# The Behavioral Model of the Cypriot Consumer of Organic Food: The Foundation of a National Strategic Plan for Promoting the Consumption of Organic Food

## Consumers' survey report

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# Executive summary

## Purpose

The purpose of this survey is to provide a detailed description of the behavioral profile of the Cypriot consumer of organic food in order to enable the construction of a nation-wide strategic plan of promoting the ecosystem of organic food and influencing Cypriot consumers' behavior.

## Outcomes

Our survey set to enable the thorough study of the existing behaviors and behavioral intentions of Cypriot consumers of organic food and to what extent consumer attitude, perceived social influence, and perceived control of the performance of the behavior drive the development of behavioral intentions and lead to behaviors of consumption of organic food.

## Results

Our data and analysis confirm the appropriateness of the model of the Theory of Planned Behavior as a framework for describing and predicting the relationships that characterize the behavioral model of the Cypriot consumer of organic food. Moreover, our study enables us to identify the presence of major differences attributed to the sample's prior purchases of organic food as well as between women and men.

## Conclusions

The results of this study can be disseminated to the various stakeholders who can draw on it to formulate pertinent actions and we provide some preliminary guidelines over the range of activities these various stakeholders (organic farmers, consumer representatives, retail stores and policy makers) may consider.

# Σύνοψη

## Σκοπός

Σκοπός της παρούσας έρευνας είναι να παρέχει λεπτομερή περιγραφή του προφίλ συμπεριφοράς του Κύπριου καταναλωτή βιολογικών τροφίμων ώστε να καταστεί δυνατή η κατασκευή ενός παγκύπριου στρατηγικού σχεδίου προώθησης του συστήματος βιολογικών τροφίμων και επηρεασμού της συμπεριφοράς των Κύπριων καταναλωτών.

## Αντίκτυπος

Η έρευνά μας θέλησε να επιτρέψει τη διεξοδική μελέτη των υφιστάμενων συμπεριφορών και προθέσεων συμπεριφοράς των καταναλωτών βιολογικών τροφίμων στην Κύπρο και σε ποιο βαθμό η συμπεριφορά των καταναλωτών, η αντιληπτή κοινωνική επιρροή και ο αντιληπτός έλεγχος της συμπεριφοράς οδηγούν στην ανάπτυξη των συμπεριφοριστικών προθέσεων και οδηγούν σε συμπεριφορές κατανάλωσης βιολογικών τροφίμων.

## Αποτελέσματα

Τα δεδομένα και η ανάλυσή μας επιβεβαιώνουν την καταλληλότητα του μοντέλου της Θεωρίας Σχεδιασμένης Συμπεριφοράς ως πλαίσιο για την περιγραφή και την πρόβλεψη των σχέσεων που χαρακτηρίζουν το μοντέλο

συμπεριφοράς του κυπριακού καταναλωτή βιολογικών τροφίμων. Επιπλέον, η μελέτη μας, μας επιτρέπει να εντοπίσουμε την ύπαρξη σημαντικών διαφορών που αποδίδονται σε προηγούμενη αγορά βιολογικών τροφίμων και μεταξύ γυναικών και ανδρών.

## Συμπεράσματα

Τα αποτελέσματα της μελέτης μπορούν να διανεμηθούν στους διάφορους ενδιαφερόμενους που μπορούν να δράσουν αναλόγως και παρέχουμε ορισμένες προκαταρκτικές κατευθυντήριες γραμμές σχετικά με το φάσμα δραστηριοτήτων που μπορούν να λάβουν υπόψη οι διάφοροι ενδιαφερόμενοι φορείς (βιοκαλλιεργητές, εκπρόσωποι καταναλωτών, καταστήματα λιανικής πώλησης και υπεύθυνοι χάραξης πολιτικής).

# Introduction

A focal objective of the Organiko Life + project is to understand the interaction between organic cultivation and its production and people. For the study of this relationship, the research team designed and executed a Cyprus-wide survey that set to understand the behavioral model of the indigenous consumer of organic food. The aim of the survey research was to complement other actions within the project with a detailed description of the behavioral profile of the Cypriot consumer of organic food. Ultimately, this will enable the construction of a nation-wide strategic plan of promoting the ecosystem of organic food and influencing Cypriot consumers' behavior.

The survey was guided by the theory of planned behavior (TPB) (Ajzen, 1991) that has been entrenched in various literatures for its ability to predict and explain human behavior in certain situations. The TPB has been developed within the domains of social psychology, but has been tested, and validated across multiple independent and multidisciplinary scientific domains, including consumer behavior. Our survey set to enable the thorough study of the existing behaviors and behavioral intentions of Cypriot consumers of organic food and to what extent consumer attitude, perceived social influence, and perceived control of the performance of the behavior drive the development of behavioral intentions and lead to behaviors of consumption of organic food.

## The Theory of Planned Behavior

According to the TPB, a central factor of behavior is the Intentions of the individual to adopt a behavior. Behavioral Intentions are assumed to capture the motivational factors that influence a behavior. They are construed as indicators of how intensely the individual plans, is willing, and how much effort will put into the adoption of the behavior. This suggests that stronger intentions entail a greater possibility to adopt the behavior.

Behavioral Intentions will lead to the adoption of the behavior only if the behavior is under volitional control. Perceived Behavioral Control is the perception of the individual about the ease or difficulty about the adoption of the behavior. It reflects whether the individual can decide on free will to behave or not. The performance of most behaviors depends at least to some degree on such nonmotivational factors as availability of requisite opportunities and resources, such as time, money, the individual's abilities, and collaboration with others, among others. Collectively, these factors represent people's actual control over the behavior. To the extent that a person has the required opportunities and resources, and intends to perform the behavior, he or she should succeed in doing so. In combination with Behavioral Intentions, Perceived Behavioral Control affects directly the adoption of the behavior. When the behavior/situation enables the person to have complete control then Behavioral Intention will be the sole determinant of the behavior.

