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The Impact of Perceived Health Benefits and Environmental Consciousness on the Purchase Intention of Reformulated Foods: The Mediating Role of Positive Attitude and the Moderating Influence of Income Level among Pakistani Consumers

Dr. Rana Tahir Naveed*
Assistant Professor, UE Business School, Division of Management & Administrative Sciences, University of Education Lahore, Pakistan, tahir.naveed@ue.edu.pk
Dr. Jamal Zaidi
Spectrum International University College, Malaysia, jamal@siuc.edu.my
Dr. Tasawar Abdul Hamid
Spectrum International University College, Malaysia, tasawar.abdulhamid@gmail.com

Abstract
The focus of the international food industry has shifted towards developing reformulated foods, with a view to health and environmental issues. The problem of consumer acceptance, particularly in developing countries such as Pakistan, is a complex and less studied issue. The present study investigates the impact of perceived health benefits and environmental awareness on the purchase intention of reformulated foods in Pakistan. It also presents the mediating effect of positive attitude and the moderating influence of income level in the proposed relationship. Data were collected from 350 consumers in major urban areas of Pakistan using a structured questionnaire. The data were analyzed using Structural equation modeling (SEM) with SmartPLS software. The results indicate that perceived health benefits and environmental awareness are significantly related to purchase intention and that a positive attitude serves as a full mediator in this relationship. It was also found that income level serves as a significant moderator in the relationship between environmental awareness and positive attitude, with a greater effect among high-income groups. From a theoretical perspective, the study contributes to knowledge by extending the Theory of Planned Behavior (TPB) and providing empirical evidence in a unique cultural context. The research offers valuable insights for food manufacturers, marketers, and policymakers seeking to introduce reformulated foods into the Pakistan market successfully.
Keywords: Reformulated Foods, Purchase Intention, Theory of Planned Behavior, Health Benefits, Environmental Consciousness, Pakistan, Income Level, Mediation, Moderation.

1. Introduction
The modern food environment is undergoing rapid transition due to growing public health threats (obesity and diabetes) and mounting concerns about environmental sustainability (World Health Organization, 2020). Food companies are now turning to innovation through food reformulation, the process by which the nutrient composition of food products is altered to enhance their healthfulness or reduce their environmental impact (Bigliardi & Galati, 2013; Ufaq, 2019; Marc et al., 2025). While some of these products hold great promise for advancing public health and environmental protection, their success, in the final analysis, will depend on consumer acceptance (Grunert et al., 2014; Marc & Roussel, 2024; Raja & Iqbal, 2019). The dilemma of consumer acceptance in developing markets, such as Pakistan's, is particularly acute. The demand for processed and packaged foods is skyrocketing amid a complex set of traditional dietary customs, health awareness, and special social and economic circumstances (Ali & Kapoor, 2019; Anees & Yan, 2019; Machove, 2022; Mehmood et al., 2022). Pakistan represents a good example. It is a nation with a dual burden of disease, that is, one of the diseases of malnutrition on the one hand, and a rapidly rising burden of non-communicable diseases due to diet on the other hand. In addition, it is a country where environmental degradation has become a major national issue (Ali & Senturk, 2019; Jafar et al., 2020; Rehman & Malik, 2020; Marc & Ali, 2023). Nevertheless, even though this subject clearly needs investigation, research into the causes of changes in

* Corresponding Author

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consumer product value evaluation, particularly regarding modern food innovations such as reformulated products, is woefully lacking in this cultural and traditional milieu. These findings on modern product acceptance were found mainly on the consumers in the Western countries which may be considered as of some relevance, but due to the tremendous differences in cultural habits, values, ideology, worth of goods and services, economic conditions, and styles of food use and consumption discovered in, and between the different countries, it would be not easy to assume that these findings would be valid in the new forms of food used in the developing countries and certainly in the rapidly developing market economy of Pakistan (Guerrero et al., 2009; Fan & Iqbal, 2022). Such a lack of information poses a problem for multinational and national companies in introducing healthful and sustainable options to their products, as well as for public health officials in their efforts to create a more healthful food environment. A better understanding and thorough research of the psychosocial and economic circumstances that lend themselves to, or discourage the attempt of consumers to step up to the challenge of trying to make use of these reformulated or other new products, will be necessary not only as an academic and scientific endeavor, but as a significant commercial and public health concern.

