

The Theory of Planned Behavior to Explain the Purchase of Sustainable Food Products

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Abstract

In recent years, the need for people to change their eating habits towards more sustainable models is increasingly pressing. Food preferences, choices and eating habits are often difficult to change, as they are directly related to the personal context of the individual, that is to their lifestyles and socio-cultural environment. Although many people already have positive attitudes towards sustainable nutrition, on the other hand the purchase and actual consumption of more sustainable food products is conditioned by several factors such as: economic, socio-cultural and local traditions. The current study explores the main determinants of sustainable food consumption in Romania. For this, we use the theory of planned behavior (TPB) that predict and explain human behavior in specific context. The questionnaire was applied online on a sample of 365 people. To analyse the data, we've developed a structural equation model in order to determine the relation between intention and current behaviour to buy sustainable food with them possible determinants. From our study that was developed mostly on students we obtained that there is a direct influence of intention to buy sustainable food by people's attitude, subjective norms, perception of availability, perceived effectiveness and perceived value. Moreover, from the study we obtained that perceived effectiveness, perceived value and intention to buy have a direct influence on consumer's current behavior.

Keywords

Sustainable food consumption, theory of planned behavior, Romanian food context, nutritional behavioral changes.

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Introduction

In recent years, various studies have been developed that adopt the Theory of planned behavior - TPB (Ajzen, 1991) as a model, focusing mainly on consumer behavior. According to Ajzen (1991), the TPB provides a theoretical framework that allows to systematically investigate the factors that influence behavioral choices. It has been used in various studies to analyze behaviors such as leisure choice, driving violations, shoplifting, dishonest actions, Fast-Food Consumption (Bilbâie, et al., 2021), etc.

In the paper we analyzed the intention of people to consume sustainable food products. This intention certainly depends on the psychology of the individual and therefore on the choice of using a behavioral model and therefore the factors and variables that influence their behavior must be analyzed.

Nutrition is a key factor in quality of life, as it is an important determinant of an individual's well-being in a given environment. The growing availability of consumer alternatives has supported irrational consumerism in terms of economic criteria for the usefulness and functionality of products. Consumer motivations represent only one aspect of their behavior and in order to understand them, the social context of individual as well as the internal or external need of individual must be taken into account. Therefore, it

is important to identify the reasons behind certain consumption models that are involved in making specific purchasing decisions (Fabris, 1970).

1. Review of the scientific literature

Recently, models have been developed in the literature to predict and explain buying behavior by placing it in a broader system of common beliefs, values, norms, attitudes and knowledge. In this context, two models based on the assumption of rationality of the actor / consumer dominated: the *theory of reasoned action* and the *theory of planned behavior*.

According to the Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975; Ajzen and Fishbein, 1980), behavior is determined by an individual's intention, or rather by the subjective probability, that an individual will perform a certain action, for example, the purchase of a product. The intention depends on the attitude (favorable or otherwise) of specific people or reference groups towards the adoption of a certain behavior by an individual. The model is used to predict how individuals will behave based on their pre-existing attitudes and behavioral intentions.

The theory of planned behavior (TPB) explains the extent to which the purchase of sustainable food is influenced by subjective norms and past behaviors. With the theory of planned behavior, Ajzen and Madden introduced a new predictor of intentions and behavior: perceived behavioral control, defined as "a person's belief in how easy or difficult the performance of behavior is likely to be" (Ajzen and Madden, 1986). This construct is significantly close to Bandura's (1977) notion of self-efficacy, that is, to an individual's confidence in being able to perform a certain behavior. Perceived control varies from situation to situation and differs from the concept of *control locus* (Rotter, 1966), as the latter is a general expectation that remains stable in different situations.

Ajzen and Madden (1986) developed a two-version model. In the first version, perceived behavioral control has an independent effect on intentions and intention is formed only when the person believes he has the means to perform the behavior itself. In the second version, the direct influence of perceived control over behavior is also taken into account, assuming that the latter is a partial substitute for effective control over internal and external factors that may affect behavior. Consequently, the direct path from perceived behavioral control to behavior is a non-volitional determination of action.

The findings of various researches support the validity of the theory of planned behavior, for example the goal of university students to get the highest grade (Ajzen and Madden, 1986) or the weight loss (Schifter and Ajzen, 1985). In both cases, it was found that the perceived behavioral control construct increased the predictive power of the original model of Ajzen and Fishbein (1980).