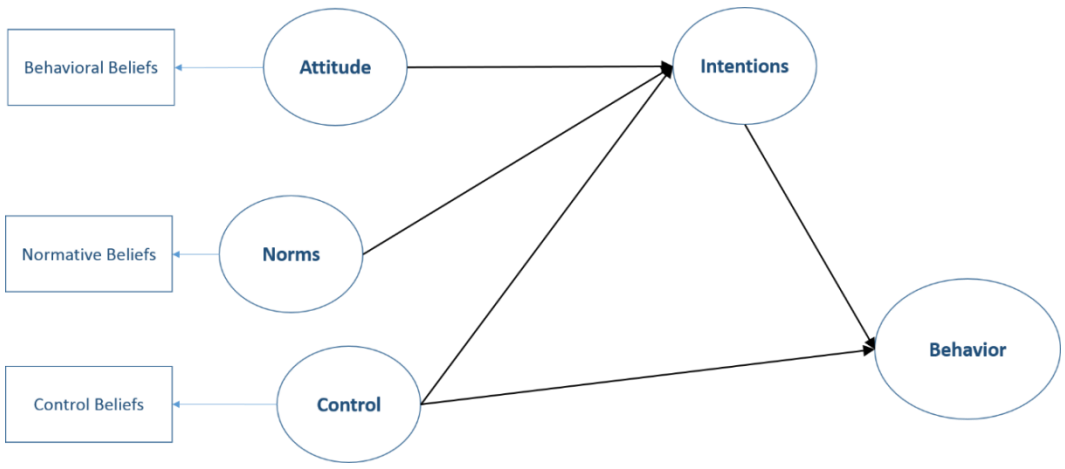
The TPB postulates three conceptually independent determinants of Behavioral Intention. The first is the Attitude toward the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The second predictor is a social factor termed Subjective Norm; it refers to the perceived social pressure to perform or not to perform the behavior. The third antecedent

of Intention is the degree of Perceived Behavioral Control which, as described above, refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect experience as well as anticipated impediments and obstacles. Generally, the more favorable the Attitude and Subjective Norm with respect to a behavior, and the greater the Perceived Behavioral Control, the stronger should be an individual's intention to perform the behavior under consideration. The relative importance of Attitude, Subjective Norm, and Perceived Behavioral Control in the prediction of Intention is expected to vary across behaviors and situations.

The theory postulates that behavior is a function of salient information, or beliefs, relevant to the behavior. People can hold a great many beliefs about any given behavior, but they can attend to only a relatively small number at any given moment. It is these salient beliefs that are considered to be the prevailing determinants of a person's intentions and actions. Three kinds of salient beliefs are distinguished: behavioral beliefs, which are assumed to influence Attitudes toward the behavior; normative beliefs, which constitute the underlying determinants of Subjective Norms; and control beliefs, which provide the basis for Perceptions of Behavioral Control.

Beliefs for the likely results of the behavior and the evaluation of the results drive a corresponding favorable or unfavorable Attitude towards the behavior. Normative beliefs influence the individual's Subjective Norms. They relate to the possibility with which persons or groups with which the individual is related approve or disapprove the adoption of the behavior. Moreover, control beliefs influence the Perceived Behavioral Control. These control beliefs may be based in part on experience with the behavior, but they will usually also be influenced by second-hand information about the behavior, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the behavior in question. The more resources and opportunities individuals believe they possess, and the fewer obstacles or impediments they anticipate, the greater should be their perceived control over the behavior.

**FIGURE 1: THE THEORETICAL MODEL OF THE DRIVERS OF THE BEHAVIOR OF THE CYPRIOT CONSUMER OF ORGANIC FOOD**



Application of the TPB to the context of organic food consumption (Figure 1), should provide a host of information that is extremely useful in our attempt to understand consumers' behavior and to implement interventions that will be effective in changing them. Intention, Perceived Behavioral Control, Attitude toward the behavior, and Subjective Norms, each reveals a different aspect of the behavior, and each can serve as a point of attack in attempts to change it. The underlying foundation of beliefs provides the detailed descriptions needed to gain substantive information about organic food consumption's determinants. It is at the level of beliefs that we can learn about the unique factors that induce one person to engage in organic food consumption and to prompt another to follow a different course of action.

The TPB is pertinent to the totality of the objectives of the Organiko Life + project, because it enables us to understand the behavior of consumers of organic foods and to implement interventions to influence it. This is core in the design of a formative research that might be carried out before and during a Cyprus-wide campaign to promote organic food consumption. The current research will enable the project team to examine the prospective target audience, their behavior and the factors which influence it. It is in other words a baseline study, i.e. an initial assessment of the situation the campaign aims to change. The baseline study is important for it provides a critical reference point as it establishes a basis for comparing the situation before and after an intervention, and for making inferences as to the effectiveness of a potential campaign for changing organic food consumption.

For instance, Intentions, Perceived Behavioral Control, Attitudes, and Subjective Norms are different facets of behavior and each represents a target for intervention. Because Attitudes, Subjective Norms, and Perceived Behavioral Control are assumed to be based on corresponding sets of beliefs, behavioral interventions must try to change the beliefs that, according to the TPB, ultimately guide performance of the behavior. Through proper design of behavioral interventions, stakeholders of the organic food market in Cyprus can affect the beliefs which ultimately guide behavior. These interventions may strive to challenge beliefs that prevent the adoption of expected behavior, empower beliefs that underpin behavior, or facilitate the development of new beliefs that promote behavior (Ajzen, Joyce, Sheikh, & Cote, 2011).

