Exploring convenience food consumption through a structural equation model

Anna Botonaki, Dimitrios Natos and Konstadinos Mattas
ampotona@agro.auth.gr

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Authors:

Anna Botonaki, PhD candidate, Aristotle University of Thessaloniki, School of Agriculture, Dept. of Agricultural Economics, Thessaloniki, Greece, email: ampotona@agro.auth.gr

Dimitrios Natos, PhD candidate, Aristotle University of Thessaloniki, School of Agriculture, Dept. of Agricultural Economics, Thessaloniki, Greece, email: dnatos@agro.auth.gr

Konstadinos Mattas, Professor of Agricultural Economics, Aristotle University of Thessaloniki, School of Agriculture, Dept. of Agricultural Economics, Thessaloniki, Greece, email: mattas@auth.gr

Abstract

In this study the model of convenience orientation suggested by Scholderer and Grunert (2005) is applied in order to examine consumer behavior in the context of convenience food usage. The empirical results indicate that socio-demographic characteristics affect behavior both directly and indirectly through perceived time resources and convenience orientation towards meal preparation and clearing up. Findings seem to be important for all the bodies involved in the marketing of convenience food products since they describe the way various consumer characteristics interact affecting the consumption of such products.

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Abstract

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Introduction

The role of convenience as a factor that influences the food consumption process has been discussed by many authors and a common finding of the empirical studies is that today's consumers demand higher levels of convenience in their foods. This trend is manifested in consumer's food preferences not only in U.S.A. (Senauer, 2001) and Western Europe (Costa et al., 2001; de Boer et al., 2004; Mahon et al., 2005) but also in developing countries where consumption shifts away from staple sources of calories towards manufactured food products (Gehlhar and Regmi, 2003).

Even though traditionally convenience has been examined in the context of strategies used by the consumer to reduce time pressures, time is not the only dimension involved in the consumption of convenience foods. Darian and Cohen (1995) proposed two dimensions of convenience. The first one concerns the type of convenience, which can be saving time, physical energy and/or mental energy. The second dimension refers to the stage of the meal process that convenience is obtained. Consumer may require convenience when deciding what to eat, purchasing, preparing the meal, consuming it and clearing up. The need for further research into the role of convenience in consumer food choices has been highlighted

by many authors (Nayga, 1998; Swoboda, 2001; Ahlgren et al., 2004; Jaeger, 2006). Furthermore, it has been suggested that researchers must take into account every stage in the meal consumption process from the planning of what to eat to the taking care of the leftovers and dishes (Darian and Cohen, 1995).

The objective of the present study is to examine the way several demographic and attitudinal consumer characteristics influence the consumption of convenience food products. This information will allow all the bodies involved in the marketing of such products to better understand consumer needs and thus provide better consumer service. The findings seem to be of particular interest taking into account the limited amount of research even though the market of convenience foods is growing rapidly (ICAP, 2004).

The following sections present a brief review of the literature on consumer behaviour towards convenience foods and the main methodological approaches that have been utilised to model consumer behaviour. Next, the methodology followed in this study is described and the results of the analysis are presented. Finally, the main conclusions drawn from the study are discussed.

Literature Review

The first empirical studies on the consumption of convenience foods relied primarily on Becker's household production model (1965). The basic assumption of these studies is that households with working wives will consume more convenience food products since the opportunity cost of time for a working wife is higher than that of a wife who doesn't work. Studies conducted following this approach, test primarily the time saving notion of convenience. Contrary to expectations though, most studies failed to provide enough evidence that working wives purchase more convenience products (see for example Douglas, 1976, Strober and Weinberg, 1980, Nayga and Farooq, 1995 and Harris, 2005).

Realizing that classifying wife's work status into working/non working did not help in explaining differences in consumption, researchers began to use other classification schemes. Variables like full-time/part-time/no paid job and high occupational status/low occupational status/non working wife (Schaninger and Allen, 1981) belong to these efforts. These new approaches managed to explain some of the variation in consumption of convenience foods (Schaninger and Allen, 1981). However in most cases, socio-demographic characteristics other than wife's occupational status have been found to affect in a more systematic way the decision to consume convenience food products (Redman, 1980; Capps et al., 1985; Manrique and Jensen, 1997; Nayga, 1998; Richards et al., 1998; Jae et al, 2000; Newman et al., 2003; Harris, 2005).

