



Plant-Based Meat Products Marketing Mix on Customer Purchase Intention: Role of Trust and TPB

By

Alireza Sheikh¹, Nazanin Tourani², Mohammadbashir Sedighi³, Raana Bagheri^{4*}

^{1,2,3,4}Department of Management, Science & Technology, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran



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Abstract

Global food systems account for extensive negative environmental and health consequences, and switching to plant-based foods would be a solution to lighten the pressure over environmental and reducing the negative health impacts. Green marketing mix elements are key tools for implementing marketing strategies aimed at convincing customers to buy green. As the lack of trust and motivation is reported to be an obstacle to building the intention, we explore the role of the theory of planned behaviour (TPB) and trust, as TPB's background, to investigate how a green marketing mix would influence customer purchase intention through trust and TPB.

Hypotheses were tested empirically using a questionnaire on a sample of 441 customers, focusing on plant-based meat products. A partial least squares structural equation modelling (PLS-SEM) was applied to analyse the content and constructs of the proposed research model.

Green value is mostly perceived through promotion, places, and products. On the other hand, green perceived risk is mainly affected by product, price, and place. Trust positively impacts TPB construct (attitude, perceived behavioural control (PBC) and subjective norm); however, only attitude and PBC affect the intention. Moreover, a wide gap between intention and behaviour has been observed.

No empirical study has simultaneously considered trust with TPB to investigate the impact of green marketing mix practices. The present study's findings will provide insights into the green food manufacturer on customer behaviour and improve the effectiveness of the implementation of marketing mix activity for plant-based alternatives which are new to the market.

Keywords: Green Marketing Mix, Trust, TPB, Green Purchase, Theory of Plan Behaviour, Plant based meat, ham, suages, burgers

1. Introduction

Plant-based meat products resemble the appearance, flavour, taste, texture of meat products but are from plant origins consume less resources and causes less pollution than meat, so considered to be more environmentally sustainable than the conventional meat counterpart. The momentum of meat substitute product boosted after COVID-19 outbreak, as the global market for plant-based proteins is estimated to have approximate turnover of 27 billion dollars by 2030 [1]. Once a niche industry, the global plant-based burgers market marked US\$ 2.7 billion in 2020 and is projected to rise 22% between

2020 and 2030 [2]. For example, in the US, plant-based meat alternatives generated revenue raised virtually 200% in April 2020 in comparison to April 2018 [3]. In US and Asia, mounted fear of the link between wild animal meat and COVID-19 and rising worries about food safety and health, urging customers to reconsider their diet and it makes an ideal opportunity for plant-based meat to attract new customers [4,5,6].

Green marketing practices boosted consumers' actual purchase behaviour in a significant degree [7]. Even though the lower availability of green products, which already was a deterrent to customer purchasing intention, now is obviated by



online purchasing, the phenomena that surge during the covid and outlive it [8,9,10,11,12]. In addition, online ordering is closer to What indicates a product's green place which is associated with efficiency in transportability and scheduling [13,14,15]. However, plant-based meat products prices are a significant perceived barrier to purchase [16,17]. Indeed, several studies confirmed that plant-based meat diets found to be much more costly compare to conventional meat diets, for instance plant-based hamburger reported to be more expensive than the comparable amount of minced beef [18,19,20].

Moreover, developing an desirable level of flavor and texture of plant-based meats propose a challenging to the manufacturer [21]. The taste test results in France and Germany indicate that consumers prefer the meat-based sausage over a plant-based sausage analogue [19,22]. In addition, unfamiliarity, as well as unawareness of the environmental and health consequences of plant-based products would be the purchase barriers of related product categories [23,24,25,26]. Even through promotion, the green manufacturer informs consumers about the advantages of green products, attributes cannot be ascertained by the consumer before their purchase, even in the post-purchase stage [27]. Prior studies shows that perceived degree of processing is the underlying reason why customer perceived traditional meat products with higher level of naturalness than their meat-free counterparts [28], as an example participants perceived meat-based sausages as natural products, and consider meat-free sausage as artificial products [22], in another study also they tend to evaluate meat as environmentally friendly as meat substitutes [29].

Moreover, due to scandals that tarnished the trust between consumers and green food manufacturers, customer risk perception of adverse selection in the green food context is confirmed [30]. The nutrient composition of meat-free products can differ significantly [31]. Several studies report unhealthy level of saturated fats, carbohydrates, and sugars and a lower content of proteins and even process-induced hazardous chemicals in plant-based products which question that their nutritional benefits same as the ingredients from which they are derived and rise concerns about shifting the dietetic behavior in an negative direction [2,8,32-34].

Talking about the barrier, some researchers argue that a lack of trust weakens the intention to buy green foods [35,36]. While the marketing mix strategy is associated with trust [37], trust was found to be a behavioral determinant whose nature was reported to be relevant for the TPB [38,39,40,41]. TPB theory has been extensively applied to predict green customer buying behaviour [42-48] and adoption of different types of substitute protein sources [49]. the reviews of studies across the globe suggests a wide gap between the attitude and the actual behavior of green consumers [48,50] that needs more investigation. Moreover, customers do not walk their talk, For instance in one study in Switzerland shows that while appraised chickpeas as healthy, natural and environmentally friendly; however, chickpea consumption is reported to be low [51].