## Research Design

According to the TPB, people's beliefs influence the formation of Attitudes towards the behavior, Subjective Norms, and Perceived Behavioral Control. These salient beliefs must be elicited from the respondents themselves, or in pilot work from a sample of respondents that is representative of the research population (de Leeuw, Valois, Ajzen, & Schmidt, 2015). In contrast, an arbitrarily or intuitively selected set of belief statements would tend to include many associations to the organic food consumption that are not salient in the Cypriot population. This implies that the belief-based measures of Attitude, Subjective Norms and Perceived Behavioral Control that will be included in the final questionnaire must be elicited by pilot subjects that are asked to list relevant beliefs associated with the consumption of organic food.

To elicit readily accessible behavioral outcomes, normative referents, and control factors, the project team initially conducted two focus groups. A small sample of seven individuals participated in each focus group with

one focus group organized for individuals that resided in Limassol and one focus group for individuals that resided in Nicosia, the two main cities in Cyprus in terms of population size. The two focus groups were structured to extend to a 30 minute-long informal discussion and where coordinated by two experienced postgraduate research assistants. The participants were instructed to take a few minutes to discuss what they thought about the possibility of consuming organic food regularly. The group coordinators provoked distinct discussions on separate topics by posing questions that addressed each of the components of the TPB, such as behavioral outcomes, normative referents, and control factors. It was made clear that there were no right or wrong responses and that the researchers were merely interested in their personal opinions. In response to the questions made by the coordinators, the focus group participants were asked to list the thoughts that came immediately to mind.

A content analysis of the focus group responses resulted in lists of salient outcomes, referents, and control factors. These lists were used to construct items to be included in the final questionnaire. These formed the basis for developing a pilot questionnaire that also included questions that covered demographic characteristics. This questionnaire was firstly administered to a small sample of 28 individuals working with the Institute of Agriculture of Cyprus that is a participant member of the Organiko Life + project. The responses and comments of the pilot study participants were used to calibrate the wording, sequence, number of items per concept, and the length of the questionnaire. A revised questionnaire was administered to a sample of 33 postgraduate students of the Cyprus International Institute for Environmental and Public Health and the School of Management and Economics, both at Cyprus University of Technology. The new responses allowed for a second round of revisions and an exploratory analysis of the reliability of the measures. This enabled the further calibration of the questionnaire. In a last pilot study, telephone interviews were carried out by the two researchers with a small sample of 30 individuals, representative of the research population. This final pilot study was critical for the development of the survey. Firstly, information from all three pilot studies was used to examine internal consistency and discriminant validity in our measures. To achieve these aims, one or two items were dropped for each construct. We deployed exploratory factor analysis to evaluate the quality of the scales to be included.

Secondly, it was realized that telephone interviews were not the most appropriate and timely method for information collection. The age for the preponderance of the interviewees was near the upper frontier of the age of our research population (65 years). Additionally, a great number of households does not have a registered land line or cellular phone number in the printed phone book, the sampling unit. This would eventually cause a sample selection bias. In response to this, we decided to conduct personal one-on-one interviews. A detailed description of our sample design follows. A copy of the full questionnaire appears in the Appendix.

The target population was male or female adults aged 18-65 (element), from individual households (sampling unit), who live in any of the five cities within the free geographical areas of the Republic of Cyprus (Larnaca, Limassol, Pafos, Famagusta, Nicosia). The preliminary stages of and the final survey took place between April 2016-August 2016. The method of information collection was personal interviews that were taken at major market places in Limassol (Mall of Limassol), Nicosia (My Mall, Mall of Engomi), Pafos (King's Avenue Mall), and Larnaca (Phinikoudes area). Due to the distance, for the city of Famagusta we conducted telephone interviews.

We used a random, stratified (city as the strata) methodology with proportional allocation based on the number of households in each of the sample areas according to information from the latest census of 2011. Specifically, 39% of interviews were conducted with households from Nicosia, 6% from Famagusta, 17% from Larnaca, 28% from Limassol, and 11% from Pafos[1]. The execution of the survey was based on one variant of the questionnaire addressing to people whose native language is Greek. The sample characteristics were validated by comparing the average age of our sample elements to that of the overall population. To ensure a statistical power of our sample greater than 0.80 we calculated a required sample size of at least 400 interviews. This would also allow us to achieve a level of precision of ±4 years from the population's weighted average age, which was calculated at 36 years using information from the latest census statistics. The successful sample size was 420 complete questionnaires (368 through personal interviews and 52 through telephone interviews) that allowed us to attain a statistical power of 0.83. The weighted average age of the sample elements was 36.7 that was not statistically different from that of the overall population. This result bolsters the representativeness of our sample to the overall population.

Table 1 presents the summary statistics. With regard to the concepts of the TPB, the summary statistics suggest that our sample subjects appear to have a favorable Attitude towards the consumption of organic food. In terms of Subjective Norms, the social environment of the sample subjects appears to only weakly advocate the consumption of organic food. Regarding Perceived Behavioral Control, the sample subjects do not seem to experience any major obstacles in consuming organic food, though it is obvious that organic food is considered as too costly to purchase and it is not widely available for consumers. Moreover, there are weak Intentions among the sample subjects to consume organic food. Concerning the various forms of consumer behavior, forty percent of our sample subjects have previously purchased organic food. The overall sample does not appear to spend much time on reading, discussing, getting informed about, or recommending to others the consumption of organic food.

Beyond the theory-related information, we asked several other questions to obtain information about other aspects and details of Cypriot consumers' behavior. According to this additional information, the appearance of organic food does not appear to influence consumers' purchase decision. The sample subjects consider that additional information about organic food production would increase their consumption. Trust levels for producers of organic food are moderate though consumers would strongly prefer to buy organic food from local producers. About 55% of olive oil, eggs, and fruit and vegetable quantities in the sample households are organic. In contrast, organic bread, meat and dairy products are purchased in substantially lower quantities. Organic food stores and supermarkets are the preferred outlets for purchasing organic foods. Finally, around 55% of the sample subjects would pay up to 10% more of the price of conventional food for organic food; only 20% would pay up to 25% more; and only 5% would pay up to 50% more. A substantial 25% is not willing to pay more for organic food.