2. Research methodology

The aim of our research is to verify whether and to what extent the intentions to buy sustainable food products are influenced by subjective norms, perceived behavioral control and by variables such as: past behavior (Fredricks and Dossett, 1983; Caprara, Barbaranelli and Guido, 1998), satisfaction with previous acquisitions (Pierro, Mannetti and Feliziola, 1998; 1999) and desire (Bagozzi, 1999), referring to the theory of planned behavior.

In the research, we built a questionnaire based on the theory of planned behavior, consisting of items that measure the constructs considered in the model and additional variables. In this study we used a sample of 165 respondents (110 women and 55 men). The majority of 80% are 18 – 25 years old; 8.48% are 25 – 30 years old, 3.03% are 30 – 40 years old, 5.45% are 40 – 50 years old and 2.42% are more than 60 years old. Almost 59% of the respondents are from Bucharest, and the rest of them are from other parts of the Romania. About 35% of the respondents have incomes below 2000 lei, around 400 euros.

To verify the objectives of the research, two multiple regressions were performed: one to analyze how much the values of the purchase intention depend on the values of perceived behavioral control, the subjective norms and desire. While the other is to examine whether the intention, in occasional consumers, can be predicted, in addition to independent variables, from past behavior and satisfaction derived from previous purchases.

We use the Theory of Planned Behavior (Ajzen, 1991) in which other factors that influence the intention to adopt a sustainable food consumption are integrated into the conceptual model, giving rise to an extended TPB model.

2.1. The conceptual framework

This study proposes an integration of Ajzen's (1991) Theory of Planned Behavior by inserting additional variables to improve its predictive goodness.

The first conceptual model assumes that factors such as attitude, subjective norms, perception of availability, perceived effectiveness, perceived value could directly and indirectly influence the intention to consume sustainable foods. Also, perceived effectiveness, perceived value and intent could directly and indirectly influence current behavior.

The Theory of Planned Behavior (Ajzen, 1991) hypothesizes that the decision to undertake a certain behavior is directly influenced by the behavioral intentions of the individual. We chose this model because we believe that the choice to adopt a healthy lifestyle can be comparable for students to a planned behavior. The overall assessment of the benefit received by consumer is called *perceived value*. It is measured by: "The quality of sustainable food is reliable", "Sustainable food is valuable to me" and "Sustainable food would make me feel good".

Hypothesis 1 (H1): Perceived value influence intention to buy sustainable food.

Attitude, an individual's favorable or unfavorable assessment to perform a behavior. The attitude is measured with a 7-point Likert scale for the following questions: "I like to eat sustainable foods to balance nature", "It is an advantage for me to eat sustainable food", "I like to eat sustainable food because it seriously affects the human environment" and "I would eat sustainable food because man needs to adapt to the natural environment".

Hypothesis 2 (H2): Attitude influence intention to buy sustainable food.

The *social norm*, is the individual perception of the social pressure to perform or not a behavior. This variable is measured using a 7-point Likert scale and includes three items with the following statements: "People who influence my behavior think that I should buy sustainable food", "People who are important to me think that I should eat sustainable food", "My family thinks I should eat sustainable food", "Society believes that I should eat sustainable food", "My friends think I should eat sustainable food", "The people in my life that I trust buy regular sustainable food on a regular basis" and "Those close to me eat sustainable food".

Hypothesis 3 (H3): Social norms influence intention to buy sustainable food.

Perceived behavioral control (PBC), regard the individual perception of their ability to perform a behavior. This indicator can be divided into two variables: perceived consumer effectiveness that measure how effective perceive consumers them actions and perceived availability that measure the perception of how easily accessible the goods can be (Sparks & Shepherd, 1992; Vermeir & Verbeke, 2008). Perception of availability is measured by the following questions: "I can buy durable food", "It would be easy for me to buy sustainable food from my neighborhood" and "I think sustainable food is easy to buy". Perceived effectiveness is measured by the following questions: "It is important for individual consumers to do something about pollution", "When I buy food, I consider how its use affects the environment and other neighborhoods" and "Every consumer's behavior can have a positive effect on society by buying sustainable food sold by socially responsible producers".