Becker's theory has been criticized mainly because it fails to take into account important variables that affect consumer behavior such as consumer satisfaction from the product, situational determinants (Jacoby et al., 1976) or spatial limitations and consumer preferences and perceptions (Feldman and Hornik, 1981). Psychological and attitudinal variables apart from the typical socioeconomic factors have been recognized to play a determining role in consumers' decision to move to more convenient meal solutions (Yale and Venkatesh, 1986; Darian and Cohen, 1995; Madill-Marshall et al., 1995; Gentry et al., 1996; Davies and Madran, 1997; Chetthamrongchai and Davies, 2000). Indeed, studies have shown that variables like personal values (Rose et al., 1995), food related lifestyles (Buckley et al., 2005) perceived healthiness of food (Darian and Cohen, 1995; McCullough et al., 2003), perceived time shortage (Darian and Cohen, 1995; Ahlgren et al., 2004; Scholderer and Grunert, 2005), perceived money budget (Scholderer and Grunert, 2005), attitudes on time (Davies and Madran, 1997), joy of cooking (Madill-Marshall et al., 1995; Davies and Madran, 1997), life satisfaction and perceived stress (Madill-Marshall et al., 1995), ethnic identity (Laroche et al., 1998) and situational determinants (Verlegh and Candel, 1999;

Ahlgren et al., 2005; Schöder and McEachern, 2005) have an impact on the decision to consume convenience foods.

Tested Model and Methodology

Scholderer and Grunert (2005) built up a model to explain consumer's convenience behavior in the context of meal production that combines both the household production theory and the attitudinal approach, more specifically, the convenience orientation approach. Convenience orientation can be characterized as the value placed on, and the active search for, products and services that provide personal comfort and/or save time in performing various activities (Luqmani et al., 1994). Specified at the food preparation stage, Candel (2001, pp. 17) defines convenience orientation as "the degree to which a consumer is inclined to save time and energy as regards meal preparation".

According to Scholderer and Grunert's model of convenience orientation (2005), the influence of resource constraints on convenience behavior is doubly mediated, first by perceived resources, and then by convenience orientation. In other words, household objective resources affect perceived resources, which refer to disposable income and disposable time, which in turn affect convenience orientation. Finally, convenience orientation affects convenience behavior. Scholderer and Grunert (2005) tested their model on a French sample and then cross validated it on a UK sample. In both cases the results supported the double mediation approach.

Following Scholderer and Grunert's proposed model (2005), this paper attempts to further examine the double mediation hypothesis using a sample of Greek consumers. However, this paper distinguishes among five types of convenience orientation taking into account all stages in the meal consumption process: convenience orientation towards planning of meal, food shopping, meal preparation, consumption and, clearing up. Furthermore, in an attempt to examine the impact of concern about the natural content of food[1] on the

convenience food selection, an exogenous variable named "health consciousness" was entered into the model. A graphical presentation of the model is depicted in figure 1.

Place Figure 1 about here

The model was tested using the covariance structure model LISREL. For a detailed discussion on the LISREL model see Jöreskog and Sörbom (1996). The data were obtained via a questionnaire survey in which only consumers responsible for the food purchasing and food preparation in their households took part. In total, 664 valid questionnaires were selected and utilized in the analysis.

Objective household resources were measured by the variables: Monthly family income, number of children in the household, number of adults in the household, respondent's employment status, spouse's employment status, and 14 interactions (product terms). These variables were treated as fixed variables (supposedly measured without error). For more details on the objective household resources and the way they were measured see Scholderer and Grunert (2005). Perceived money budget, perceived time budget, convenience orientations, health consciousness and convenience product usage were formed as latent variables with multiple items in order to avoid identification and estimation problems (Baumgartner and Homburg, 1996). All items were measured in a five point Likert agreement scale, except from the convenience food usage items which were measured in a seven point scale (1= never, 2=less frequent, 3=1-5 times every six months, 4=1-3 times a month, 5=1-2 times a week, 6=3-4 times a week, 7=everyday or almost everyday). The items used in each construct are presented in table 1.

Results

The sample is represented by 78.3 percent female and 56.1 percent married consumers. All respondents are over 18 years of age and most of them (27.9 percent) belong

to the age category of 26-35 years old. The mean family income is 1501-2000 euros per month.

According to the two-step modeling approach (Anderson and Gerbing, 1988), the hybrid model was first tested as a confirmatory factor analysis measurement model. The maximum likelihood estimation method was used for both the measurement and the structural models but the chi-square was adjusted for nonnormality by using the asymptotic covariance matrix and estimating the rescaled Satorra-Bentler chi-square statistic (Jöreskog and Sörbom, 1996). The latent variables were scaled by fixing the loading of one of their indicators to 1.0. Goodness-of-fit statistics suggest an excellent fit of the measurement model (S-B χ^2=1430.2469, d.f.=963, RMSEA=0.02705, GFI=0.9233, NNFI=0.9618, CFI=0.9856, Standardized RMR=0.03174). Table 1 presents in detail the results of the measurement model as well as the construct reliabilities (Cronbach's alpha).