2. Theoretical Anchoring

In order to thoroughly investigate the various and complex issues involved with the consumer's behavior in the purchase of reformulated foods in Pakistan, the present study is constructed based on the widely accepted Theory of Planned Behavior (TPB) (Ajzen, 1991) which proposes that the best proximate predictor of a person's conduct in relation to a behavior such as the buying of a product is his intention to perform the behavior. This intention is posited to be a function of three basic and related components: attitudes towards the behavior, subjective norms, and perceived behavioral control. The research model employed in this study will consequently incorporate and expand on the TPB concept, directly addressing the relationship between attitude and intention. The perceived health benefits and environmental consciousness of components are established as two important behavioral beliefs that jointly lead to the cognitive basis or psychological process underlying a person's Positive Attitude (the affective evaluation) towards reformulated foods. This is consistent with the TPB's premise that attitudes precede beliefs. A consumer who holds the beliefs in question strongly is likely to acquire a generally favorable attitude towards the various reformulated foods. Further, this Positive Attitude is likely, in view of its intrinsic structure, to be the causative reason behind the Purchase Intention, the basic idea or precept of the TPB. However, the TPB in its standard form is generally criticized for lacking precision due to its broad generality. It does not reveal why beliefs about expected behavior are responsible for the intentions formed or what external factors influence the strength of these relationships. To improve this situation, two basic modifications to the existing model are suggested. The first of these formulations is to view Positive Attitude not only as a predictor of Purchase Intention but also as a mediating influence, explaining how health and environmental beliefs affect purchase intentions through psychological variables. This gives a much fuller picture than a simple direct effect model. The second modification to the research model's structure involves including a moderating variable, Income Level, to account for differences in consumers' socio-economic status across Pakistan. The criticisms of the TPB tend to be that, although they are valid in their own right, the general power of analysis is depreciated due to the failure to specify or incorporate into the models used demographic variables that may act as stage setters to determine behavioral outcomes in certain consumer sections in society (Yadav & Pathak, 2016; Yan & Sriboonchitta, 2024). The TPB model may thus be enhanced by the introduction of relevant demographic variables that moderate and/or mediate. In a society characterized by inevitable social stratification, as in Pakistan, for example, the important boundary variable is likely to be the ability to pay a little extra for "value-added" products such as reformulated foods. In summary form, by incorporating a mediating process with the moderating effect within the frame work of the TPB the present study purports to offer a more comprehensive and relevant theoretical model which attempts to embrace the more complex pattern of consumer behavior in situations involving new food technology, particularly in an emerging market, directly determined by addressing the question posed of the low adoption levels which have been a consistent feature in this area, by

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revealing the psychological process involved (mediation) involved and a critically important socio-economic variable (moderation).

3. Theoretical Framework & Literature Review

The conceptual foundation of the research indicates that Perceived Health Benefits and Environmental Consciousness are independent variables related to the Purchase Intention of reformulated foods. Positive Attitude mediates this relationship, and Income Level moderates it. The consumer behavior literature on new and reformulated foods consistently indicates that health perceptions are one of the prime motivators. The Perceived Health Benefits include consumers' own judgments about the food product's ability to enhance their physical health. When these foods are reformulated, they usually focus on reducing harmful or damaging ingredients and increasing beneficial nutrient elements. Studies across different cultures indicate that consumer evaluations and acceptance of foods increase significantly when consumers believe they are healthier than traditional foods (Ares et al., 2015; Tang & Azman, 2024). For example, the success of many low-sodium and low-sugar products is primarily attributed to positive health messages. Environmental Consciousness is another very influential factor, defined as an awareness of environmental problems and a willingness to act in ways that reduce environmental detriment. Thus, Environmental Consciousness has been shown to impact marketing efforts, especially among younger and more educated groups (Dunlap & Jones, 2002; Russo, 2022). Reformulated foods advertised as requiring less water, generating fewer carbon emissions, and using sustainably grown products fit nicely into this area of environmental consciousness. Sörqvist et al. (2015) found that food products with ecological claims were much more desirable and that purchase intention increased; however, they noted that this varies in importance across cultures. Purchase Intention is an established measure in marketing and consumer research. It refers to a person's (consumer's) conscious plan to try and buy a food product, and it is considered a strong predictor of behavior that does occur (Dodds et al., 1991). In Pakistan, this landscape is changing. With increased literacy and media access, awareness of health and environmental issues is gradually improving, especially in urban areas. (Hussain and Shahab, 2021; Khan, 2020). Nevertheless, this awareness has not been extensively studied for its utility in food choice, particularly regarding processed and reformulated foods, which lie at the intersection of modern food science and traditional eating practices. The mediating variable in our model, Positive Attitude, is defined as an overall emotional evaluation of reformulated foods. The TPB states that attitude is an overall evaluation of how favorably or unfavorably a person feels towards a behavior. We feel the cognitive evaluations of the health and environmental benefits combine to form an overall Positive Attitude, which serves as the immediate psychological stimulus for forming Purchase Intention (Fishbein & Ajzen, 2011). The mediating hypothesis shows that beliefs influence intention indirectly through a general emotional state. In addition, the socioeconomic context of Pakistan needs to be considered, which is why Income Level is included as a moderating influence. There is considerable income inequality in Pakistan, and disposable income is a significant factor in food decision-making (Bashir & Schilizzi, 2013; Rahat & Hayat, 2020). Reformulated food, whether perceived as or actually carrying premium product pricing, is regarded. Therefore, the strength of the relationships, particularly those involving Environmental Consciousness and Positive Attitude, may depend on the individual's finances. The wealthier segments of consumers, who are less burdened by budget constraints, may be more able to develop a positive attitude toward these products because they are environmentally conscious, thereby increasing their intention to purchase. On the other hand, lower-income groups, while they may also share this environmental concern, would naturally be more inclined to prioritize economic practicality than ethical legitimacy (Carrington et al., 2010; Celik, 2021; Zang, 2022). This possible moderating influence of income highlights the need for market segmentation and the development of specific approaches to address the central issue of low adoption by focusing on the groups of people for whom these factors are most effective.