Further to above following research question is proposed;

RQ1: How green marketing mix would affect on customer purchase intention through trust and TPB.

RQ2: The degree that purchasing intention effect on customer behaviour?

This study is contributed to literature from several aspects; first, despite studies to serve emerging green marketing subjects and the growing interest in green marketing and its implications in developed countries, this concept has gained relatively little attention in Middle-Eastern countries such as Iran [36,52]. According to the Middle East Organic & Natural Products Expo, the it is forecasted that Organic F&B market marks \$18.42 Billion by 2022, around 14.4% CAGR rate of growth from 2015 [53]. In 2020, the growth rate of organic food is calculated to be around 39% in the region, in comparison to 11% globally retail value growth rate [54]. In addition, religious and cultural closeness between Iranian consumers and consumers in the Middle East and Central Asia, make Iranian consumers as a proper study sample for the survey, which may help organic food corporations which account Islamic markets as new markets.

Second; although many studies may apply one or two factors, including marketing mix, trust, and TPB, to investigate the customer green behaviour, to name a few [11,38,40,42,46,55-58,] to the best of our knowledge, no survey in the organic food literature has at the same time analyzed the relationships between marketing mix, trust, TPB construct.

Third, While the studies on plant based meat products food consumption are extensive from a customer perspective, few studies focused on plant-based ham, sausages and burgers [8,17,19,30,59-66] Due to the rising demand for plant-based ham, sausages and burgers and the consequently growing size of this market segment, we hope our study augments to the body of literature on green marketing.

Forth, customer segmentation may benefit the better determinant of consumers concerns, motives and behaviours. Nevertheless, most studies focused only on consumers' purchasing intentions, with limited research addressing the university students' green consumption worldwide [67-70] and particularly in Iran [44,71,72]. On the account that the younger generation is reported to have the high frequency in ordering food online and it is rising [73,74], students are among the majority demographic group in Iran who consume ham, sausage, and burgers [75-78], there is broad agreement that present patterns of the consumption of traditional meat are associated with increased risk of cardiovascular disease, cancer, and obesity, leading to increased morbidity[8,33,79] and transitioning to plant-based meat products could either eradicate or extremely lessen the health risks associated with consuming traditional processed meat products, we believe university student make a proper target for the present study.

2. Theoretical Background

2.1. Green Marketing Mix

The marketing mix defines as the effective combination of marketing strategies and tactics throughout a particular

product sale process. The marketing mix encompasses of the "4Ps", product, , price, promotion, and place/distribution, and in green marketing, managing all activities in alignment with the organisation's goal of reducing the environmental damage [56,80,81]. Various study finds out marketing mix positive impact on green purchase intention [11,42,69,82,83,166] and trust [84]. In developed countries green marketing activities significantly more focus on product (including packaging and labelling) and promotion, and noticeably less on the price and place[85]. However, for customers in the less developed countries, the price holds the most importance[11,58,86,87], the second most important factor for these customers is varied in the studies between the product [11,87], promotion[58], however, place a green effect on the consumer green behaviour reported to be weak[58,88] . The elements of marketing have been found to be influential on perceived risk[89,90] . It is found that promotion[11,91,92] , Place[11,91], Price[91] and perceived quality[93] have a positive and significant impact on green perceived value.

2.2. Green Trust

The construct of trust involves "a calculative process based on the role of an object to continually perform its role and the relationship between costs and rewards"[94]. Trust in green food is more critical than traditional non-green foods due to promoting environmental and health claims such as production processes and health and environmental certification [55,95]. Due to lack of awareness of the food production process, technical expertise and capabilities to control the essential characteristics distinguishing green food from non-green counterparts, majority of customers cannot validate the benefits of organic food; on this basis, buying intentions are boosted by trust [36,55,88,96].

It has also been shown that green perceived value and risk are among the determinants of green trust [93,97]. Sawyer and Dickson (1984)[98] refer to value as "a comparison of weighted "get" attributes to "give" attributes". The higher the perceived value, the more likely the customer will purchase green products[99,100]. Conchar et al. (2004) [101] define customer perceived risk as "the extent to which the customer believes that a purchase decision produces economic or social consequences that cannot be estimated with certainty." Higher customer perceived risk leads to a lower purchase intention [102]. Food risk perception reported to have a significant impact on attitude and intention toward green products[103,104].

Buyers involved in high-risk purchases tend to be susceptible to the information disseminates to them e.g., by marketing mix[105]. Suppose a customer's perceived risk is high, in that case, they will require more accurate information to make sure that their purchase decision is right and minimized their probable loss[106]. In addition, the information provided via a green marketing mix provides noticeable signals that can transfer buyers' perceptions of a product to its actual quality; these perceptions are extrinsic and intrinsic and can be assertively evaluated by potential buyers[69,84]

2.3. TPB

The main components are attitude, subjective norms, and PBC[107]. Attitude is defined as "a person's positive or negative evaluation of the efficiency of behaviour"[108]. A person's attitudes boost customer's intention of performing green purchase behaviours [56,87,109]. Subjective norms result from normative beliefs and an individual's motivation to act according to others' opinions[107]. Within the organic food context, A person's subjective norms reinforce customer's intention of performing green purchase behaviours[43, 87,109]. PBC is defined as "the perception of the ease or difficulty of performing a particular behaviour", i.e., the extent to which a person perceived that performing or non-performing of an particular behaviour is under their control and volition [107]; for instance, availability and PBC are correlated[56]. A person's PBC impact the customer's intention to perform green purchase behaviours[43,109].