Place Table 1 about here

To test the structural relations of the latent variables, the model building strategy (Kline, 1998) was followed. Constraints in the null structural model were relaxed following Scholderer and Grunert's (2005) procedure, where effects were entered in nine blocks: 1) direct effects of attitudes on behavior, 2) direct effects of health consciousness on attitudes, 3) direct effects of perceived resources on attitudes, 4) direct effects of objective resources on perceived resources, 5) direct effects of objective resources on behavior, 6) direct effects of objective resources on attitudes, 7) direct effects of perceived resources on behavior, 8) direct effects of health consciousness on perceived resources, and 9) direct effects of health consciousness on behavior. Then, the models were compared using the chi-square difference test and the Non-Normed Fit Index (NNFI). The entered structural relationships were accepted if they positively contributed to the NNFI of the model and if the chi-square

difference test was significant (Scholderer and Grunert, 2005). The results are shown in table 2 while figure 2 presents only the significant effects of the accepted blocks.

Place Table 2 about here

Place Figure 2 about here

As it can be seen in table 2, the non accepted blocks are the objective resources on attitudes, the perceived resources on behavior and the health consciousness on perceived resources. Unlike Scholderer and Grunert (2005), the direct effect of objective resources on behavior was accepted. However, only one variable, the interaction of the number of adults in the household and the employment status of the respondent, was found to have a direct influence on convenience food usage. On the other hand, and in line with the results of Scholderer and Grunert (2005), perceived resources have only indirect effects, through attitudes, on behavior.

To further examine the effect of the interaction term on behavior, figure 3 is presented. Households with members responsible for the food preparation working part time, consume convenience food products more frequently than those with non working respondents in all cases of number of adults in the household. The difference in consumption is rather small when there are at most 2 adults in the household. However, the difference increases when the number of adults is increasing and it gets a maximum value in the presence of 6 adults in the household. The lack of a mediation effect though, shows that these effects cannot be attributed to perceived time or money pressures, so it may be some other type of convenience or need that drives this kind of behavior.

Place Figure 3 about here

Even though income was found to affect perceived money budget in the expected direction, it was not found to affect neither attitudes nor behavior in any way. This was an

unexpected finding taking into account that consumers perceive convenience food products to be rather expensive[2].

The variables found to affect perceived time budget are the employment status of the respondent and the number of children in the household. Respondents, who are full time employed feel, as it was expected, more pressured for time than respondents who are not engaged in the labour force. Furthermore, respondents feel more pressured for time as the number of children in the household increases even though this relationship is not that strong (see fig. 2). Although perceived time budget significantly affects most variables concerning convenience orientation, it only affects behaviour through convenience orientation towards meal preparation and clearing up.

Finally, health consciousness was found to affect behavior both directly and indirectly. The importance given to the naturalness of the food influences not only the usage of convenience products, but also the convenience orientation towards every stage of the meal consumption process (all five stages examined here). Consumers who attach much importance to the naturalness of food use convenience food products less frequently and are less convenience oriented. Behavior is affected indirectly by health consciousness primarily through attitudes towards meal preparation, and to a lesser extent through attitudes towards clearing up and food consumption.

As far as the predictive validity is concerned, the model was capable of explaining 35% of the variance in convenience food usage.

Conclusions

In the present study an attempt was made to examine the effect of several socio-demographic and psychographic variables on the convenience food usage utilizing a sample of Greek consumers. One of the main objectives of this paper was to test the double mediation effect suggested by Scholderer and Grunert (2005), according to which, the influence of

objective household resources on convenience food usage is doubly mediated, first by perceived resources and then by convenience orientations. Results demonstrate that perceived resources and convenience orientation partially mediate the relationship between objective household resources and convenience behavior. The product term of respondent's employment status and number of adults in the household was found to have a direct effect on convenience food usage. More specifically, households where members responsible for the food preparation are part time employed use more convenience food products, especially when the number of adults in the household is more than two. The difference in usage increases dramatically when six adults are present in the household. The lack of a mediation effect though, shows that this result can be attributed neither to time or money pressures nor to convenience orientation towards the five consumption stages examined in this study.