The existing research provides a strong evidence base but also indicates many serious gaps for consideration in the context of Pakistan. Although a great many studies in Western countries do identify the direct relationships existing between health feeling, concern for the environment, and purchase intention as regards food products, little or no attention has been paid to the underlying psychological processes of these relationships, namely the

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how and the why, especially in relation to attitudinal mediation. Furthermore, the majority of this research has arisen in developed, individualist societies, where people generally have greater knowledge and understanding of food and a different way of viewing values. The results of this kind of research may prove inapplicable to countries like Pakistan, which are collectivist developing nations with specific cultural food traditions and economic difficulties. This highlights a severe gap in the existing literature. There is an excellent call to move beyond the direct-effect level of feeling and looking to the more complex mediated and moderated (if that is the word) levels of decision-making processes for consumers in countries with such diverse cultural habits. Also, with more specific reference to research on Pakistan, most studies have focused either on ordinary food consumption or on a pretty general category of packaged foods. With this general requirement, there is a conspicuous absence of any specific search for information on the added-value, modified food products of the country. The field of study on environmental consciousness regarding food in Pakistan is fragile and almost totally neglected. There is practically no significant literature on environmental consciousness, with most focusing on energy or water conservation rather than consumption. It is hoped that this study will go some way toward eliminating this gap by proposing and offering for confirmation a node of integrated factors, determining the direct effect of two particular beliefs, health and environmental, relative to purchase intention, and to reveal the degree of constructive nature of the mediating factor of positive attitude, hence showing the psychological process which enters into the meaning of the significance of direct beliefs as being related to purchases. In conjunction with this, treating income level as a moderating factor in the situation connects the research theory's psychological perspective to the fulfillment of existing economic conditions. This approach demystifies attitudes toward scientific intention, as these clearly affect the attitude-intention link. This contribution is of importance theoretically and practically. Theoretically, it enhances the TPB's value by providing evidence for a mediated-moderation model in a different field of research, thereby increasing the model's credibility. In this way it also ends up with some socially derived benefits in as far as it shows incentives which are amenable to either food companies or public health bodies in the country of Pakistan, helping them to implement, in a much more efficacious manner, more acceptable marketing communication and political approaches, being helpful and positive towards the acceptance of the existing psychological factors involved as well as the lacking acceptance of the economic aspects, thereby also greatly appreciated as not being prone to be disruptive of the society barriers to acceptance. This identification of the relationship from the aspect of the environmental consciousness which determines directly the purchase intention not only from the aspect of the two moderating variables that of mediating positive attitude and moderating income level, appears to give the precise interpretation of truth that may be appreciated by who (which) is intimately concerned to be able economically with the groups of people to be influenced (preferable mode of presentation) the accepted object or product type with the proper interpretation therein exhibited by the buyers, thus providing better promotion of message of worthiness of a healthier as well as more useful food system in the country.

4. Hypotheses Development

H1: Perceived Health Benefits will have a positive and significant effect on Purchase Intention for reformulated foods among Pakistani consumers.

The basis for this hypothesis lies in the fundamental nature of health motivation in food consumption, particularly in a developing nation like Pakistan, undergoing an Epidemiological Transition. The Pakistani consumer is now faced with a large extent of health hazards arising from dietary habits characterized by high sugar, salt, and fat consumption, as suggested by the increasing prevalence of hypertension, cardiovascular disorders, and diabetes (Jafar et al., 2020). This creates an innate requirement for healthful products. Perceived Health Benefits represent the mental evaluation a consumer makes when a reformulated product, with lower levels of trans fats or greater inclusion of whole grains, addresses a pre-existing health hazard and provides a positive health benefit to the individual and family. According to the Value-Attitude-Behavior hierarchy of Homer and Kahle, when a product is perceived to offer a primary value, such as well-being, to an individual, it elicits a favorable behavioral response (Homer & Kahle, 1988). The Protection Motivation Theory suggests that

