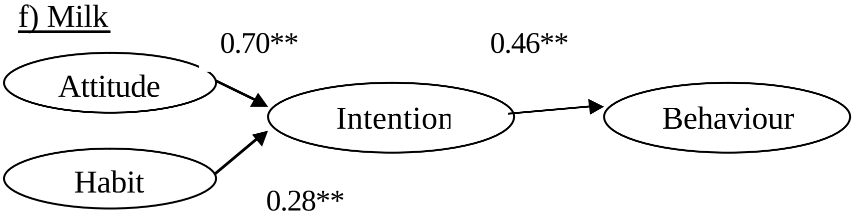
e) Meat



χ^2 =117.4
R^2 of constructs
Intention (?$_1$) = 0.36
Behaviour (? $_2$) =0.04

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model B	10.672	0.92	0.89	0.89	0.80	0.13	0.154

f) Milk



χ^2 =85.81
R^2 of constructs
Intention (?$_1$) = 0.57
Behaviour (? $_2$) =0.21

	Normed χ^2	GFI	CFI	NFI	TLI	SRMR	RMSEA
Model A	7.15	0.94	0.94	0.94	0.90	0.13	0.127

Note: * $p < 0.05$; ** $p < 0.01$.

Source: Author’s calculations

References

Ajzen, Icek (1991), “The Theory of Planned Behavior”, *Organizational Behavior and Human Decision Processes*, **50**, pp. 179-211.

Ajzen, Icek and Fishbein, Martin (1980), *Understanding Attitudes and Predicting Social Behaviour*, Englewood Cliffs, NJ: Prentice Hall.

Bacon, Lynd D. (2000), “Using Amos in Structural Equation Modelling in Marketing Research”, *SPSS white paper series*, http://www.spss.com (November 2000).

Bagozzi, Richard P. and Warshaw, Paul R. (1990), “Trying to Consume”, *Journal of Consumer Research*, **17**, pp. 127-140.

Baumgartner, Hans and Homburg, Christian (1996), “Applications of Structural Equation Modelling in Marketing and Consumer Research: A Review”, *International Journal of Research in Marketing,* **13**, pp.139-161.

Bollen, Kenneth A. (1989), *Structural Equations with Latent Variables*, New York, Wiley.

Bollen, Kenneth A. (1996), “A Limited-Information Estimator for LISREL Models With or Without Heteroscedastic Errors”. In: *Advanced Structural Equation Modeling: Issues and Techniques* (Eds.) Marcoulides, Gerorge A. and Schumacker, Randall E. (NJ: Mahwah), Lawrence Erlbaum Associates, pp.227-241.

Brosig, Stephan and Ratinger, Tomáš (1999), “Shifts in Food Demand of Czech Households During Transition”, paper presented at the EAAE Congress on *European*

Agriculture facing the 21st Century in a Global Context, Warsaw, 24-28 August 1999, pp. 314-332.

Browne, Michael W. and Cudeck, Robert (1993), "Alternative Ways of Assessing Model Fit", In: *Testing Structural Equation Models*, (Eds.) Bollen, Kenneth A. and Long, Scott J. (Newbery Park), Sage.

Cameroon, Margaret E. and Van Staveren, Wija A. (Eds.) (1988), *Manual on methodology for food consumption studies*, New York, Oxford University Press.

Carroll Kenneth (Ed.) (1998), *Current Perspectives on Nutrition and Health,* Montreal, McGraw-Gill University Press.

Conner, Mark, Povey, Rachel, Sparks, Paul, James, Rhiannon and Shepherd, Richard (2003), "Moderating Role of Attitudinal Ambivalence within the Theory of Planned Behaviour", *British Journal of Social Psychology*, **42**, pp. 75-94.

Conner, Mark, Sheeran, Paschal, Norman, Paul and Armitage, Christopher J. (2000), "Temporal Stability as a Moderator of Relationships in the Theory of Planned Behaviour", *British Journal of Psychology*, **39**, pp. 469-493.

Diamantopoulos, Adamantios and Siguaw, Judy A. (2000), *Introducing LISREL. A Guide for the Uninitiated,* London, Sage Publications.