After applying a TPB framework in the organic food domain, Feeble trust was found to weaken the PBC of green buying intentions despite consumers' cognition of holding control over personal factors to some degree, including their motives, desires, and resources [38], trust was positively correlated to attitude [40,41], and subjective norm [38]. Trust reported to indirectly impact intention and behaviour, through TBP construct[38,46,96].

2.4. Green Purchase Intention and Green Purchase Behavior

Buying intention is defined as "a conscious plan of action taken into consideration by consumers when they buy" [110,111]. The intention has been shown to be a strong predictor of demonstration of a behavior, being the pre-requisite that lead customer to act of the purchase[112]. Consumers who want to buy a product will pay more than those without the intention to buy[113]. Through analysing the customer purchasing behaviour in organic products context, a significant positive relationship between buying intention and buying behaviour has been identified[38,46,88,114].

3. Conceptual Framework and Hypothesis

In Iran, online selling plant-based meat is a new service; plant-based ham, sausage, and burger production are about 5,000 tons per year and almost 1 per cent of the total ham, sausage, and burgers produced yearly. There is some plant-based meat manufacturer, but their production is local and not accessible by the public. Nopro company, the most well-known plant-based ham and sausage and burger producer, has its pages on Instagram, which is one of the most popular social networks in the world[115], and sell its product on the Digikala and snap market, two famous e-tailers in Iran, also has its branches in the major cities including Tehran, Isfahan, and shiraz. Hence, the numbers of offline shops that offer the Nopro product are minimal. The product range included plant-based ham, sausage, and burgers. Compared with non-green alternatives, its prices are almost the same for some types of ham and about 10-20 per cent higher for sausages and burgers. The product package is also in green, with Ministry

of Food and Drugs stamps that distinguish it from its non-green counterparts. Through the search for ham, sausage and burgers, the e-tailers offer both green and non-green products to gather, and you can sort them according to the price and favourite product. Also, buyers' comments and evaluations of the product can be observed. Based on the theoretical background, further to the above, the following hypotheses are developed.

- H_{1a}: Green product positively associates with green perceived value.
- H_{1b}: Green product negatively associates with green perceived risk.
- H_{2a}: Green promotion positively associates with green perceived value
- H_{2b}: Green promotion negatively associates with green perceived risk.
- H_{3a}: Green place (on-line store) positively associates with green perceived value.
- H_{3b}: Green place (on-line) negatively associates with green perceived risk.
- H_{4a}: Green price positively associates with green perceived value.
- H_{4b}: Green price positively associates with green perceived risk.
- H₅: Green perceived value positively associates with green trust.
- H₆: Green perceived risk negatively associates with green trust.
- H_{7a}: Green Trust positively associates with subjective norms.
- H_{7b}: Green Trust positively associates with green attitude.
- H_{7c}: Green Trust positively associates with perceived behavioural control.
- H₈: Subjective norms positively associates with green purchase intention.
- H₉: Attitude positively associates with green purchase intention.
- H₁₀: PBC positively associates with green purchase intention.
- H₁₁: Green purchase intention positively associates with green product actual purchase.

Research Model is shown is figure 1.

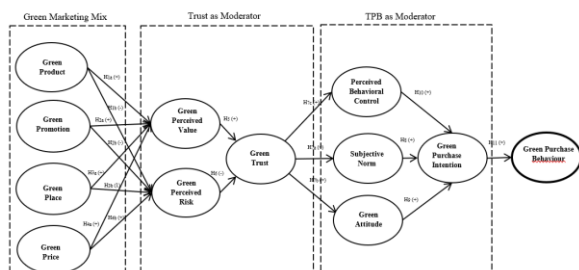


Figure 1. Research Model

4. Materials and Methods

4.1. Research scope and sample design

A cross-sectional study was conducted in 2021-2022, and the non-probabilistic method of snowball sampling was adopted

because through social distancing the target group was not easily accessible [46]. Participants were asked to answer the questionnaire and share it with their classmate. The target population, which included students of Amir Kabir University who were invited through WhatsApp and telegram widely used communication platforms to participate in a web-based online survey (Google Forms, version 2020). A total of 441 participants were included in the current study; descriptive analysis was carried out using IBM SPSS Statistics version 25.

According to Kline 2015 [116], sample size, there should be 10 to 15 parameters for each item, this study consists of 12 latent variables which includes 37 items, therefore, the minimum sample to carry out the research is 370. We collect 441 valid responses, out of 463 received responses, (see table 1 for Demographic profile) and to measure each part of the variables, we used a five-point Likert scale ranging from “strongly disagree” to “strongly agree” as recommended by (Babakus & Mangold, 1992) [117].