Hypothesis 4 (H4): Perceived availability influence intention to buy sustainable food.

Hypothesis 5 (H5): Perceived effectiveness influence intention to buy sustainable food.

Hypothesis 6 (H6): Perceived availability influence behavior to buy sustainable food.

Hypothesis 7 (H7): Perceived effectiveness influence behavior to buy sustainable food.

Intention is defined by Ajzen as how willing consumers are to have a certain behavior they were asked about (Ajzen, 1991). It is measured by the following questions: "I would like to use sustainable food", "I would buy durable food if I saw it in a store", "I would look for sustainable food in a store to buy it", "Given your lifestyle and / or food preferences, how much is it possible to buy sustainable food in the next 4 months?" and "How much is it possible to buy sustainable food in the next month?".

Hypothesis 8 (H8): Intention influence behavior to buy sustainable food.

Current behavior which is measured by following questions: "I often buy durable food", "I prefer sustainable foods over non-sustainable foods when the quality of the product is similar" and "I buy sustainable foods, even if they are more expensive than unsustainable ones".

2.2. The Structural Equation Model

In table 1 we have the reliability of the measurement. Cronbach's Alpha values are very close to 0.8 or higher, this indicates a good internal consistency. Composite reliability is another way to measure internal consistency. A CR value greater than 0.7 indicates that all items measure the same latent variable. The average variance expected indicates how much variations can be explained for every latent variable by the measured variable (question). For example, in our study, 65.2% variation of attitude is explained by the four questions. We observe that more than 50% of variation of every latent variable is measured by the it's corresponding questions.

Table no. 1. The reliability of measurement

Variable	Composite Reliability	Cronbach's alpha	Average variance expected (AVE)
Attitude	0.882	0.880	0.652
Social norms	0.936	0.922	0.680
Perceived availability	0.808	0.813	0.585
Perceived effectiveness	0.771	0.746	0.530
Perceived value	0.897	0.889	0.749
Intention	0.936	0.935	0.746
Current behavior	0.895	0.893	0.739

Source: our elaboration using R Studio based on questionnaire answers

In table 2, according to p_value corresponding to each measured variable (from q1 to q28) we observe that all of them are statistically significant so we can use them to construct the structural equation model. Also, we can see the estimation value for every measured variable. For example, in case of attitude, q1 has an estimate value of 1.06.

Table no. 2. Latent variables

Variable	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
attitude =~						
q1	1.060	0.084	12.555	0.000	1.060	0.817
q2	1.169	0.086	13.655	0.000	1.169	0.862
q3	1.120	0.089	12.556	0.000	1.120	0.817
q4	1.056	0.097	10.859	0.000	1.056	0.739
social_norms =~						
q5	1.459	0.121	12.021	0.000	1.459	0.789
q6	1.531	0.109	14.004	0.000	1.531	0.871
q7	1.575	0.114	13.835	0.000	1.575	0.864
q8	1.044	0.121	8.661	0.000	1.044	0.619
q9	1.398	0.109	12.800	0.000	1.398	0.823
q10	1.499	0.102	14.665	0.000	1.499	0.895
q11	1.418	0.100	14.167	0.000	1.418	0.877
perceived_availability =~						
q12	1.157	0.097	11.990	0.000	1.157	0.821
q13	1.125	0.113	9.951	0.000	1.125	0.716
q14	1.207	0.111	10.902	0.000	1.207	0.766
perceived_effectiveness =~						
q15	0.900	0.085	10.547	0.000	0.900	0.744
q16	1.051	0.121	8.698	0.000	1.051	0.643
q17	1.041	0.083	12.564	0.000	1.041	0.846
perceived_value =~						
q18	0.997	0.087	11.494	0.000	0.997	0.767
q19	1.450	0.092	15.704	0.000	1.450	0.935
q20	1.346	0.099	13.660	0.000	1.346	0.859
intention =~						
q21	1.305	0.087	15.008	0.000	1.305	0.906
q22	1.264	0.090	14.004	0.000	1.264	0.870
q23	1.408	0.097	14.529	0.000	1.408	0.889
q24	1.151	0.087	13.197	0.000	1.151	0.838
q25	1.245	0.099	12.584	0.000	1.245	0.813
current behavior =~						
q26	1.409	0.099	14.205	0.000	1.409	0.885
q27	1.329	0.103	12.843	0.000	1.329	0.830
q28	1.415	0.104	13.640	0.000	1.415	0.863

Source: our elaboration using R Studio based on questionnaire answers

2.3. The results of the TPB model

To test if the data we have are suitable for factor analysis and implicitly for the construction of a model with structural equations, we will calculate the Kaiser-Mayer-Olkin coefficient (KMO). In the table 3 continues our data processing. Therefore, we find that its value is 0.94 and we can say that based on this test a factor analysis can be built.