Eagly, Alice H. and Chaiken, Shelly (1993), *The Psychology of Attitudes*, Fort Worth, TX: Harcourt Brace Jovanovich.

Fill, Chris (2002), "Understanding How Customers Process Information". In: *Marketing Communications: Contexts, Strategies and Applications* 3rd Edition. (Ed.) Fill, Chris (Harlow), Pearson Education Ltd, pp. 57-89.

Hair, Joseph F., Anderson, Rolph E., Tatham, Ronald L. and Black, William C. (1998), *Multivariate Analysis with Readings*, 5th Ed., New Jersey, Prentice Hall International.

Haugtvedt, Curtis P. and Priester, Joseph R. (1997), "Conceptual and Methodological Issues in Advertising Effectiveness: An Attitude Strength Perspective". In: *Measuring Advertising Effectiveness* (Ed.) Wells, William (NJ: Mahwah), NJ: Lawrence Erlbaum, pp. 79-94.

Hayduk, Leslie (1987), Structural Equation Modeling with LISREL: Essentials and Advances, Baltimore, the Johns Hopkins University Press.

Hu, Li-Tze and Bentler, Peter M. (1995), "Evaluating Model Fit". In: *Structural Equation Modelling: Concepts, Issues and Applications*. (Ed.) Hoyle, Rick H. (London), Sage Publications, pp.76-99.

Hulland, John, Chow, Yiu Ho and Lam, Shunyin (1996), "Use of Causal Models in Marketing Research: A review", *International Journal of Research in Marketing,* **13**, pp.181-197.

IRECSON (2000), Living Conditions of Romanian Population, unpublished report on Bucharest, Bucharest, IRECSON.

Jöreskog, Karl G, Sörbom, Dag, Du Toit, Stephen and Du Toit, Mathilda (2001), *LISREL 8: New Statistical Features*, SSI.

Kaplan, David (2000), *Structural Equation Modeling: Foundations and Extensions*, London, Sage.

Loehlin, John C. (1998), *Latent Variable Models: An introduction to Factor, Path, and Structural Analysis*, 3rd Edition, London, Lawrence Erlbaum.

MacLean, Scott and Gray, Kevin (2000), "Structural Equation Modelling in Marketing Research", paper retrieved from http://www.smallwaters.com/whitepapers/marketing (August 2000).

Maruyama, Geoffrey M. (1998), *Basics of Structural Equation Modelling*, Thousand Oaks, Sage.

Mavondo, Felix, Gabbott, Mark and Tsarenko, Yelena (2003), "Measurement Invariances in Marketing Instruments: An Implication Across Countries", *Journal of Marketing Management*, **19**, pp. 523-540.

Miniard, Paul W. and Cohen, Joel B. (1983), "Modeling Personal and Normative Influences on Behavior", *Journal of Consumer Research*, **10**, pp. 169-180.

Mittal, Banwari (1988), "Achieving Higher Seat-Belt Usage: the Role of Habit in Bridging the Attitude-Behaviour Gap", *Journal of Applied Social Psychology*, **18**, 993-1016.

NCS (National Commission for Statistics) (1997), *Aspecte Privind Calitatea Vietii Populatiei*, Bucharest, NCS.

Olsen, Svein O. (1999), "Strength and Conflicting Valence in the Measurement of Food Attitudes and Preferences", *Food Quality and Preference*, **10**, pp.483-494.

Paisley, Claire M. and Sparks, Paul (1998), "Expectations of Reducing Fat Intake: the Role of Perceived Need within the Theory of Planned Behaviour", *Psychology and Health*, **13**, pp. 341-353.

Petrovici, Dan A. (2003), "A Comparative Analysis of Patterns of Food Demand in Romania and Implications for the Integration of Romanian and West European Food Markets", unpublished PhD thesis, Newcastle University.

Petrovici, Dan A. and Christopher Ritson (2000), "Food Consumption Patterns in Romania", *British Food Journal*, Vol. **102**, No. 4, pp.290-307.

Priester, Joseph R., Nayakankuppam, Dhananjay, Fleming, Monique A., Godek, John (2004), "The A^2SC^2 Model: the Influence of Attitudes and Attitude Strength on Consideration and Choice", *Journal of Consumer Research*, **30**, pp. 574-587.