[1] For Famagusta, for which telephone interviews were used, the sampling frame was every top entry in every second page in the printed phone book and the sampling unit was working telephone numbers.

**TABLE 1: SUMMARY STATISTICS**

| Variable | Mean | Percentage | SD |
|---|---|---|---|
| Demographic Characteristics | | | |
| Gender | | Men: 35% | |
| | | Women: 65% | |
| City of residence | Famagusta | 4.07% | |
| | Larnaca | 16.75% | |
| | Limassol | 28.81% | |
| | Nicosia | 40.26% | |
| | Pafos | 10.12% | |
| Age | 36.68 | | 11.93 |
| Educational level | Primary | 2.15% | |
| | Gymnasium | 4.66% | |
| | Lyceum | 21.17% | |
| | Diploma | 15.81% | |
| | Degree | 38.58% | |
| | Masters/PhD | 17.64% | |
| Number of household members | 3.16 | | 1.35 |
| Number of household members under 18 | 0.69 | | 0.88 |
| Family status | Single | 41.36% | |
| | Married | 55.08% | |
| | Divorced | 2.99% | |
| | Widow/er | 0.57% | |
| Occupation | 73 occupations | | |
| Evaluate the household income | 2.85 | | 0.78 |

| Behavioral beliefs (Attitude) | Mean | Percentage | SD |
|---|---|---|---|
| Organics consumption helps me protect the environment | 4.16 | | 0.97 |
| By eating organic food, I would eat food that is friendly to the environment | 4.29 | | 0.85 |
| By eating organic food, I would be helping the local community | 3.81 | | 1.05 |
| By eating organic food, I would eat healthy food | 4.38 | | 0.85 |

| Normative beliefs (Subjective Norms) | Mean | Percentage | SD |
|---|---|---|---|
| Most people who are important to me would approve of me eating organic food | 3.90 | | 1.10 |
| Overall, it is expected of me to eat organic food | 3.27 | | 1.21 |
| Most people who are important to my life would consider I should eat organic food | 3.47 | | 1.16 |
| My family believes I should be eating organic food | 3.43 | | 1.23 |
| Most people whose views I appreciate would approve of me eating organic food | 3.70 | | 1.07 |

| Control beliefs (Perceived Behavioral Control) | Mean | Percentage | SD |
|---|---|---|---|
| If I wanted to buy organic food it would be easy for me to find it | 3.43 | | 1.02 |
| For me, it is easy to consume organic food | 3.32 | | 1.07 |
| Eating organic food depends on me | 4.06 | | 0.94 |
| Nothing prevents me from eating organic food | 3.63 | | 1.12 |
| I am sure that if I wanted I could eat organic food | 3.91 | | 0.99 |
| Organic food is accessible to my local store | 3.06 | | 1.32 |
| I believe I have the money required to eat organic food | 2.95 | | 1.11 |
| I would avoid buying organic food if I thought it was expensive | 3.81 | | 1.11 |
| I believe I have the time to buy organic food | 3.46 | | 1.06 |

| Behavioral Intentions | Mean | Percentage | SD |
|---|---|---|---|

| | | | |
|---|---|---|---|
| The next time I will buy food it is very likely to be organic | 2.90 | | 1.05 |
| I intend to eat organic food regularly | 3.06 | | 1.05 |
| I will try to eat organic food regularly | 3.27 | | 1.05 |

| Behavior | Mean | Percentage | SD |
|---|---|---|---|
| Have you bought organic food | No: 39.8% | | Yes: 60.2% |
| How often do you buy organic food | 2.49 | | 0.97 |
| How much time have you spent on getting informed about stores that sell organic food | 2.43 | | 1.23 |
| How much time have you spent on getting informed about organic food | 2.55 | | 1.21 |
| How often do you read magazines or special publications for organic food | 2.31 | | 1.25 |
| How often do you participate in discussions about organic food | 2.38 | | 1.20 |
| How often do you suggest to others to consume organic food | 2.43 | | 1.30 |

| Additional Questions | Mean | Percentage | SD |
|---|---|---|---|
| I would not buy organic food if it not look nice | 2.52 | | 1.30 |
| Better understanding of how organic food is produced would increase my consumption of organic food | 3.92 | | 1.03 |
| I trust producers of organic food | 3.30 | | 1.01 |
| It is more likely to buy organic food that is produced in Cyprus than elsewhere | 4.08 | | 0.96 |
| I would be annoyed if I could not find the organic food I need | 3.67 | | 1.10 |
| Eating organic food means to pay more | 4.05 | | 1.03 |
| I would prefer to buy organic food even if it meant to pay more | 2.94 | | 1.03 |
| % organic food I buy: | | | |
| a) Dairy | 22.34 | | 30.16 |
| b) Meat | 15.47 | | 23.94 |
| c) Bread | 18.96 | | 29.14 |

| | | |
|---|---|---|
| d) Fruit and Vegetable | 43.72 | 34.81 |
| e) Eggs | 53.21 | 41.90 |
| f) Olive oil | 53.67 | 44.13 |

If I wanted to buy organic food, I would buy it from (multiple choices)

| | |
|---|---|
| a) Supermarket | 65.25% |
| b) Greengrocer | 33.71% |
| c) Organic food store | 68.30% |
| d) Directly from the producer | 46.65% |
| e) The internet | 7.93% |
| f) I would produce it | 25.81% |

I intend to pay more for the purchase of organic food

| | |
|---|---|
| a) Not at all | 22.3% |
| b) Up to 10% more | 53.3% |
| c) Up to 25% more | 19.1% |
| d) Up to 50% more | 5.1% |