The most intriguing result of this study is the lack of a significant effect of the variables of income and perceived money budget on behavior. Though income was found to significantly affect perceived money budget in the expected direction, it wasn't found to affect behavior neither directly nor indirectly through convenience orientations. On the other hand, perceived time budget was found to have significant effects on most types of convenience orientation supporting the idea that time poor consumers hold different attitudes and have different needs in the food domain. Indeed, as results suggest, consumers who are convenience orientated towards meal preparation, food consumption and clearing up move to more frequent usage of convenience food products.

The results support Becker's theory in the sense that full time employed women (since the majority of the respondents are females) use more frequently convenience food products. Of course, this relationship is not a direct one but it goes through perceived time pressure and convenience orientation towards meal preparation and clearing up. In addition to woman's full time employment, the number of children in the household has the same effect. More

children mean more time pressure, which leads to higher convenience orientation which finally leads to higher consumption of convenience food products.

Apart from objective and perceived resources, health consciousness was found to be an important determinant of convenience behavior both directly and indirectly. Consumers who attach much importance to the naturalness of food consume less convenience food products and are less convenience oriented towards all five stages of the food consumption examined. Health consciousness has the biggest impact on behavior, compared with perceived time pressure, since the total standardized effects for the former is equal to -0.34, while the total effects for the latter is 0.12. This means that increasing perceived time pressure by one standard deviation increases consumption of convenience food products by 0.12 while increasing health consciousness by one standard deviation reduces consumption by 0.34 via all direct and indirect causal relationships between these variables.

The results of this study seem to be of particular interest for food marketers and food policy makers since they describe the way time poor consumers differ from others and how this time pressure leads to higher consumption of convenience food products. Furthermore, results demonstrate that the importance attached to health, as a motivation for food selection, is not only adversely related to convenience food usage but is also a major determinant of this behavior. Companies that will provide novel food products that combine convenience as well as freshness and low levels of additives and preservatives, will be able to gain a big share of the market taking into account the two trends for health and convenience that characterize today's consumer needs.

Footnotes

[1] Health concerns have been found to be adversely related to the consumption of convenience foods. A qualitative study (focus groups) that was performed prior to the quantitative one in

this study, revealed, that consumers criticize convenience foods primarily for their high content in additives and preservatives.

[2] This was a common comment on convenience food products from the consumers who participated in the focus group research, which took place prior to the questionnaire research.

References

Anderson, J. C. and Gerbing, D. W. (1988). Structural equation modelling in practice: a review and recommended two step approach. Psychological Bulletin, 103, 411-423.

Ahlgren, M., Gustafsson, I.-B. and Hall, G. (2004). Attitudes and beliefs directed towards ready-meal consumption. Food Service Technology, 4, 159-169.

Ahlgren, M. K., Gustafsson, I.-B. and Hall, G. (2005). The impact of the meal situation on the consumption of ready meals. International Journal of Consumer Studies, 29, 485-492.

Baumgartner, H. and Homburg, C. (1996). Applications of structural equation modelling and consumer research: A review. International Journal of Research in Marketing, 13, 139-161.

Becker, G. S. (1965). A theory of the allocation of time. The Economic Journal, 75, 493-517.

Bredahl, L. and Grunert, K. G. (1997). Food-related lifestyle trends in Germany 1993-1996. MAPP working paper, April 1997. Aarhus: The Aarhus School of Business.

Buckley, M., Cowan, C., McCarthy, M. and O' Sullivan, C. (2005). The convenience consumer and food-related lifestyles in Great Britain. Journal of Food Products Marketing, 11 (3), 3-25.

Candel, M. J. J. M. (2001). Consumers' convenience orientation towards meal preparation: conceptualization and measurement. Appetite, 36, 15-28.

Capps, O. Jr., Tedford, J. R. and Havlicek, J. Jr. (1985). Household demand for convenience and nonconvenience foods. American Journal of Agricultural Economics, 67, 862-869.

Chen, F., Bollen, K. A., Paxton, P., Curran, P. J. and Kirby, J. B. (2001). Improper solutions in structural equation models. Sociological Methods & Research, 29 (4), 468-508.

Chetthamrongchai, P. and Davies, G. (2000). Segmenting the market for food shoppers using attitudes to shopping and to time. British Food Journal, 102 (2), 81-101.

Costa, A. I. A., Dekker, M., Beumer, R. R., Rombouts, F. M. and Jongen, W. M. F. (2001). A consumer-oriented classification system for home meal replacements. Food Quality and Preference, 12, 229-242.

Darian, J. C. and Cohen, J. (1995). Segmenting by consumer time shortage. Journal of Consumer Marketing, 12 (1), 32-44.