Saba, Anna and Di Natale, Roberto (1998), "Attitudes, Intention and Habit: their Role in Predicting the Actual Consumption of Fats and Oils", *Journal of Human Nutrition and Dietetics*, **11**, pp. 21-32.

Saba, Anna and Di Natale, Roberto (1999), "A Study on the Mediating Role of Intention in the Impact of Habit and Attitude on Meat Consumption", *Food Quality and Preference*, **10**, pp. 69-77.

Shaw, Deidre, Shiu, Edward, Clarke, Ian (2000), "The Contribution of Ethical Obligation and Self-Identity to the Theory of Planned Behaviour: An Exploration of Ethical Consumers", *Journal of Marketing Management*, **16**, pp.879-894.

Shepherd, Richard (1990), ”Overview of Factors Influencing Food Choice”, The British Nutritional Foundation, *Nutrition Bulletin*, June, Vol. **15**, Suppl., pp.12-31.

Shepherd, Richard and Stockley, L. (1987), “Nutrition Knowledge, Attitudes, and Fat Consumption”, *Journal of American Dietetic Association*, **87**, pp. 615-619.

Sheppard, Blair H., Hartwick, Jon and Warshaw, Paul R. (1988), “The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research”, *Journal of Consumer Research*, **15**, pp. 325-343.

Shih, Ya-Yueh and Fang, Kwoting (2004), “The Use of a Decomposed Theory of Planned Behaviour to Study Internet Banking in Taiwan”, *Journal of Internet Research*, Vol. **14**, No. 3, pp. 213-223.

Šlaisová, Jirina (2001) “Food Consumption Pattern in CEECs”, 71st EAAE seminar on *The Food Consumer in the Early 21st Century*, Zaragoza, 19-20 April 2001.

Sparks, Paul, Conner, Mark, James, Rhiannon, Shepherd, Richard and Povey, Rachel (2001), “Ambivalence about Health-Related Behaviours: An Exploration in the Domain of Food Choice”, *British Journal of Health Psychology*, **6**, pp.53-68

Stanculescu, Mihaela (1999), *Saracia in Romania 1990-1998*, Bucharest, Expert.

Steiger, James H. (1989), *EzPath Causal Modeling: A Supplementary Module for SYSTAT and SYGRAPH*, Evaston, IL: SYSTAT Inc.

Szabo, Márton (1999), “Changes in the Hungarian Food Consumption Patterns During the Nineties”. In: *Analysis of Food Consumption in Central and Eastern Europe:*

Relevance and Empirical Methods (Eds.) Brosig, Stephan and Hartmann, Monica (Kiel), Wissenschaftsverlag Vauk, pp.157-167.

Tanaka, J.S. (1993), "Monte Carlo Evaluations of Goodness-Of-Fit Indices for Structural Equation Models". In: *Testing structural equation models*, (Eds.) Bollen, Kenneth A. and Long, Scott J. (Newbury Park), Sage Publications, pp. 10 - 39.

Thompson, Keith E., Haziris, Nikolaos and Alekos, Panagiotis J. (1994), "Attitudes and Food Choice Behaviour", *British Food Journal*, **96**, pp.9-13.

Towler, G. and Shepherd, Richard (1991/1992), "Modification of Fishbein and Ajzen's Theory of Reasoned Action to Predict Chip Consumption", *Food Quality and Preference*, **3**, pp. 37-45.

Triandis, Harry C. (1977), *Interpersonal Behaviour*, Monterey, CA, Brooks/Cole.

Tuorila, Hely and Pangborn, R.M. (1988a), "Behavioural Models in the Prediction of Consumption of Selected Sweet, Salty and Fatty Food". In: *Food Acceptability* (Ed.) Thomson, MacFie H. (London), Elsevier Applied Science, pp. 267-279.

Tuorila, Hely and Pangborn, R.M. (1988b), "Prediction of Reported Consumption of Selected Fat-Containing Foods", *Appetite*, **11**, pp. 81-95.

UNDP (United Nations Development Program) (2003), *National Human Development Report: Romania 2001-2002*, Bucharest, Expert Publishing House Ltd.

Unilever (1999), (2001), Unilever Catalogue of Brands, unpublished report, Bucharest, Unilever.

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