## Empirical Results

We use structural equation modeling (SEM) analysis to determine the relative contributions of Attitudes, Subjective Norms, and Perceived Behavioral Control to the prediction of Intentions; and the relative contributions of Intentions and Perceived Behavioral Control to the prediction of Behavior. We initially estimate the basic model presented in Figure 1, by also controlling for the subjects' education and age, household income, and the number of members of the household that are less than 18 years of age. We also obtain robust standard errors by deploying a variance-covariance error structure that is adjusted for the observation's clustering. The cluster variable we used was the subject city of residence. The model describes well our data as suggested by the fit statistics [($X^2(256) = 527.861$; $p < 0.001$); RMSEA = 0.05; CFI = 0.953; TLI = 0.946]. Our model explains 33% of the variance in consumers' Intentions ($R^2 = 0.33$) and 39% of the variance in consumers' Behaviors ($R^2 = 0.39$).

The structural model estimates are presented in Figure 2. The results suggest that Attitude ($b = 0.13$; $p < 0.01$), Subjective Norms ($b = 0.34$; $p < 0.001$) and Perceived Behavioral Control ($b = 0.28$; $p < 0.001$) are statistically significant and drive Intention as suggested by the TPB. The standardized coefficients suggest that Subjective Norms have the strongest effect (in standardized terms), followed by Perceived Behavioral Control and Attitude. Moreover, Behavioral Intentions ($b = 0.57$; $p < 0.001$) is a strong driver of Behavior. Perceived Behavioral Control also has a positive relationship with Behavior, but that is only small ($b = 0.049$; $p < 0.057$) and weakly statistically significant. These results suggest that our data support the predictions of the TPB, which can be used to guide appropriate interventions to the Cypriot consumer's behavioral model. Interestingly, the subject's age ($b = 0.12$; $p < 0.05$), the household income ($b = 0.09$; $p < 0.05$), and the number of younger members in the family ($b = 0.1$; $p < 0.05$) influence behavior in positive fashion. In contrast, the subject's Education, even though it registers a positive coefficient, is not statistically significant ($b = 0.078$; $p > 0.1$).

According to the TPB, men and women may exhibit differences in intentions and behavior as a possible result of divergent behavioral, normative, and/or control beliefs, which affect the proximal antecedents of intentions; i.e. Attitudes, Subjective Norms, and Perceptions of Behavioral Control (Ajzen, 2005). To examine whether behavioral differences do exit between the two genders, we re-estimated the main model for each of the two groups. Results for men and women are presented in Figure 3 and Figure 4, respectively.

The results suggest that for men, Attitude and Subjective Norms do not drive Behavioral Intentions whereas Perceived Behavioral Control does. Moreover, Behavioral Intentions and Perceived Behavioral Control influence Behavior. In terms of demographic characteristics, only household income influences men's behavior. Based on women's behavioral model, Subjective Norms and Perceived Behavioral Control influence Behavioral Intentions, but Attitudes do not. Only Intentions have a direct effect on Behavior and not Perceived Behavioral Control. In terms of demographic characteristics, the subject's age, household income and the number of younger children in the family have an effect on Behavior. These findings suggest that the behavioral models of men and women exhibit statistically significant differences that must be taken into account when designing interventions.