Table 1. Demographic profile of responders (N=441)

	Categories	Frequency	Percent
Gender	Male	165	37%
	Female	276	63%
Age Group	20 or younger	102	23%
	21~35	203	46%
	36-50	102	23%
	Over 50	34	8%
Education	Bachelor	222	50%
	Master of Arts/Science	132	30%
	PhD	87	20%
Income	Less than 5M Rials	51	11.5%
	5~10M Rials	289	66%
	10~15 Rials	53	12%
	More than 15M Rials	48	10.5%

4.2. Questionnaire

The questionnaire encompasses 37 questions from mentioned references in table 2 to gather four questions about gender, age, education, and income which recommended to include in the marketing research questionnaire [118,119,120].

4.3 Model Assessment

The critical ratio of Mardia's coefficient was found to be relatively high (>7) for samples, which shows the non-normal distribution of data [121]. On this basis PLS-SEM will be an appropriate approach to estimate the model [122,123,124]. The SEM estimation would be performed through two sequential stages. First measurement model evaluation (i.e., examination of validity and reliability), and second structural model estimation (i.e., examination of hypothesized relationships).

The running the bootstrapping with 5000 resampling also is performed to evaluate the structural model[125].

4.3. Measurement of the model variables

Reliability was assessed based on factor loads, Cronbach's alpha, and composite reliability. The factor loadings of the observed variables on their corresponding latent variables at 95 % confidence levels were all above 0.50 (0.59 to 0.98), thus demonstrating adequate convergent validity [126,127]. Researchers suggest that because Cronbach's alpha should be greater than 0.7, however, Cronbach's alpha criterion is sensitive to the sample size and the scale used for a construct, so it is not always sufficient to evaluate the internal consistency of a measurement model. They recommended

Composite reliability criterion (approvable value equal or exceeded 0.70) [127,128]. Table 2 and figure 2 provides the details related to the measurement structure's reliability.

Convergent validity was assessed using average variance extracted (AVE). The AVEs of the constructs ranged from 0.57 to 0.94, exceeding the suggested minimum value of 0.5[124], as table 2 reported approvable Convergent validity was achieved. Moreover, to all possible pairs of constructs in the exploratory model met the stringent discriminant validity standards of Fornell and Larcker (1981)[129], the square root of the AVE of each construct should be more significant than inter-construct correlations. Table 3 provides details related to convergent validity and discriminant validity.

Table 2. Measurement Structure's Reliability

Variables	Questions	Factor Loads	Significance Factor	Cronbach's Alpha	Composite Reliability
Green Product [36,57,130]	GPD1: Plant-based meat products have a good taste.	0.61	5.66	0.821	0.877
	GPD2: Plant-based meat products don't contain chemicals.	0.60	7.78		
	GPD3: Plant-based meat products are nutritious.	0.86	12.37		
	GPD4: Plant-based meat products have a pleasant smell.	0.88	12.73		
Green Promotion [57]	GPM1: Plant-based meat products labeling increases the consumer awareness regarding health issues.	0.81	12.77	0.813	0.877
	GPM2: I have been informed about plant-based meat products through online advertisement.	0.81	15.03		
	GMP3: Plant-based meat products advertisements contain lot of information.	0.79	11.51		
	GMP4: Special promotions and deals (price discounts, coupons, etc.) are available to people who purchase plant-based meat products.	0.80	13.68		
Green Place [57]	GPL1: Plant-based meat products are distributed through ecofriendly space.	0.75	14.85	0.846	0.891
	GPL2: The online e-tailers that sell plant-based meat products usually environmentally friendly themselves.	0.82	10.37		
Green Price [57]	GRPI: I must pay more to purchase the plant-based meat.	0.93	15.80	0.850	0.930
	GRP2: Plant-based meat products are more expensive than nongreen alternatives.	0.93	14.06		
Green Perceived Value [99]	GPV1: The plant-based meat products provide good value to me.	0.78	18.47	0.838	0.885

*Corresponding Author: Alireza Sheikh



		GPV2: The plant-based meat products quality meets my expectations.	0.84	19.69		
		GPV3: I purchase the plant-based meat products because, they are healthier.	0.83	18.77		
Perceived risk [131,132,133]		GPR1: There is a chance that there will be something wrong with environmental performance of plant-based meat products	0.84	12.13	0.918	0.938
		GPR2: There is a chance that plant-based meat products will not work properly with respect to its green design.	0.91	18.35		
		GPR3: There is a chance that you would face loss if you purchase plant-based meat products.	0.87	37.86		
		GPR4: There is a chance that using plant-based meat products will negatively affect the health.	0.73	14.78		
Green Trust [134]		GPT1: I trust in purchasing of plant-based meat products.	0.90	23.61	0.932	0.949
		GPT2: I trust in the plant-based meat products.	0.92	28.31		
PBC [135]		PBC1: Whether or not to buy plant-based meat products at place of conventional non-green product is completely up to me.	0.66	7.59	0.715	0.732
		PBC2: I have resources, time and opportunities to buy the plant-based meat products.	0.84	8.26		
		PBC3: I am confident that if I want to, I can buy the plant-based meat products.	0.69	4.89		
Green Attitude [136]		GA1: Buying The plant-based meat products is a good idea.	0.86	10.16	0.893	0.933
		GA2: Buying The plant-based meat products is a wise choice.	0.93	14.94		
		GA3: I like the idea of buying the plant-based meat products.	0.94	15.04		
		GA4: Buying The plant-based meat products would be pleasant.	0.72	13.11		
Subjective norm [135]		SN1: Most people important to me, think that I should buy the plant-based meat products.	0.97	32.45	0.945	0.973
		SN2: Most people, important to me, would want me to purchase the plant-based meat products.	0.98	32.00		
		SN3: People whose opinion I value would prefer that I shouldn't buy the plant-based meat products.	0.81	27.21		
Green Purchase Intentions [137]		GPI1: I am always interested in buying more the plant-based meat products for the family's needs.	0.91	26.49	0.893	0.934
		GPI2: I am willing to buy the plant-based meat products while doing on-line shopping in future.	0.91	56.32		
		GPI3: I will make an effort to purchase the plant-based meat products.	0.90	27.59		
Green Purchase Behavior [138]		GPB1: I have been purchasing the plant-based meat products at regular basis.	0.91	12.57	0.836	0.902