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when a threat (poor health) is substantial and considerable, and a coping response (Healthy food consumption) is perceived to be available, individuals are motivated to adopt it (Rogers, 1975). In a collectivistic culture like Pakistan, where food emphasizes family care, purchasing a healthier alternative product can be seen not only as an individual decision but also as a moral obligation concerning family health, a responsibility. Thus, we find that even though the two principles of price and taste are of prime importance, the basic motivation of health protection creates a compelling motivation for behavioral intention. Hence it is logical and it would be consistent to predict even theoretically that if a health benefit is clearly defined for the product reformulated, the intention of purchase in that product range by the consumer in Pakistan would be greatly enhanced, thereby having the form of a direct and positive relationship, which would occupy the position of one of the foundations of our conceptual model.

H2: Environmental Consciousness will have a positive and significant effect on Purchase Intention for reformulated foods among Pakistani consumers.

This hypothesis is based on the growing, yet still relatively new, awareness of environmental issues among urban sectors of the Pakistani population and their impact on consumer behavior. Environmental consciousness means that consumers are aware of issues such as global warming, water scarcity, and pollution. Also, these issues are highly relevant to Pakistan (WWF-Pakistan, 2020). Reformulated foods that convey environmental claims, such as carbon footprints, reduced water usage in manufacturing, and sustainable packaging, appeal to this budding ethical consumerism. The Norm Activation Model (NAM) assumes that pro-social and pro-environmental behaviors may be activated when the actor is aware of the adverse consequences of inaction or feels a responsibility for personal action towards change (Schwartz, 1977). The Model has historically been used to describe how a person behaves when they engage in an environmentally beneficial activity (i.e., recycling). The same logic applies to buying a "Green Nature" or an environmentally friendly product: there is evidence that such purchases represent a responsible act and a normative behavior. In comparison to many other areas of the country, urban areas of Pakistan have likely suffered more greatly at the hands of environmental abuse, specifically the environmental abuse associated with the smog crisis and the waste management crisis. In addition, a subset of the consumer population in Pakistan, primarily young, educated individuals, tends to prefer products from companies that demonstrate a commitment to environmental protection. As a result, even though the "Environmental Protection" movement has not yet penetrated middle-class markets in Pakistan, it indicates that changes are occurring in the marketplace (Sujarittanonta, 2021; Carlo, 2025). When a person purchases a reformulated food product for environmental reasons, they can derive symbolic benefits, enabling them to present themselves as modern, global, and responsible. Therefore, we argue that the level of environmental consciousness an individual exhibits will positively correlate with the degree of purchase intention for reformulated foods. Consumers perceive these types of products as tangible ways to link consumption habits with pro-environmental benefits, thereby enabling individuals to become involved in a cause that may not directly benefit them.

H3: Positive Attitude will mediate the relationship between (a) Perceived Health Benefits and Purchase Intention and (b) Environmental Consciousness and Purchase Intention.

Understanding this mediation hypothesis is vital to our theoretical contribution, as it concerns the psychological mechanism that mediates the transformation of cognitive beliefs into behavioral intentions, going beyond a simple direct effects model. The Theory of Planned Behavior specifically establishes attitude as one of the main antecedents of intention (Ajzen, 1991). It is proposed that Perceived Health Benefits and Environmental Consciousness are specific behavioral beliefs that contribute to the overall affective evaluation, which is a Positive Attitude. A consumer may, for instance, believe that a reformulated food is healthy (a cognitive belief) and at the same time think that it is good for the environment (another cognitive belief). In the end, these beliefs together determine the consumer's general feeling or attitude towards the food—do they like it? Do they feel good about it? This Positive Attitude is the sum of these specific considerations. It is this overall favorable perspective that directly energizes and channels the formation of the Purchase Intention, rather than the specific beliefs as such. For instance, a consumer may agree that a particular food is healthy (high Perceived Health

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Benefits) but not intend to buy it if the overall attitudinal disposition is unfavorable due to other factors, e.g., expected poor taste. The significance of the mediation effect is that the influence of the health and environmental beliefs on the intention to buy a product is indirect, i.e., it is mediated through overall attitude. This explains how indeed these beliefs eventually influence intention. In Pakistan, where reformulated foods may be regarded with some suspicion, a positive attitude becomes the essential bridge that allows positive beliefs to overcome potential barriers such as neophobia or a lack of trust. We therefore posit complete mediation, in that the significant direct effects of H1 and H2 become non-significant when Positive Attitude is included in the model, with Positive Attitude serving as the prime antecedent of intention.

H4: Income Level will moderate the relationship between Environmental Consciousness and Positive Attitude, such that it is stronger among higher-income consumers than among lower-income consumers.