**FIGURE 2: THE MAIN MODEL**

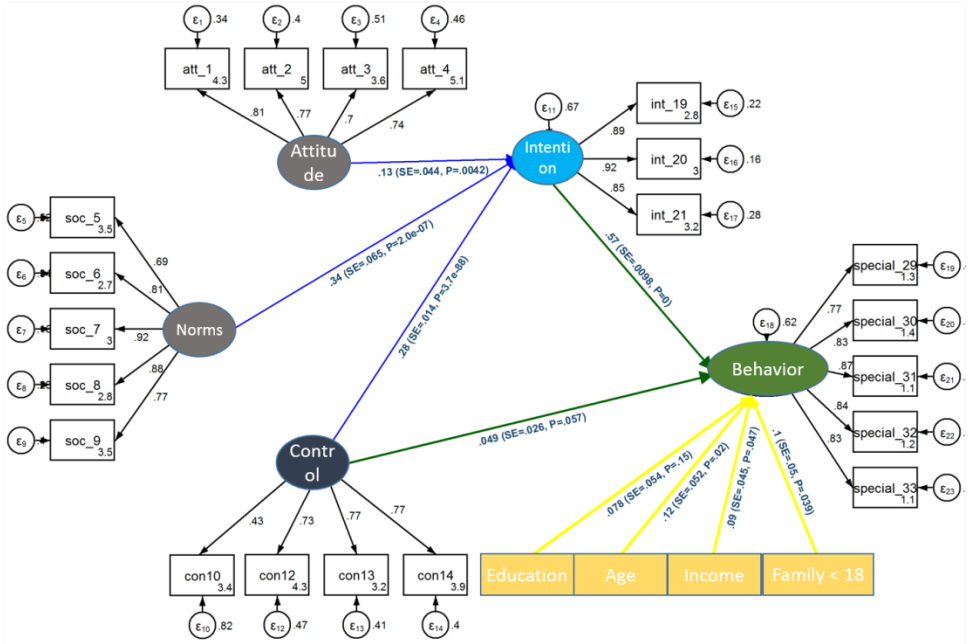



**FIGURE 3: THE BEHAVIORAL MODEL OF MEN CONSUMERS OF ORGANIC FOOD**

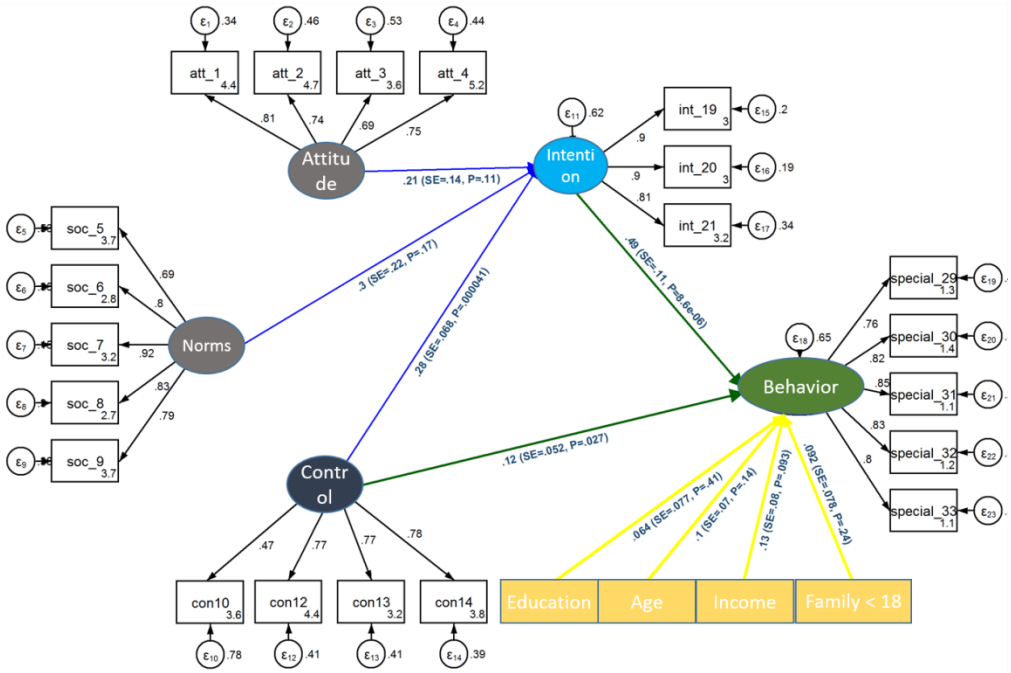
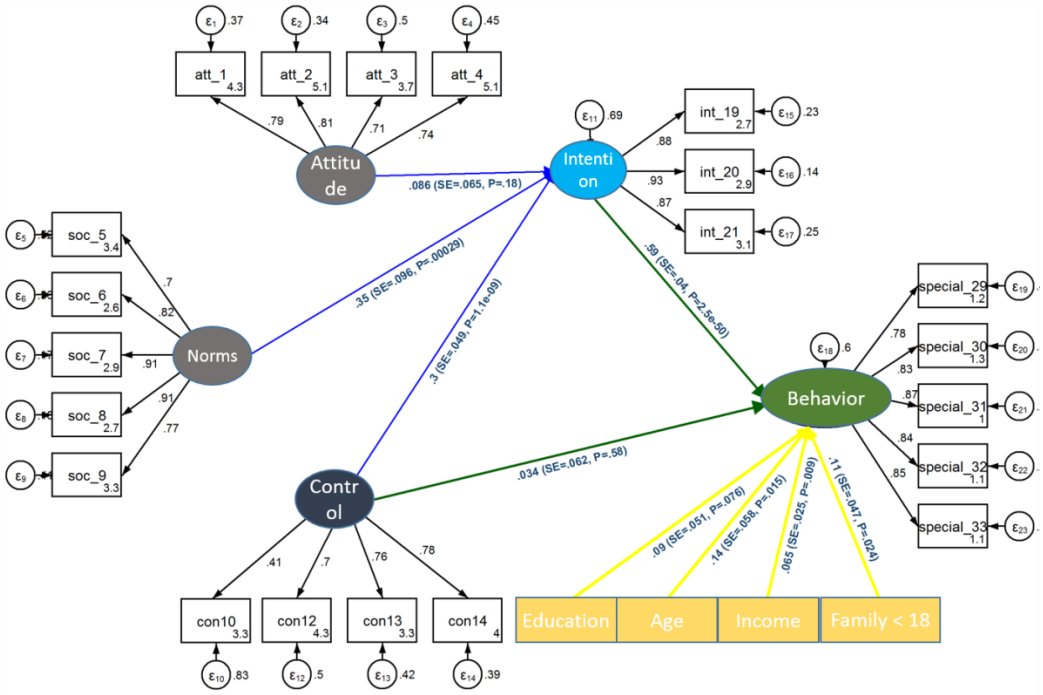


**FIGURE 4: THE BEHAVIORAL MODEL OF WOMEN CONSUMERS OF ORGANIC FOOD**




## Secondary Analysis

In a complementary analysis, each of the belief and behavioral variables in our sample data were treated as the dependent variables of separate models and each were regressed on the full set of demographic characteristics. The independent variables were thus the following: Age, Gender, Household Income, Education, Household Size, Number of Children, Marital Status, and a variable that indicated whether the subject had previously Purchased Organic Food. In the majority of the regression models, prior purchase along with the subject's age where the two variables that exhibited a positive and statistically significant relationship with all the dependent variables. Particularly for prior purchase, this is an important finding because it suggests that people who have previously purchased organic food, develop more positive attitudes, perceive greater control over the behavior, have stronger intentions and behave more favorably as consumers of organic food in the future.

# Discussion

Our data and analysis confirm the appropriateness of the model of the Theory of Planned Behavior as a framework for describing and predicting the relationships that characterize the behavioral model of the Cypriot consumer of organic food. This is important because we are assured that what we have obtained from this study is a model that effectively describes how different aspects of the consumption of organic food are connected to one another, describes the strength of the relationships and identifies the areas in which interventions can take place.