GPB2: I never mind paying extra price for the plant-based meat products.	0.86	8.95
GPB3: I still buy the plant-based meat products even though conventional alternatives are on sale.	0.83	8.70

Table 3. Convergent and Discriminant Validity

Item Nr.	Variables	AVE	1	2	3	4	5	6	7	8	9	10	11	12
1	Green Product	0.57	0.76											
2	Green Promotion	0.62	0.71	0.79										
3	Green Place	0.61	0.58	0.64	0.78									
4	Green Price	0.87	0.62	0.49	0.43	0.93								
5	Green Perceived Value	0.60	0.72	0.74	0.67	0.48	0.77							
6	Green Perceived Risk	0.75	0.14	0.19	0.13	0.14	0.26	0.86						
7	Green Trust	0.78	0.37	0.35	0.42	0.12	0.59	0.41	0.88					
8	PBC	0.54	0.27	0.21	0.29	0.18	0.38	0.18	0.58	0.74				
9	Subjective Norms	0.94	0.35	0.42	0.48	0.25	0.54	0.20	0.63	0.38	0.97			
10	Green Attitude	0.81	0.62	0.58	0.42	0.40	0.60	0.16	0.42	0.23	0.33	0.90		
11	Green Purchase Intention	0.81	0.60	0.50	0.47	0.30	0.68	0.32	0.61	0.48	0.39	0.72	0.90	
12	Green Purchase Behaviour	0.77	0.24	0.35	0.49	0.15	0.52	0.19	0.59	0.52	0.68	0.22	0.47	0.88

To support discriminant validity it is recommended to report the heterotrait–monotrait (HTMT) ratio with approvable value less than 0.85[139], as reported in Table 4.

Table 4. Discriminant validity analysis: HTMT

Item Nr.	Variables	1	2	3	4	5	6	7	8	9	10	11	12
1	Green Product	-											
2	Green Promotion	0.71	-										
3	Green Place	0.56	0.63	-									
4	Green Price	0.61	0.47	0.42	-								
5	Green Perceived Value	0.70	0.73	0.66	0.47	-							
6	Green Perceived Risk	0.14	0.18	0.13	0.14	0.26	-						
7	Green Trust	0.37	0.34	0.42	0.12	0.58	0.39	-					
8	PBC	0.27	0.20	0.27	0.15	0.37	0.17	0.57	-				
9	Subjective Norms	0.34	0.41	0.43	0.24	0.53	0.19	0.62	0.36	-			
10	Green Attitude	0.62	0.57	0.42	0.40	0.59	0.16	0.42	0.23	0.33	-		
11	Green Purchase Intention	0.58	0.50	0.45	0.29	0.67	0.32	0.61	0.47	0.38	0.71	-	
12	Green Purchase Behaviour	0.24	0.35	0.49	0.15	0.52	0.19	0.59	0.52	0.68	0.22	0.47	-

12	Green Purchase Behaviour	0.22	0.34	0.49	0.15	0.49	0.19	0.27	0.52	0.67	0.21	0.47	-
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As recommended by Kock,2015 [140] the collinearity assessment test performed to analyze potential common method bias. Common method bias is a detected when the values of inter-construct variance inflation factors are above the threshold of 3.3. The common method bias has not existed as the measure varied between 1.93 to 3.02.

4.5. Structural model analysis

The coefficient of determination (R^2), prediction power index (Q^2), effect size(f^2) and model fit indices, including the goodness-of-fit value (GOF)[125].

R^2 is a criterion that connects a measurement model to a structural model and indicates the effect of an exogenous variable on an endogenous variable. R^2 values of 0.19, 0.33, and 0.67 is considered weak, moderate, and substantial, respectively; a higher R^2 indicates a more appropriate model fit[125]. In addition, to evaluate the degree of deletion of a particular predictor construct's impact on the endogenous construct's R^2 value, the parameter f^2 , effect size, should be measured. f^2 values upper than 0.02, 0.15 and 0.35 illustrate small, medium and large effect sizes[122,141].