Davies, G. and Madran, C. (1997). Time, shopping and food preparation: some attitudinal linkages. British Food Journal, 99 (3), 80-88.

De Boer, M., McCarthey, M., Cowan, C. and Ryan I. (2004). The influence of lifestyle characteristics and beliefs about convenience food on the demand for convenience foods in the Irish market. Food Quality and Preference, 15, 155-165.

Douglas, S. P. (1976). Cross-national comparisons and consumer stereotypes: a case study of working and non-working wives in the U.S. and France. The Journal of Consumer Research, 3 (1), 12-20.

Feldman, L. P. and Hornik, J. (1981). The use of time: An integrated conceptual model. Journal of Consumer Research, 7 (4), 407-419.

Gehlhar, M. and Regmi, A. (2003). Global consumer food markets: Evidence of transition on the horizon. Paper presented in the 83nd EAAE seminar, Food Quality Products in the Advent of the 21st Century: Production, Demand and Public Policy, 4th-7th September, 2003, Chania, Crete, Greece.

Gentry, J., Joag, S. and Ekstrong, K. (1996). The role of goals in family decision making. Asia Pacific Advances in Consumer Research, 2, 93-99.

Harris, J. M. (2005). Using Nielsen homescan data and complex survey design techniques to analyze convenience food expenditures. Selected paper prepared for presentation at the American Agricultural Economics association Annual Meeting, Providence, Rhode Island, July 24-27, 2005.

ICAP A.E. (2004). Sector study on ready meals. Greece, September 2004.

Jacoby, J., Szybillo, G. J. and Kohn Berning, C. (1976). Time and consumer behavior: an interdisciplinary overview. The Journal of Consumer Research, 2 (4), 320-339.

Jae, M. K., Ryu, J. S. and Abdel- Ghany, M. (2000). Family characteristics and convenience food expenditure in urban Korea. Journal of Consumer Studies and Home Economics, 24 (4), 252-256.

Jaeger, S. R. (2006). Non-sensory factors in sensory science research. Food Quality and Preference, 17, 132-144.

Jöreskog, K. G. and Sörbom, D. (1996). LISREL 8: user's reference guide (2nd ed.). Chicago, IL: Scientific Software International, Inc.

Kline, R. B. (1998). Principals and practice of structural equation modeling. New York: Guilford Press.

Laroche, M., Kim, C. and Tomiuk, M. A. (1998). Italian ethnic identity and its relative impact on the consumption of convenience and traditional foods. Journal of Consumer Marketing, 15 (2), 125-151.

Luqmani, M., Yavas, U. and Quraeshi, Z. A. (1994). A convenience-oriented approach to country segmentation. Implications for global marketing strategies. Journal of Consumer Marketing, 11 (4), 29-40.

Madill-Marshall, J., Heslop, L. and Duxbury, L. (1995). Coping with household stress in the 1990s: who uses "convenience foods" and do they help? Advances in Consumer Research, 22, 729-734.

Mahon, D., Cowan, C. and McCarthy, M. (2005). The role of attitudes, subjective norm, perceived control and habit in the consumption of ready meals and takeaways in Great Britain. Food Quality and Preference, 17, 474-481.

McCullough, F., Jones, S. and Vignali, D. (2003). The pot snack market – are today;s consumers demanding health as well as convenience? British Food Journal, 105 (6), 395-404.

Manrique, J. and Jensen, H. H. (1997). Spanish household demand for convenience meat products. Agribusiness, 13 (6), 579-586.

Nayga, R. M. Jr. (1998). A sample selection model for prepared food expenditures. Applied Economics, 30, 345-352.

Nayga, R. M. and Farooq, Z. (1995). Consumption of convenience meat products: results from an exploratory New Jersey survey. Journal of Food Distribution Research, 26, 33-37.

Newman, C., Henchion, M. and Matthews, A. (2003). A double-hurdle model of Irish household expenditure on prepared meals. Applied Economics, 35, 1053-1061.

Redman, B. J. (1980). The impact of women's time allocation on expenditure for meals away from home and prepared foods. American Journal of Agricultural Economics, 62, 234-237.

Richards, T. J., Gao, X. M. and Patterson, P. M. (1998). The demand for value-added and convenience: a household production approach. Agribusiness, 14 (5), 363-378.

Rose, G. M., Kahle, L. R. and Shoham, A. (1995). The influence of employment status and personal values on time related food consumption behavior and opinion leadership. Advances in Consumer Research, 22, 367-372.

Schaninger, C. M. and Allen, C. T. (1981). Wife's occupational status as a consumer behavior construct. The Journal of Consumer Research, 8 (2), 189-196.