Our study enables us to identify the presence of major differences between women and men. The Subjective Norms of women influence their Behavioral Intentions to buy organic food but this does not apply to men. For women, Behavioral Control has a greater effect on their Behavioral Intentions than for men, though for both genders the effect is high. Women's Behavioral Intentions are more likely to convert to Behaviors than for men. Age, Family size, and Educational Level affect women's behavior, but men behave more favorably *vis-à-vis* organic food than women at a given income level.

Moreover, we identify major differences attributed to the sample's prior purchases of organic food. Specifically, Behavioral Intention drives Behavior more highly for people who have purchased organic food in the past. The effects of Attitudes, Subjective Norms and Perceived Behavioral Control diminish for persons who have purchased organic food in the past. Last, prior purchase of organic food bolsters the effect of Perceived Behavioral Control on Behavior.

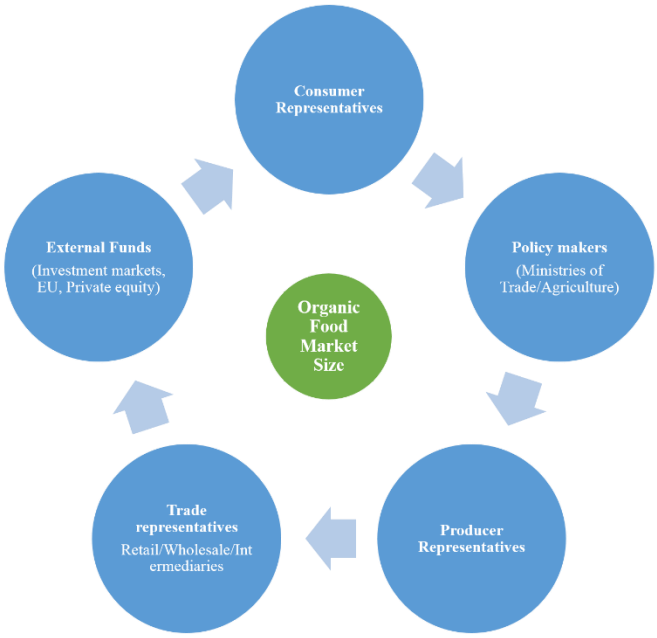
## Suggestions for Intervention Actions

The purpose of this study was to produce a sound description of the behavioral model of the Cypriot consumer of organic food, disseminate it to the various stakeholders who can draw on it to formulate pertinent actions. Though the development of specific interventions was beyond the purposes of the current study, it is nevertheless important to provide some preliminary guidelines over the range of activities these various stakeholders may consider.

The organization of the Cypriot organic food market, as it is the typical case with several other markets, is a function of multiple stakeholders forming a complex ecosystem. This ecosystem of interacting stakeholders consists of consumers and their representatives, policy makers, producer representatives, trade representatives, and external funders. These are exhibited in Figure 5.

Organic food producers need to improve their competitive position in the market of food compared to conventional producers. This can be attained by implementing strategic marketing that will present organic food not as mere food but as a means to improve personal health and way of life. Moreover, they can design and involve in educational campaigns that emphasize the positive attributes of organic food to the masses and environmental consciousness despite the higher cost.

**FIGURE 5: THE TYPICAL ECOSYSTEM OF ORGANIC FOOD MARKET**




Consumer and producer representatives may orchestrate the efforts of information campaigns by providing the resources to advocates and consumers who wish to learn more. They can disseminate information and advice to consumers about how they can behave 'organically', why it costs more, and how organic food differs from conventional food, e.g. in terms of production and processing. They can also give advice to producers and traders about how organic food can become more affordable, such as through the practice of bulk purchase, purchases during the right season and directly from the producers.

Organic food retail stores on their part, might explore the elasticity of prices to the demand for different organic food categories. This will enable them to apply effective pricing with respect to organic food product quality competitively and to attract more and differentiated consumers.

Policy makers and external funds can provide the funding for the promotion and provision of information for organic food. They can capitalize on the use of electronic and other forms of communication channels and through sales point presence to elevate consumer spending on organic food and drive change in consumer patterns pro organic food consumption. Recently, Belgium has implemented a 3-year long campaign for the local promotion of organic food, worth of €1,35 mil. that was cofounded by 50% by the EU for the period 2014-2017.

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# Appendix 1: The survey questionnaire

**Consumption of organic food: Opinion Survey**

Cyprus University of Technology invites you to participate in this survey which is part of a research project that set to understand consumers' attitudes, intentions and behavior towards organic food consumption. Specifically, we are interested in your personal opinion regarding organic food consumption. By organic food we mean food that is produced by farmers who emphasize the use of renewable resources and the conservation of soil and water to enhance environmental quality for future generations. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones. Organic food is produced without using most conventional pesticides; fertilizers made with synthetic ingredients or sewage sludge; bioengineering; or ionizing radiation.

Please read each question carefully and answer it to the best of your ability. There are no correct or incorrect responses; we are merely interested in your personal point of view.

All responses to this survey are anonymized, and kept strictly confidential.

*Thank you for your participation in this study.*

**Instructions**

Several questions in this questionnaire use evaluation scales with five choices. You must select the number that best represents your opinion. For example, if someone asked you to evaluate the statement "The weather in Nicosia is hot in spring" in such a scale, the five choices could be interpreted as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

If you <u>completely disagree</u> with the above statement, then you would circle number 1 as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | ① | 2 | 3 | 4 | 5 | Completely agree |

If you <u>somewhat disagree</u> with the above statement, then you would circle number 2 as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | 1 | ② | 3 | 4 | 5 | Completely agree |

If you <u>neither disagree or agree</u> with the above statement, then you would circle number 3 as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | 1 | 2 | ③ | 4 | 5 | Completely agree |

If you somewhat agree with the above statement, then you would circle number 4 as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | 1 | 2 | 3 | ④ | 5 | Completely agree |

If you completely agree with the above statement, then you would circle number 5 as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The weather in Nicosia is hot in spring | Completely disagree | 1 | 2 | 3 | 4 | ⑤ | Completely agree |