Q^2 is measured by the blindfolding method and shows the reflective endogenous variables' prediction power or the accuracy of the adjusted model. Q^2 values of 0.02, 0.15, and 0.35 are considered weak, moderate, and substantial, respectively[125]. Overall, the predictive validity and model fit indices were satisfactory for the present study.

Besides, the GOF (i.e., estimating the overall predicting power of the conceptual model) for the model was determined. GOF is calculated based on the average of R^2 's value and the average communality, which is calculated based on each reflective indicator's AVE, and a value of >0.36 is considered adequate[142]. GOF in the current study measured as high as 0.516.

Table 5. Structural Model Quality Indicators

Item no.	Invisible dependent variables	R^2	Q^2	GOF
1	Green Perceived Value	0.65	0.35	0.516
2	Green Perceived Risk	0.16	0.11	
3	Green Trust	0.42	0.29	
4	PBC	0.34	0.16	
5	Subjective Norm	0.40	0.35	
6	Green Attitude	0.18	0.13	
7	Green Purchase Intentions	0.63	0.47	
8	Green Purchase Behavior	0.22	0.16	

4.6. Results

Table 6 along with figure 2 and 3 indicate the result of model and hypotheses test from the PLS-SEM approach and t-test statistic values at confidence level of 95%.

Table 6. Hypotheses Test Result

Path	β	Bias Corrected CI	P Values	Effect size	Hypothesis Confirmed
Green Product -> Green Perceived value (H1a),	0.288	[0.14-0.35]	$P < 0.001$	0.159	Supported
Green Product -> Green Perceived Risk (H1b)	-0.448	[0.223-0-0.447]	$P < 0.001$	0.163	Supported
Green promotion -> Green Perceived Value (H2a)	0.324	[0.258-0.511]	$P < 0.001$	0.157	Supported
Green promotion -> Green Perceived Risk (H2b)	-0.097	[-0.103-0.088]	1.01	0	Not Statically Significant

Green Place -> Green Perceived Value (H3a)	0.286	[0.005-0.231]	P<0.001	0.142	Supported
Green Place -> Green Perceived Risk (H3b)	0.304	[0.15-0.33]	0.003	0.147	Rejected
Green price -> Green Perceived value (H4a)	0.018	[-0.023-0.115]	1.28	0	Not Statically Significant
Green Price -> Green Perceived Risk (H4b)	0.336	[0.193-0.449]	P<0.001	0.022	Supported
Green Perceived value -> Green Trust (H5)	0.517	[0.273-0.473]	P<0.001	0.158	Supported
Green Perceived Risk -> Green Trust (-H6)	-0.276	[0.523-0.627]	P<0.001	0.132	Supported
Green Trust -> Subjective Norms (H7a)	0.584	[0.15-0.365]	P<0.001	0.123	Supported
Green Trust -> Green Attitude (H7b)	0.629	[0.043-0.220]	P<0.001	0.133	Supported
Green Trust -> Perceived behavioural Control (H7c)	0.422	[0.24-0.52]	P<0.001	0.003	Supported
Subjective Norms -> Green Purchase Intention (H8)	0.056	[-0.104-0.97]	1.05	0	Not Statically Significant
Green Attitude -> Green Purchase Intention (H9)	0.631	[0.15-0.28]	P<0.001	0.111	Supported
PBC -> Green Purchase Intention (H10)	0.315	[0.063-0.29]	P<0.001	0.084	Supported
Green Purchase Intention -> Green Purchase behaviour (H11)	0.467***	[-0.003-0.246]	P<0.001	0.017	Supported

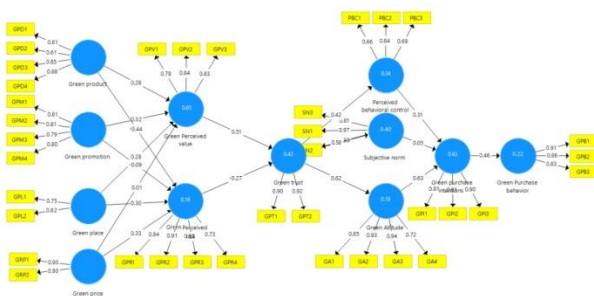


Figure 2: Measurement and Structural Model Analysis

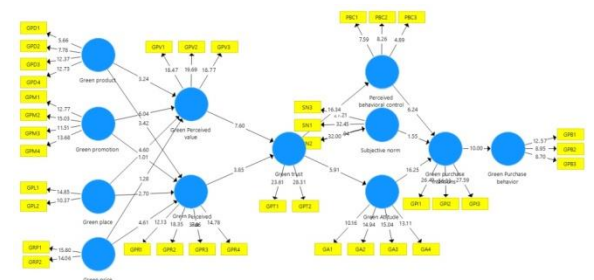


Figure 3. t-test statistic values at confidence level of 95%

6. Discussion and Managerial Implication

The result analysis report that the green marketing mix determines 65% of perceived value. However, regarding risk, the results indicate that marketing mix elements affect it by about 16%. In addition, green product, green promotion and green places positively and significantly impact perceived value [11,91,93]. However, there is no significant connection between green price and perceived value compared to reports (Hanaysha, 2017)[91]. The promotion has the most substantial effect on perceived value. Taking the nascent plant-based meat ham, sausages and burgers in Iran into the account, this

finding is congruent with (Mohammadi et al., 2018)[143] that showed that in the introductory stage, “promotion,” had the highest priority and advertisements, flyers and dissemination of information among comprise the most essential elements of promotion.