Another test that helps us determine if we can build factor analysis from the sample, we have is the Bartlett Sphericity Test. The corresponding p-value is less than 0.05 which indicates that factorial analysis can be performed.

The determinant of the correlation matrix can also be calculated. Its value 3.893384e-13 is positive which also indicates that the factorial analysis can be performed.

The model we will test has 7 latent variables obtained from the 28 questions of the questionnaire – perceived value, attitude, social norms, perceived availability, perceived effectiveness, intention and current behavior. We will first perform confirmatory factor analysis (CFA) to see if our data support the model being tested.

Table no. 3. CFA fitting values for baseline model

Indicator	Expected value	Value in the model
Convergence & number of iterations		Yes, 51 iterations
Observations	As big as possible	164
p-value, Chi-square	< 0.05	0.000
CFI	> 0.95	0.869
TLI	> 0.95	0.850
RMSEA	< 0.07	0.102
90% Confident Interval	(0; 1)	(0.094; 0.110)
SRMR	< 0.08	0.067
AIC	As small as possible	13316.035

Source: our elaboration using R Studio based on questionnaire answers

2.4. Adequacy Test

The root means the square of residuals (RMSR) is 0.067; this is acceptable as this value should be closer to 0. Then, the Tucker-Lewis Index (TLI) is 0.850 an acceptable value considering it's close to 0.9.

We should check the RMSEA (root mean square error of approximation) index. Its value, 0.102 it is not below 0.05 but will not create us any problems, so we can say the value shows the good model fit.

In table 4 we indicate the values corresponding to the regressions used to decide whether above hypotheses are accepted or rejected. For a positive estimate value in table above, we will consider that we have a direct or positive relation between the variable. To determine if the relation between variable is statistically significant, we will compare the p-value for each hypothesis with critical value 0.05 (for p-value is less than 0.05, the relation is statistically significant).

Table no. 4. SEM indices and decision for hypothesis tested

Hypothesis	Estimate	Standard error	z-value	P	Decision
H1	0.907	0.021	42.871	0.000	Accepted
H2	0.894	0.024	37.039	0.000	Accepted
H3	0.639	0.051	12.556	0.000	Accepted
H4	0.685	0.053	12.902	0.000	Accepted
H5	0.783	0.043	18.136	0.000	Accepted
H6	0.716	0.052	13.671	0.000	Accepted
H7	0.694	0.055	12.608	0.000	Accepted
H8	0.885	0.025	35.472	0.000	Accepted

Source: our elaboration using R Studio based on questionnaire answers

Thus, the all 8 hypotheses are statistically accepted. Based on this we will build the model with structural equations (figure 1).