When you complete your answers, please remember the following points:

- Answer all questions – don't skip any of the questions

- Never circle more than one choices in the same question

**Part A: Attitude towards the consumption of organic food**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | By consuming organic food, it would help me protect the environment | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 2 | By consuming organic food, I would eat food that is friendly to the environment | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 3 | By consuming organic food, I would help the local community | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 4 | By consuming organic food, I would eat healthy food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

**Part B: Subjective Norms**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | Most people who are important to me would approve of me eating organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 6 | Generally, it is expected of me to eat organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 7 | Most people who are important to my life, would think I should eat organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 8 | My family believes I should eat organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 9 | Most people whose opinion I respect, would approve of me eating organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

**Part C: Perceived Behavioral Control – Internal abilities**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10 | If I wanted to buy organic food, it would be easy for me to find it | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 11 | For me, it is easy to consume organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 12 | To consume organic food, depends on me | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 13 | Nothing prevents me from consuming organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 14 | I am sure that if I wanted I could consume organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

**Part D: Perceived Behavioral Control – Enabling factors**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15 | Organic food is available at my local store | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 16 | I believe I have the money that I need to consume organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 17 | I would avoid to buy organic food if I thought it was too expensive | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 18 | I believe I have the time to buy organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

**Part E: Behavioral Intention**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 19 | The next time I will buy food, it is very likely to be organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 20 | I intend to eat organic food regularly | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 21 | I will try to eat organic food regularly | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |

**Part G: Special Attitudes and Consumer Behavior**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 22 | I would not buy organic food if it did not have good appearance | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 23 | Better understanding of the production of organic food would increase my consumption of organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 24 | I trust the producers of organic food | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 25 | It is more likely that I will buy organic food produced in Cyprus than elsewhere | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 26 | I would be disappointed if I could not find | Completely | 1 | 2 | 3 | 4 | 5 | Completely |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | the organic food I need | disagree | | | | | | agree |
| 27 | Consuming organic food means to pay more | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 28 | I would prefer to buy organic food even if they are more expensive | Completely disagree | 1 | 2 | 3 | 4 | 5 | Completely agree |
| 29 | How much time have you spent on getting informed about organic food stores? | Very little time | 1 | 2 | 3 | 4 | 5 | A lot of time |
| 30 | How much time have you spent on getting informed about organic food? | Very little time | 1 | 2 | 3 | 4 | 5 | A lot of time |
| 31 | How often do you read magazines or special publications for organic food? | Rarely | 1 | 2 | 3 | 4 | 5 | Very often |
| 32 | How often do you participate in discussions about organic food? | Rarely | 1 | 2 | 3 | 4 | 5 | Very often |
| 33 | How often do you suggest the consumption of organic food to others? | Rarely | 1 | 2 | 3 | 4 | 5 | Very often |
| 34 | Have you purchased organic food in the past? | (1) Yes ☐ | (2) No ☐ | **(if No, proceed to question 37)** | | | | |
| 35 | How often do you buy organic food? | Rarely | 1 | 2 | 3 | 4 | 5 | Very often |

36 For the following food categories, complete the percentage amount of organic purchases. Give values between 0% - 100%, where:

- 0% means that the purchases for the specific food category are exclusively non-organic
- 100% means that the purchases for the specific food category are exclusively organic

| | |
|---|---|
| a) Dairy | ___% |
| b) Meat | ___% |
| c) Bread | ___% |
| d) Fruit and vegetables | ___% |
| e) Eggs | ___% |
| f) Olive oil | ___% |

37 Choose all options that apply: If I wanted to consume organic food I would buy it from:

| | | |
|---|---|---|
| | a) The Supermarket | ? |
| | b) The Fruit shop | ? |
| | c) The Organic food store | ? |
| | d) Directly from the producer | ? |
| | e) The internet | ? |
| | f) I would produce it by myself | ? |

| | | | | | |
|---|---|---|---|---|---|
| 38 | I am willing to pay more for the purchase of organic food | (1) Not at all ? | (2) Up to 10% More ? | (3) Up to 25% More ? | (4) Up to 50% more ? |

**Part H: Demographic information**

| | | |
|---|---|---|
| 39 | Gender | (1) Woman ?<br>(2) Man ? |
| 40 | City of residence | (1) Famagusta ? (2) Larnaca ? (3) Limassol ?<br>(4) Nicosia ? (5) Pafos ? |
| 41 | Age | |
| 42 | Education | (1) Primary ?<br>(2) Gymnasium ? |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | (3) Lyceum | ☐ | | | | | |
| | | (4) Diploma | ☐ | | | | | |
| | | (5) Degree | ☐ | | | | | |
| | | (6) Postgraduate | ☐ | | | | | |
| 43 | Number of household members | | | | | | | |
| 44 | Number of household members under the age of 18 | | | | | | | |
| 45 | Family status | (1) Single | ☐ | | | | | |
| | | (2) Married | ☐ | | | | | |
| | | (3) Divorced | ☐ | | | | | |
| | | (4) Widow/er | ☐ | | | | | |
| 46 | Profession | _____ | | | | | | |
| 47 | Household income | Very low | 1 | 2 | 3 | 4 | 5 | Very high |
| 48 | I wish to be informed about the findings of the research | (1) Yes | ☐ | | | | | (2) No ☐ |
| | | **Email address to receive the findings report:** | | | | | | |
| | | _____ | | | | | | |
| 49 | I wish to participate in a future stage of the study | (1) Yes | ☐ | | | | | (2) No ☐ |
| | | **If Yes, my contact details are:** | | | | | | |
| | | Name:_____ | | | | | | |

Telephone number:_____

Address:_____

THANK YOU FOR YOUR TIME