The rationale for this moderating hypothesis is grounded in Pakistan's socio-economic conditions and the "attitude-behavior gap," a phenomenon that has frequently been discussed in the context of ethical consumption. High Environmental Consciousness can be found at all levels of income, but economic restrictions significantly limit the scope to act upon a Consciousness of this nature. In the case of reformulated foods, which carry social and environmental benefits, economic factors such as the costs of progressive acquisition, manufacturing, and R&D make the price higher for the lower income consumer in Pakistan, who has to devote a larger share of his or her house-hold budget to food so the principal elements affecting purchase are price, taste, and habitue satiety. Even where a very high level of Environmental Consciousness is found, this economic constraint may impede the formation of a strong Positive Attitude towards premium-priced goods, as their Attitude is conditioned by financial propriety. High-income consumers, on the other hand, have greater financial flexibility, which allows them to absorb higher prices more readily and align their purchases more effectively with their values and beliefs. Environmental Consciousness can more freely translate into positive attitudes for this social group because the economic constraint is less binding. This is buttressed by Maslow's Hierarchy of Needs, which suggests that higher motives, such as self-actualization, which includes acting based on Environmental values, are only salient after satisfying lower needs, such as the Economic Security need. (Maslow, 1943). We hypothesize, therefore, that one important boundary condition governing the relationship between Environmental Consciousness and Positive attitude is Income Level (Iqbal & Noman, 2025), which strengthens the positive relationship among Consumers with higher levels of Financial Resources. This hypothesis suggests that the most effective strategies for promoting the Environmental benefits of reformulated foods will be those aimed at the country's higher-income demographic.

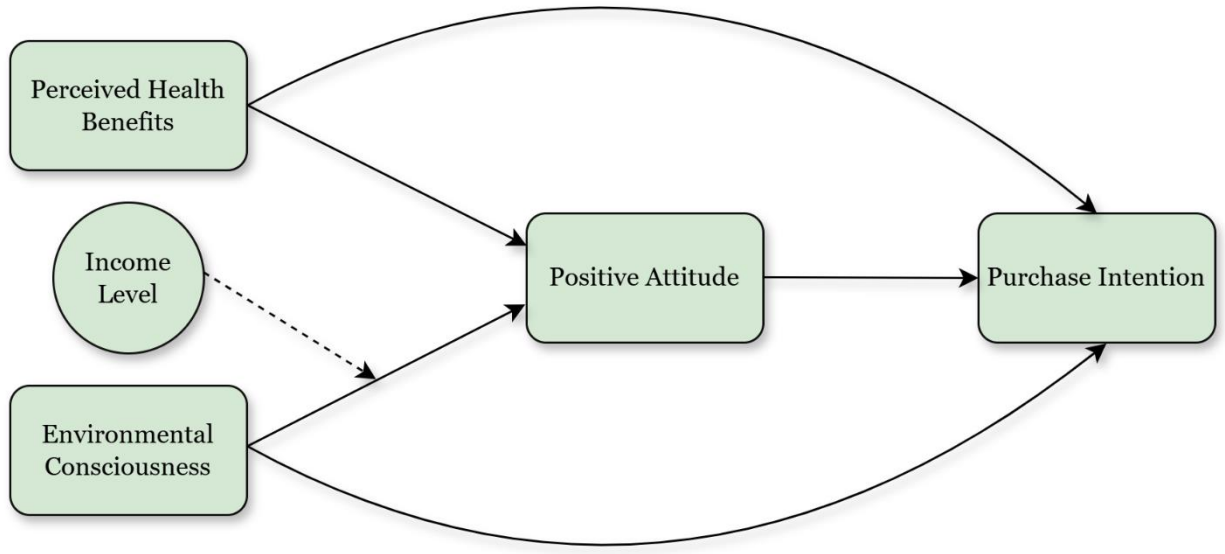

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Figure 1: Research Framework

5. Research Methodology

5.1. Research Design and Sample

A quantitative, cross-sectional research design was employed, and data were collected via a self-administered, structured questionnaire. The study population consisted of consumers aged 18 or older residing in major cities of Pakistan (Karachi, Lahore, Islamabad) who were involved in grocery shopping for household needs. The "non-probability purposive sampling" technique was employed to find this specific targeted sample. A total of 400 questionnaires were distributed, of which usable responses were obtained from 350 questionnaires. The response rate is 87.5 percent.

5.2. Data Collection Procedure

Data were collected over two months through online surveys (distributed via social media and e-mail) and through personally administered questionnaires in shopping malls and supermarkets to obtain a more varied sample. All participants were instructed regarding the purpose of the investigation, and "reformulated foods" were defined correctly and exemplified (e.g., "a yogurt made with less sugar," "cookies with increased fiber," "oils with decreased saturated fat content"). All respondents gave their consent to the investigation.