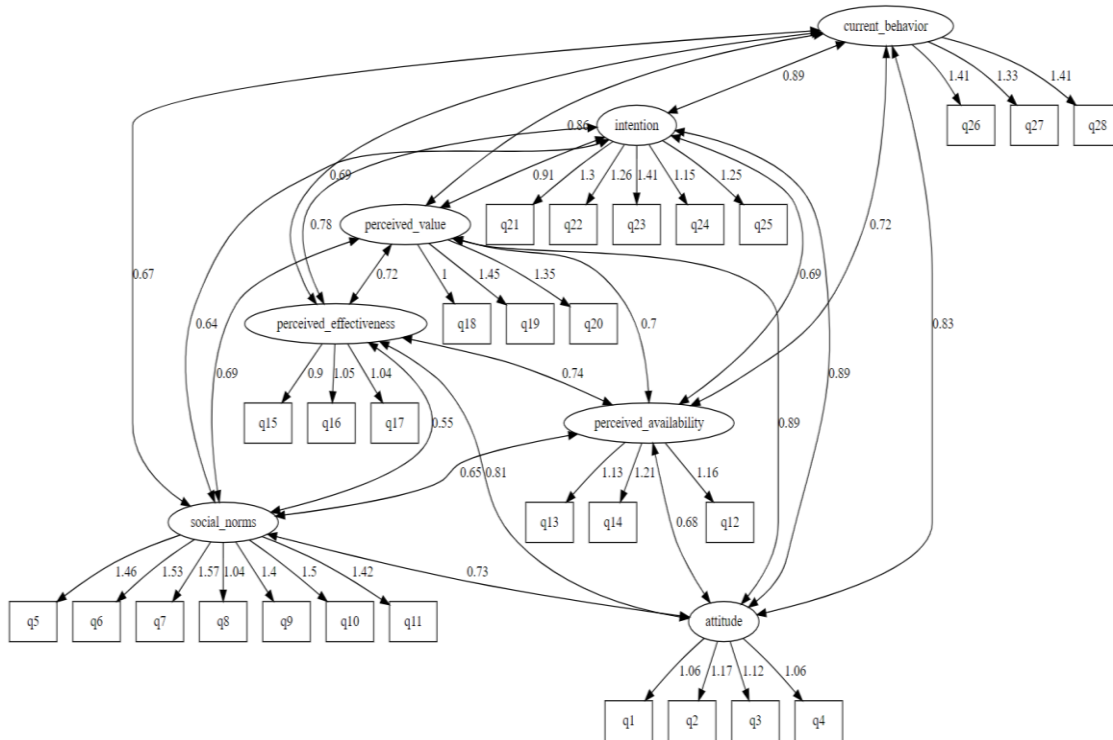


Figure no. 1: Structural Equation Model.

Source: our elaboration using R Studio based on questionnaire answers

3. Results and discussion: the theory of planned behavior to explain the purchase of sustainable food products

The analysis of the answers to the questionnaire defined on the basis of the theory of planned behavior showed that: the attitude of consumers and non-consumers towards the purchase of sustainable food products are of quality, safety (non-consumers agree that food safety is more important) and respect for the environment, are the main advantages. Disadvantages include high costs and not easy supply of these type of products (weak guarantees on the quality of sustainable food products lead to greater distrust of these products by non-consumers).

The reduction of prices and a more widespread distribution on the market are the main factors that can facilitate the purchase of these products. In addition, more and more in-depth information is needed to know these products and their impact on the environment, in order to encourage their purchase by non-consumers as well. The decisive factor that significantly hinders the purchase is once again the price, probably because the sample considered consists of university students with modest incomes. This result also seems to be confirmed by the attitude towards buying, in which the adjective "expensive" proved to be the most appropriate to define the purchase itself, along with "mature" and "careful". In terms of behavioral belief, it turned out that the contact persons who would have approved the purchase were families, friends, society in the case of consumers. Consumers also give more importance to family and friends in their opinions, indicating a greater motivation to respect what these referents think about the purchase. As far as non-consumers, however, no contact person seems to be important in the possible choice to buy sustainable food products.

The intention to buy, considered both in terms of the probability of having the intention to buy and in terms of the probability of actually making the purchase, is determined by social norm, especially those concerning the perception of the opinion of the referents and the behavioral control related to ease of purchase.

The data obtained with the regressions highlighted the greater predictive power of social norms on behavioral control. Furthermore, the importance of the desire to make the purchase emerges, which has the highest coefficient, in line with what is supported by the theory of self-regulation, according to which desires influence intentions due to their motivational load (Bagozzi, 1999). Perceived effectiveness is also a poor predictor of both the likelihood of an intention to buy and the probability of making the purchase.

The predictive power of the Theory of Planned Behavior seems to be confirmed by the results of statistical analysis.

Conclusions

Our survey is limited to examining the buying intentions of a sample of university students, but it would be interesting to include, in future research, a broader target that includes different age groups. As many studies have showed, especially in Europe, in fact, the purchase of sustainable food products is more common in families with children, reflecting the importance of their health aspect. Thus, the act of purchase can be read as a psychological assurance factor for parents, who are more attentive to the relationship between nutrition and the health of their children.

Furthermore, in line with the suggestions highlighted by Bagozzi (1999), there is a need to increase the predictivity of the predictability of purchasing behavior models by inserting both emotional variables to reflect the relationship between the attitude towards the product and intention (desire) to buy it, and the aspects related to the personal and social identity of individuals.