Scholderer, J. and Grunert, K. G. (2005). Consumers, food and convenience: the long way from resource constraints to actual consumption patterns. Journal of Economic Psychology, 26, 105-128.

Schöder, M. J. A. and McEachern, M. G. (2005). Fast foods and ethical consumer value: a focus on McDonald's and KFC. British Food Journal, 107 (4), 212-224.

Senauer, B. (2001). The food consumer in the 21st century: New research perspectives. Working paper 01-03. Minnesota: Department of Applied Economics, University of Minnesota.

Steptoe, A., Pollards, T. M. and Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. Appetite, 25, 267-284.

Strober, M. H. and Weinberg, C. B. (1980). Strategies used by working and nonworking wives to reduce time pressures. The Journal of Consumer Research, 6 (4), 338-348.

Swoboda, B. (2001). Convenience-orientation, consumer preferences and measurement with conjoint analysis. European Advances in Consumer Research, 5, 102-106.

Verlegh, P. W. J. and Candel, M. J. J. M. (1999). The consumption of convenience foods: reference groups and eating situations. Food Quality and Preference, 10, 457-464.

Yale, L. and Venkatesh, A. (1986). Toward the construct of convenience in consumer research. Advances in Consumer Research, 13, 403-408.

Table 1. Construct items, reliabilities and measurement model

Item	Factor loading	t value	Cronbach's alpha
Perceived money budget			0.866
We spend as much money on food products as we like[1] (-)	1.00	-	
I would like to have a larger food budget[1] (-)	0.974	22.232	
If we wanted to, we could afford to spend more money on food products[1] (-)	0.806	21.256	
We cannot afford to spend more money on food products[1] (-)	1.167	25.706	
Perceived time budget			0.895
We are busy in weekdays[1]	1.00	-	
I am always in a rush[2]	1.282	23.189	
I often feel like I am running out of time[2]	1.310	24.004	
Convenience orientation towards meal planning			0.817
What we are going to have for supper is very often a spontaneous decision[3]	1.00	-	
I always plan what we are going to eat a couple of days in advance[3] (-)	0.877	19.454	
It is important to me not having to plan ahead for dinner[4]	0.762	18.006	
Convenience orientation towards food shopping			0.636
I try to do my food shopping as quickly as possible[5]	1.00	-	
I do not like spending too much time shopping for food[6]	1.267	19.101	
When I buy food, I always read the product labels[5] (-)	0.194	4.067	
Convenience orientation towards meal preparation			0.872
The less physical energy I need to prepare a meal, the better[7]	1.00	-	
The ideal meal can be prepared with little effort[7]	0.729	16.904	
Preferably, I spend as little time as possible on meal preparation[7]	1.053	27.141	
At home I preferably eat meals that can be prepared quickly[7]	1.078	26.228	
It's a waste of time to spend a long time in the kitchen preparing a meal[7]	0.910	19.320	
Convenience orientation towards food consumption			0.820
I eat before I get hungry, which means that I am never hungry at meal times[3]	1.00	-	
I eat whenever I feel the slightest bit hungry[3]	0.936	17.488	
In our house, nibbling has taken over and replaced set eating hours[3]	0.975	15.991	
Convenience orientation towards clearing up			0.853
To me, it is important to have very little or no clearing up after eating[4]	1.00	-	
Foods that do not require clearing up following a meal are an important part of my shopping list[6]	1.398	19.015	
I prefer to prepare meals that do not cause much mess in the kitchen[5]	1.500	19.310	
Convenience food usage			0.785
I use ready prepared dishes that just need to be heated up[1]	1.00	-	
I use ready foods that just need to be cooked[5]	1.004	33.063	
I use ready or frozen vegetables[5]	0.427	9.763	
I use ready sauces[5]	0.509	11.375	
I use cans[5]	0.487	13.066	
Health consciousness			0.871
It is important to me that the food I eat keeps me healthy[8]	1.00	-	
It is important to me that the food I eat contains no additives[8]	1.995	9.805	
It is important to me that the food I eat contains natural ingredients[8]	1.771	10.255	
It is important to me that the food I eat contains no artificial ingredients[8]	1.928	9.677	

[1]Scholderer and Grunert, 2005, [2]Chetthamrongchai and Davies, 2000, [3]Bredahl and Grunert, 1997, [4]Darian and Cohen, 1995, [5]Developed by the authors of this paper, [6]Buckley et al., 2005, [7]Candel, 2001, [8]Steptoe et al., 1995