5.3. Measurement Instruments

All constructs used in this study were measured using reflective scales adapted from previous literature to achieve content validity and reliability. Data were collected via a questionnaire employing a 5-point, Likert-type response scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The scale for Perceived Health Benefits consisted of four items adapted from Urala and Lähteenmäki (2007) and Annunziata and Vecchio (2013). Sample items included "I feel that reformulated foods are healthier for me than their regular counterparts" and "Eating reformulated foods can lower my risk for chronic diseases." The scale for Environmental Consciousness contained five items taken from Dunlap and Jones (2002) and Follows and Jobber (2000). Examples of statements include "I am concerned about the environment and how it affects my life" and "The products I buy must not harm the environment." The mediation variable, Positive Attitude, was measured with a four-item semantic differential scale adapted from Crites et al. (1994). Respondents were to evaluate reformulated foods on bipolar adjectives such as "Bad-Good," "Harmful-Beneficial," "Unfavorable-Favorable," and "Unpleasant-Pleasant." The dependent variable, Purchase Intention, was measured with a three-item scale developed by Dodds et al. (1991), which included items such as "I intend to buy reformulated foods in the near future" and "I will attempt to purchase reformulated foods." Finally, the moderator variable, Income Level, was constructed by categorizing respondents' monthly household income. Thus, respondents selected their particular income bracket (e.g., below PKR 50,000; PKR 50,001-100,000; PKR 100,001-200,000; more than PKR 200,000). Other demographic controls were also included in the questionnaire, such as age, gender, and education. A pilot test of the instrument was conducted on 30 respondents to ascertain its appropriateness for the Pakistani situation. Minor modifications of verbiage and phraseology were made where necessary for the sake of clarity.

6. Data Analysis & Results

According to the demographic profile of the 350 subjects shown in Table 1, the sample is appropriate for this particular research problem concerning urban Pakistani consumers. The sample is almost equally divided by gender with 52% males and 48% females so that the gender bias possible is lessened and the results would likely reflect the attitudes of the general population of grocery consumers.

Table 1: Demographic Characteristics of *Respondents* (N=350)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	182	52.0
	Female	168	48.0
Age	18-25 years	98	28.0

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	26-35 years	121	34.6
	36-45 years	85	24.3
	46 years and above	46	13.1
Education Level	Intermediate or below	45	12.9
	Bachelor's Degree	157	44.9
	Master's Degree or above	148	42.3
Monthly Household Income	Below PKR 50,000	87	24.9
	PKR 50,001 - 100,000	112	32.0
	PKR 100,001 - 200,000	97	27.7
	Above PKR 200,000	54	15.4
City of Residence	Karachi	125	35.7
	Lahore	118	33.7
	Islamabad	107	30.6

In relation to the participants' age distribution, the majority of the sample consisted of younger and middle-aged individuals with the most significant proportion being comprised of persons aged 26 - 35 years (34.6%), followed by persons aged 18 - 25 years (28.0%) respectively, which is a demographic that is important because these groups of persons are usually more susceptible to new products, are the decision-makers in household food shopping and constitute the primary targets for advertising campaigns of modern value-added food products such as reformulated foods. The sample also had a high level of education, with 87.2% of individuals possessing a bachelor's degree.

6.1. Data analysis technique

For the data analysis in this study, Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized with SmartPLS 4 (Hair et al., 2019). PLS-SEM was selected as the primary method of analysis due to its methodological relevance and alignment with the objectives and characteristics of the present study. First, PLS-SEM is especially useful for complex structural modelling of multiple latent constructs, mediating variables, and moderating effects, as is characteristic of the theoretical model tested in the present research (Bhatti et al., 2023; Carlo, 2025). Second, PLS-SEM imposes few restrictions on the distributional assumptions for the data, thus being suitable for data that may not meet the normality assumptions for multivariate normality. To investigate multivariate skewness and kurtosis, an online "Web Power" application tool was used. Mardia's coefficient showing multivariate kurtosis was 30.54 ($t = -4.97$, $p < 0.01$), and skewness was 1.86 ($t = 108.87$, $p < 0.01$). As the p-values were less than 0.05, the data were not normal (Cain et al., 2017). Thus, PLS-SEM is the preferred analysis technique when the data is not normal (Modibbo & Inuwa, 2020; Hair et al., 2022).

6.2. Common method bias

The analysis began with the identification of outliers and missing data, including testing for the presence of the standard method variance effect (using Harman's single-factor test). This indicated that no single factor contributed a large proportion of the common covariance. Findings confirmed that the variation in the single component was only 33.796%, substantially less than 50%. This implied that the standard method variance factor was not significant. Secondly, CMB was additionally assessed via the complete collinearity assessment approach given by Kock et al. (2021). The VIF statistics were lower than the cut-off point of 3.3 (as presented in Table 2), indicating that data from a single source were neither skewed nor collinear.