In addition to the advertisement, eco-labelling (organic food certification labels) has been found to be as an proper promotional strategy to raise customer awareness about green products and build trust in consumers through diminishing information asymmetry[45,65]. The current label on the plant-based meat product issued by the Iran Ministry of Food and Drugs is a standard label on all-food products, so introducing eco-labelling should be a priority for the Ministry of Food and Drugs. In addition, the packaging of plant-based meat in Iran is not recyclable switch to environmentally friendly packaging (recycled, recyclable, biodegradable, compostable) and that communicates the environmental friendliness of the product [144].

Promotion via social media which was already significant in societies before the COVID-19 crisis, has now been enhanced after it. Social media, which was found to be effective on organisational performance, is a very effective way of promotion[145,146]. To promote plant-based meat, social media posts with "warm color, vertical symmetry, and horizontal symmetry" appealed to a higher number of customers[147]. Selling the plant-based meat products to the fast-food providers would be effective since many fast-food providers are promoting their products through online food delivery, such as snap food which has 95% of the share of food delivery in Iran; it would be an effective and also economical method of promotion.

Our study report the higher the price, the higher the perceived risk; it is beneficial if government subsidise the promotion of plant-based meat products advertisement on national TV

*Corresponding Author: Alireza Sheikh



daily, which has a wide audience in Iran. Through the visual aids built, PBC will heighten, which is found to be the second most effective factor in the buying intention. In addition, the burden of promotional expenses is easy, which can affect the price and make it more affordable of the product.

After the banner around the university cafeteria and distributing the plant-based meat products to the fast-food providers around the university and adding the plant-based meat products to the menu would be effective. In addition, companies can give the university student a tour of the production line or invite the green supplier to the university to make a presentation of their company product would be effective in establishing a direct relationship with the final consumer, heightening their confidence and trust in plant-based meat product processes [96] and building self-efficacy which is a background of PBC would be formed. PBC was identified to have a positive impact on customer intention [148]. Consumers' trust level in information shared by health professionals and scientists was reported to be stronger than government [103], on this basis "health centres, health counselling, and nutrition centres" can be launched at university to provide students with knowledge, education and attitudes about benefits of plant-based meat products.

Customers struggle with simultaneously several contradicting beliefs about rationalization of meat consumption [59], therefore emphasizing on differences between organic and conventional foods [149] and focusing on the health benefits [70] would heighten the perceived value. The product impact on the perceived value is positive; however, it has negative influence on green perceived risk. The better-quality green product would lead to higher perceived value and lower perceived risk. Perceived costs of buying organic products can be offset by perceived benefits. In line with (M. Esmaili & Fazeli, 2015) [11] reports, people in Iran are more sensitive about green products than their price.

Based on this finding, plant-based meat manufacturers should pay attention to the comment on the most visited e-tailer platforms like Djkala and snapp food and modify the product according to customer complaints. For instance, some customers claim that the due to higher price of meat used in meat-based products compared to the non-animal proteins deriving from soy, pea, lentil, fungi, vegetal oils, starches, colourings/flavouring agents and spices enable a meat-like experience [1], the price of green ham and sausage is unreasonably high. Another complaint which is repeated besides price is being mushy, not tasty, and not having a clear distinction between vegetarian (diet excludes meat, poultry, fish and seafood) and A vegan diet excludes all meat and animal products (meat, poultry, fish, seafood, dairy and eggs). Food taste is among the most repeated customer complaints, in line with previous findings that taste is a crucial attribute in the meat substitute food context from consumers' perspective [150]. As domestic manufacturers are new at plant-based ham and sausages, they can use technology from the well-known foreign company that is launching a wide variety of products, which satisfy customers' desire for variety and control over their food choices, without compromising on the

taste, so we would be able to make the process efficient and also increase the quality of product to name a few Sotexpro, Beneo GmbH, Glanbia plc, Symrise, Crown Soya Protein Group may make a proper source of technology transfer.

Meanwhile, green price on perceived risk has a positive and significant effect. Therefore, with an increase in green price, growth in green perceived risk is observed in line with previous research. As already reported by [11] (M. Esmaili & Fazeli, 2015), price is the second most factor impacting customer green buying intention of Iranian people's due to weak economy. However, our study confirmed the higher the income, the weaker the perceived risk from the price. Since most university students are supported by their family, part-time, or junior-level workers in the organization, their budget is limited, on this basis government supportive pricing policy such as tax cut for green product manufacture would be effective strategy to strengthen university students' buying power as low income population.

The result analyses show a positive and significant impact of place through online purchases on the perceived risk. Even though risk due to COVID-19 pandemic lead people of online purchasing, the perceived risk of online purchases is still present [151]. In addition, the risk perceived from online purchase by customers (e.g. losing personal information and money) found to have higher negative effect on their purchase behaviour than perceived risks from offline outlets due to possibility of evaluating product directly and paying in cash if they wish [152]. Another new imposed risk after covid is chance of transferring disease from delivery riders as they are in contact with wide range of customers, which add to customer anxiety [151,153].