Table 2. Results of the model building procedure

Structural relationships	Goodness of fit indices			Incremental fit			
	S-B χ^2	df	RMSEA	$\Delta\chi^2$	Δdf	p	NNFI
Baseline[1]	3461.505	1168	0.054				
Attitudes on behavior	3076.180	1163	0.050	385.326	5	0.000	0.005
Health consciousness on attitudes	2753.530	1158	0.046	322.650	5	0.000	0.006
Perceived resources on attitudes	2599.174	1148	0.044	154.357	10	0.000	0.003
Objective resources on perceived resources	2338.363	1106	0.041	260.811	42	0.000	0.007
Objective resources on behavior	2273.922	1085	0.040	64.441	21	0.000	0.001
Objective resources on attitudes	2005.470	980	0.040	268.452	105	0.000	-0.002
Perceived resources on behavior	2005.497	978	0.040	0.027	2	0.987	0.002
Health consciousness on perceived resources	2005.058	976	0.040	0.439	2	0.803	0.00
Health consciousness on behavior	1976.264	975	0.039	28.794	1	0.000	0.001

[1]A non significant negative error variance occurred, so its value was constrained to zero and the model was reestimated (Chen at al., 2001)

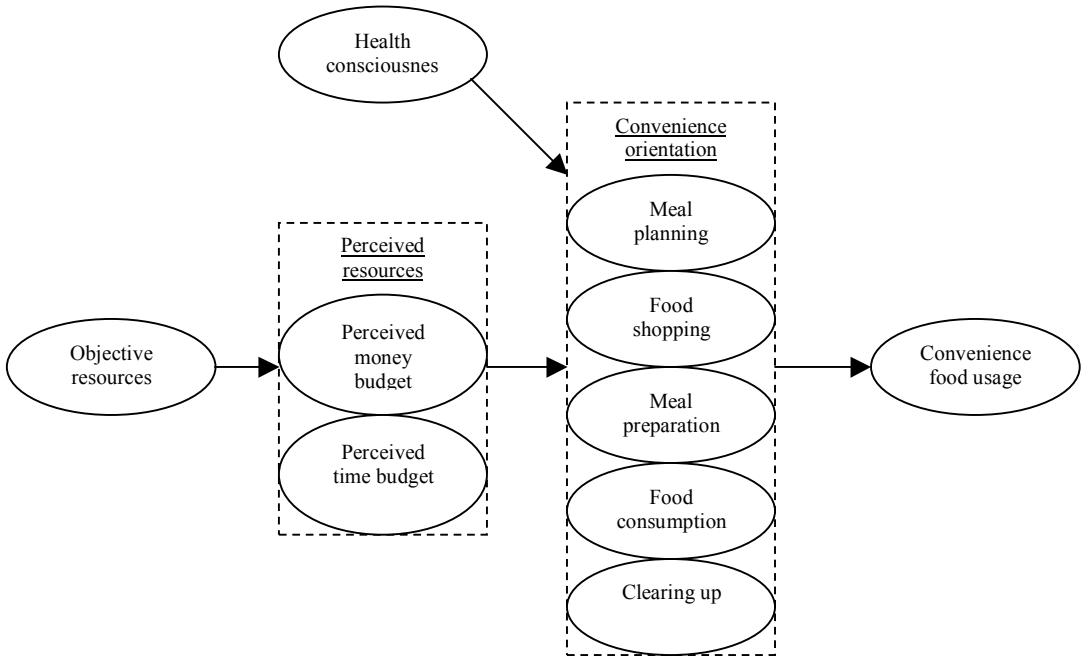

Figure 1. Conceptual model

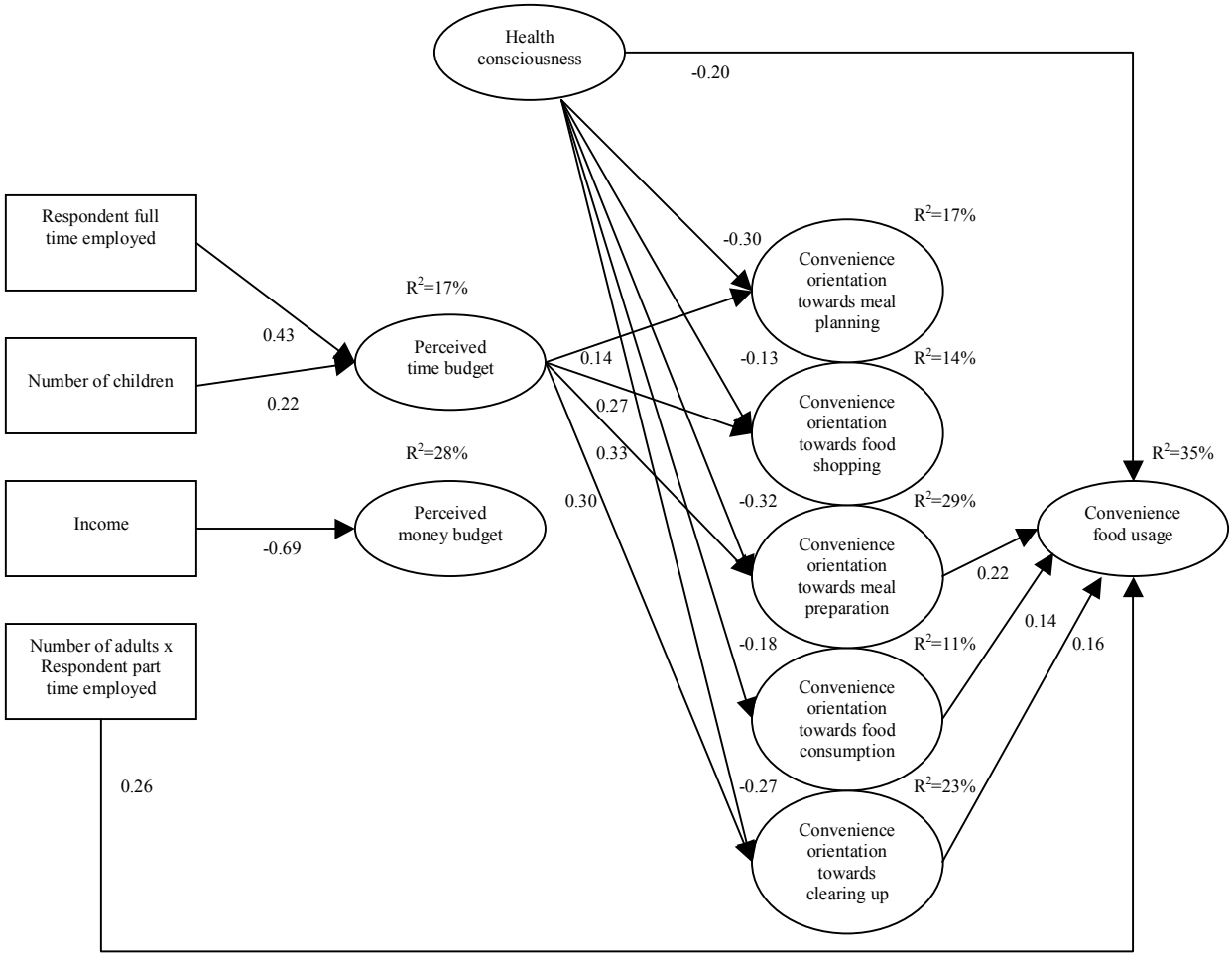

Figure 2. Significant effects of the accepted blocks in the model (completely standardized solution)

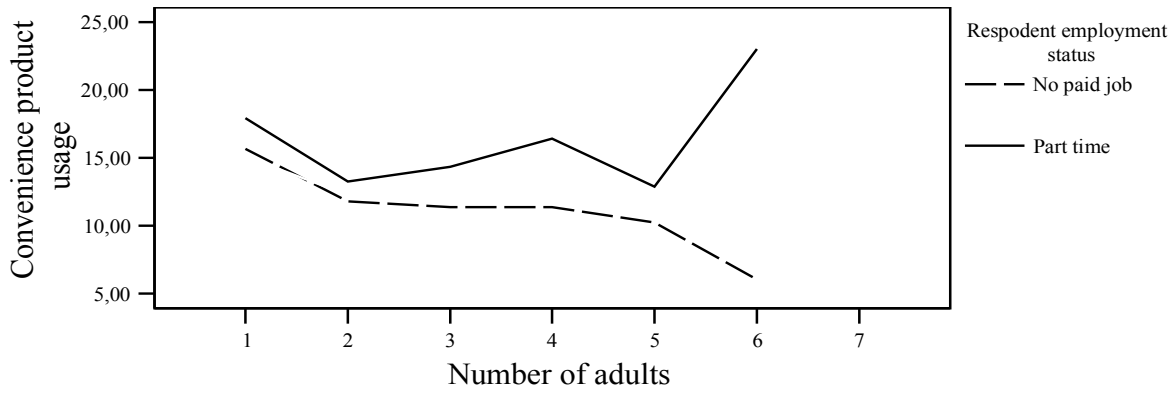

Figure 3. The effect of the interaction term "respondent's employment status x number of adults" on convenience food usage