Table 2: Full Collinearity Test

Items	PHB	ECN	PTD	PIN
VIF Values	1.274	1.403	1.383	2.100

Note: *PHB* – Perceived health benefits, *ECN* – Environmental consciousness, *PTD* – Positive attitude, *PIN* – Purchase intention

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Source: Author's data analysis

6.3. Assessment of measurement model (outer model)

The assessment of the measurement model involved examining the reliability, convergent validity, and discriminant validity of the constructs. Internal consistency reliability was evaluated using Cronbach's alpha, composite reliability, and Dijkstra–Hensel's rho. Composite Reliability (CR) scores, with all constructs demonstrating scores well above the recommended threshold of 0.70, indicate excellent reliability. All the factor loadings were significant (> 0.70), thereby confirming the convergent validity of the scales. Moreover, the average variance extracted (AVE) method confirmed the constructs' convergent validity. As presented in Table 3, all AVE values ranged from 0.775 to 0.894 and exceeded the minimum level of 0.5, confirming robust convergent validity (Hair et al., 2022). Furthermore, all the VIF values given in Table 3 were below the recommended limit of 3.3. Thus, it was confirmed that multicollinearity among the studied constructs was absent (Hair et al., 2022).

Table 3: Reliability and Validity

Variables	No. Items	Loadings range	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted	Variance inflation factors
PHB	4	0.775 - 0.831	0.826	0.828	0.885	0.657	1.141
ECN	5	0.775 - 0.861	0.891	0.899	0.919	0.696	1.044
PTD	4	0.806 - 0.894	0.868	0.879	0.91	0.717	1.186
PIN	3	0.865 - 0.877	0.843	0.843	0.905	0.761	-

Note: *PHB* – Perceived health benefits, *ECN* – Environmental consciousness, *PTD* – Positive attitude, *PIN* – Purchase intention
Source: Author's data analysis

Discriminant validity was tested to ascertain that there were no similar characteristics between the construct measures. Evaluating the heterotrait–monotrait (HTMT) ratio and the Fornell-Larcker criterion are common approaches to test discriminant validity. To meet the Fornell-Larcker criterion, the square root of the AVE of each latent variable must exceed the square roots of the AVE of other latent variables in its row and column (Hair et al., 2022). Table 4, lower left side, shows that the bolded values ranged from 0.815 to 0.903 and exceeded all correlations within the relevant rows and columns containing those constructs. HTMT values for all constructs also demonstrated adequate discriminant validity. The upper-right portion of Table 4 shows that all values are below the threshold of 0.90 (Henseler et al., 2015).

Table 4: Discriminant Validity

	PTD	ECN	INL	PHB	PIN
Fornell Fornell-Larcker criterion & Heterotrait-monotrait ratio (HTMT) – Matrix					
PTD	***0.811***	0.236	0.049	0.410	0.629
ECN	0.204	***0.834***	0.040	0.066	0.579
INC	-0.006	-0.008	***1***	0.060	0.048
PHB	0.351	0.058	-0.055	***0.847***	0.608
PIN	0.526	0.508	-0.044	0.524	***0.872***

Note: *PHB* – Perceived health benefits, *ECN* – Environmental consciousness, *INL* – Income level, *PTD* – Positive attitude, *PIN* – Purchase intention
Source: Author's data analysis

6.4. Assessment of structural model (inner model)

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This research uses the structural model to determine path coefficients (β values), *p*-values, coefficients of determination (R^2), effect sizes (f^2), and predictive relevance. Table 5 presents the relevant R^2 values, which determine the variation in mediators caused by the exogenous variable and the change in the dependent variable due to mediators. The R^2 value for the positive attitude indicates that the exogenous variables perceived health benefits and environmental consciousness accounted for 36.2% of the variance in consumers' positive attitude. This indicates a moderate explanatory capacity of perceived health benefits and environmental consciousness. Conversely, the R2 value for purchase intention indicates that attitude accounts for 58.1% of the variance in purchase intention, a substantial amount (Hair et al., 2022).

The corresponding f^2 values in Table 5 represent individual variance rather than shared variation (Hair et al., 2022). The f^2 values indicate that perceived health benefits had a medium impact (f2 = 0.325, > 0.15), whereas environmental consciousness had a significant impact (f2 = 0.411, > 0.35) on purchase intention. To verify the hypotheses, PLS-SEM was used with 5,000 bootstrap samples to develop bias-corrected confidence intervals. The results of the structural model are shown in Table 5, and consequently, Figure 2 depicts the final model with findings.