From the effect of trust on the TPB construct, in contrast with (Canova et al., 2020) [38], which find the most significant effect of trust on attitude, our study reports the most effect on the subjective norm and then attitude. However, both were alike about the weakest effect of trust has been reported on PBC. Attitudes toward the behaviours had the most potent effects on intentions, and the second was PBC [38,48,55,154,155]. However, it did not report a correlation from the subjective norm to intention [72,88,136], as educated customers may have sufficient knowledge about meat substitute food and do not follow the social norms. Armitage and Conner (2001) [156] argued that the normative elements of TPB construct may be the relatively weaker component of it. It seems in dealing with green products consumers would be "individualistic" and "egocentric" [157]. In the same vein, Qi and Ploeger, 2019 [48] believe in the organic food contexts, subjective norms have un-noticeable predictive power, and to rise in power of models to explain purchase intention it would be more effective if we substitute with group conformity.

In our study is, 63 per cent of intention defined by the TPB construct; it is around the measure reported in previous research [38,55]. Confirm the strong expiatory power of TPB constructs to define the intention. Moreover, 22 per cent of the variance in buying behaviour is explained by buying

intention; this measure is much lower than the value reported by (Fleseriu et al., 2020)[46] (around 50%) and Carfora et al. (2019)[96] (between over 30%). The poor explained behaviour variance in comparison to those of intentions could be "(a) issues regarding the validity of self-reported behaviour measures", (b) "events that occurred between the assessment of intentions and behaviours, which may have produced changes in intentions", (c) "unanticipated obstacles that may have prevented the individuals from carrying out their intentions" [158],d) "focus on the short-term vs long-term", and e) "low regard for distal or intangible issues"[50].

According to the demographic analysis, females show more interest in participating in the online survey, which aligns with G. Smith's (2008) [159] findings. Our findings indicate that respondents with higher education (master's degree or Ph.D.) show stronger attitudes and PBC toward green eating, as suggested by Ghofrani et al. (2017)[88]; however, for those at the bachelor's degree level, subjective norms were stronger, perhaps due to family recommendations to eat healthy (but weak intentions to follow through). To the best of our knowledge, participants with a high income tended to show more interest in purchasing green plant-based meat products. Meanwhile, our study supports that young women have stronger purchase intentions and behaviours than males regarding their organic food choices[160,161].

As Iliia-corporation (2016)[162] reported, demographics opportunity (young population), increasing rates of urbanization and a population who are increasingly turning to fast food as a means of socializing. The findings of the present paper offer a blueprint and provide several implications for the green marketing mix. The results also show that the proposed model is stable and has good explanatory power. This study may also help to develop a clear understanding of trust in green marketing mix implementation. We hope this work will benefit researchers, managers, and policymakers and contribute to future research as a reference.

7. Limitation and Future Study

The present research has some limitations that offer opportunities for further research.

First, this study focuses on the purchase practices of plant-based meat products in Iran and results cannot be generalized, and the study needs to be repeated in different geographic and cultural economies. In addition, the sample size of this study was 441 Iranian university respondents; to provide a more representative sample, future studies should be carried out using larger samples, covering different demographics. Second, self-reported actual purchases in both studies may not be accurate because they may be subject to "social desirability" or "social approval" biases and to retrieval inaccuracy[163]. The observed actual behaviour, which indicates "regular, irregular, and casual buyers" of plant-based meat products proposed by Rana and Paul, 2017[164], would provide more accurate data. Third, present research adopts the quotative method, which was a safe method during Covid, however qualitative research from direct observations, in-depth, open-ended interviews to investigate the to add a new

dimension that cannot be obtained through measurement of variables alone to devise multidimensional links between individual, social, and situational attributions may help deepen the general understanding of customers' green purchase behaviour. Fourth, we used two convenience samples; so, extending the finding to the total population is arguable. Studies could apply random sampling among other populations in other countries to test the generalizability of the present findings. Fifth, the present study used cross-sectional data—therefore, the dynamic changes should be carried out through longitudinal research. The researcher highlights that the timing of the study might have had an impact on this study. Unfortunately, the Covid-19 pandemic has harmed the economy and even the consumers' purchase intention. Most people lost their jobs, and therefore, many consumers have less money to spend on consumer products. Green products are well known for their higher price, which comes into conflict with consumers who recently came into economic issues, which could have affected the results of this study, also now more purchasing happen on line, It is suggested that impact of in-store promotion on the relation between intention-behaviour could be more investigated[165]. Sixth, exposure to the production processes of plant based meat products also should be studied in order to identify the their impact on trust and decision-making [38]. However, between green promotion and green perceived risk, the price on perceived value and subjective norm on the intention no connection has been observed and need further research. Also, even though out study confirm the TPB contsructs to explain consumers' intention, extending the basic model by augmenting independent variables may enrich our understanding of customer intention. Finally, the near resemblance of meat-free food to meat-made food and their in term of "taste, smell, visual appearance, and texture" would be effective strategy to attract customer to the non-meat food, however, vegans and vegetarians who eliminate the meat due to ethical believes reaction to this salient meat resonating should be observed[62].

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