In our research, desire played an important role in predicting intentions, especially those concerning the probability of actually making the purchase. On the other hand, identity has not been taken into consideration, the relevance of which has been confirmed by various studies (Sparks and Guthrie, 1998; Rosengard et al., 2001). In the survey conducted by Bebetos, Chroni and Theodorakis (2002), identity was, along with the attitude and perception of behavioral control, more related to the intention to eat healthily, especially by students who did sport.

Based on the behavioral beliefs of the research, the aid could come from advertising campaigns aimed at purchasing sustainable food products, with messages designed to emphasize the importance and positive effects of such consumption, such as health safety and respect for the environment.

References

- Ajzen, I., 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), pp.179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I., 2002a. *Constructing a TPB questionnaire: Conceptual and methodological considerations*. 2002a, [online] Available at: <<http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>> [Accessed 12 February 2022]
- Ajzen, I. and Fishbein, M., 1980. *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I. and Madden, T.J., 1986. Prediction of goal-directed behaviour: attitudes, intentions, and perceived behavioural control. *Journal of Experimental Social Psychology*, 22(5), pp.453-474.
- Bagozzi, R.P., 1999. *Atteggiamenti, intenzioni, comportamento*. Milano: Franco Angeli.
- Bandura, A., 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84, pp.191-215.
- Bebetos, E., Chroni, S. and Theodorakys, Y., 2002. Physically active students' intentions and self-efficacy towards healthy eating. *Psychological Reports*, 91(2), pp.485-495.
- Bîlbîie, A., Druica, E., Dumitrescu, R., Aducovschi, D., Sakizlian, R. and Sakizlian, M. 2021. Determinants of Fast-Food Consumption in Romania: An Application of the Theory of Planned Behavior. *Foods*, 10, p.1877. <https://doi.org/10.3390/foods10081877>.
- Fabris, G., 1970. *Il comportamento del consumatore: psicologia e sociologia dei consumi*. Milano: Franco Angeli.
- Fishbein, M. and Ajzen, I., 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, Massachusetts: Addison-Wesley.
- Fredericks, A.J. and Dossett, D.L., 1983. Attitude-behavior relations: a comparison of the Fishbein-Ajzen and the Bentler-Speckart models. *Journal of Personality and Social Psychology*, 45, pp.501-512.
- Pierro, A., Mannetti, L. and Feliziola, P., 1998. Formazione delle intenzioni di acquisto. *Bollettino di Psicologia Applicata*, 225, pp.39-45.
- Pierro, A., Mannetti, L. and Feliziola, P., 1999. La previsione del comportamento di consumo: modelli psicologico sociali a confronto. *Giornale Italiano di Psicologia*, 26(4), pp.817-846.

- Rosengard, C., Adler, N.E., Gurvey, J.E., Dunlop, M.B.V., Tschann, J.M., Millstein, S.G. and Ellen, J.M., 2001. Protective role of health values in adolescents' future intentions to use condoms. *Journal of Adolescent health*, 29(3), pp.200-207.
- Rotter, J. B., 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1), pp.1–28.
- Schifter, D.E. and Ajzen, I., 1985. Intention, perceived control, and weight loss: an application of the theory of planned behavior. *Journal of Personality and Social Psychology*, 49 (3), pp.843-851.
- Sparks, P. and Guthrie, C.A., 1998. Self-identity and the Theory of planned behavior: a useful addiction or an unhelpful artifice. *Journal of Applied Social Psychology*, 28 (15), pp.1393-1410.
- Sparks, P. and Shepherd, R., 1992. Self-Identity and the Theory of Planned Behavior: Assessing the Role of Identification with "Green Consumerism". *Social Psychology Quarterly*, 55(4), pp. 388-399.
- Syed, S.A., Maisarah, A., Yi-Hui, H., Nor, A.O., and Chieh-Yu L., 2020, Applying an Extended Theory of Planned Behavior to Sustainable Food Consumption, *Sustainability*, 12, 8394.
- Vermeir, I. and Verbeke, W., 2008, Sustainable food consumption among young adults in Belgium: Theory of planned behavior and the role of confidence and value. *Ecological Economics*, 64(3), pp. 542-553