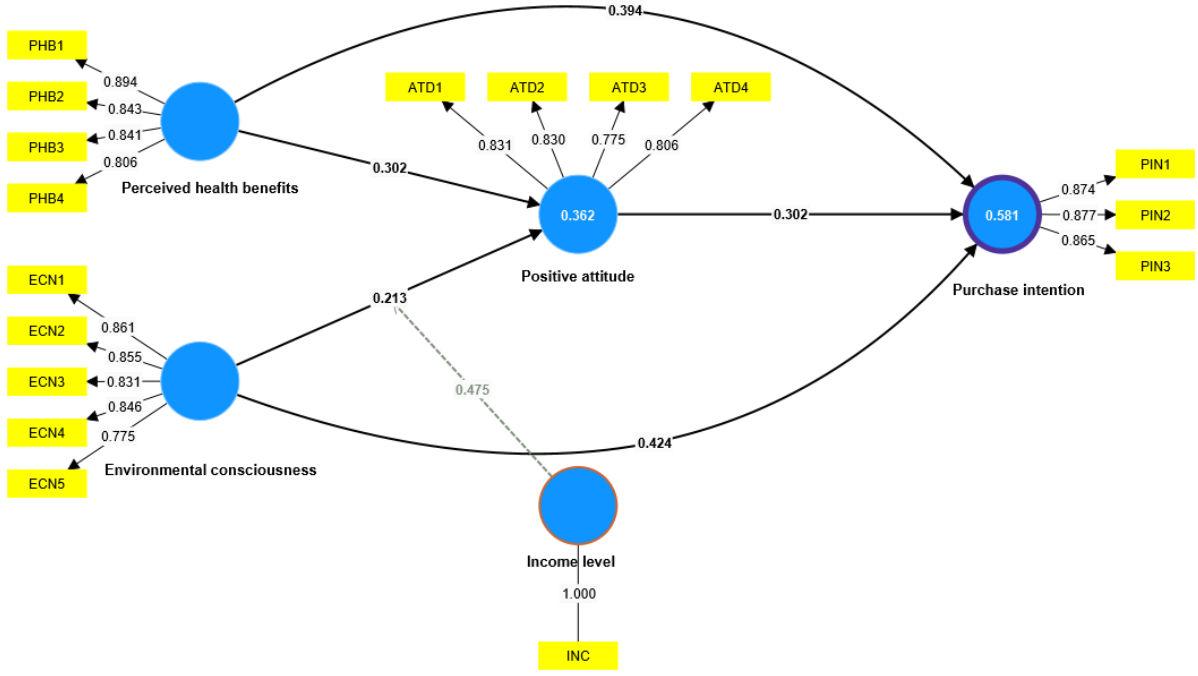

Fig 2: Final Model with Findings

Table 5: Hypotheses Testing

Hypotheses		Beta	CI Min	CI Max	t values	p values	*f*	*r*	Result
H1	PHB -> PIN	0.394	0.336	0.449	11.273	0.000	0.325	0.581	Significant
H2	ECN -> PIN	0.424	0.363	0.482	11.910	0.000	0.411		Significant
Mediating effects									
H3a	ECN -> PTD -> PIN	0.064	0.040	0.091	4.106	0.000	-	-	Significant
H3b	PHB -> PTD -> PIN	0.091	0.066	0.120	5.503	0.000	-		Significant
Moderating effect									
H4	INL x ECN -> PTD	0.475	0.409	0.539	12.018	0.000	-	-	Significant

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Note: *PHB* – Perceived health benefits, *ECN* – Environmental consciousness, *INL* – Income level, *PTD* – Positive attitude, *PIN* – Purchase intention
Source: Author's data analysis

Both direct effects of Perceived Health Benefits (β = 0.394, p < 0.05) and Environmental Consciousness (β = 0.424, p = 0.000) were found to be significant on Purchase Intention, thus confirming H1 and H2. After the addition of Positive Attitude as a mediator, these direct effects were also found to be significant, as the impact of Positive Attitude on Purchase Intention was significant (β = 0.302, p = 0.000). The specific indirect effects from Perceived Health Benefits (β = 0.091, 95% CI [0.06, 0.12]) and Environmental Consciousness (β = 0.064, 95% CI [0.04, 0.09]) on Purchase Intention through Positive Attitude were statistically significant, as the confidence intervals clearly did not include 0. This confirms H3, denoting complete mediation of this effect. For the moderation hypothesis (H4), the interaction term of Environmental Consciousness and Income Level on Positive Attitude was significant (β = 0.475, p < 0.01). A simple slope analysis was conducted to probe this interaction; the results are shown in Figure 3. It revealed that the relationship between Environmental Consciousness and Positive Attitude was positive and significant for high-income groups. This pattern fully supports H4 and indicates that Income Level enhances the link between environmental beliefs and attitude. This result directly addresses the research question by highlighting a significant socioeconomic barrier and indicating that ecological messaging alone is insufficient to induce a positive attitude in a broad segment of the economically constrained population.

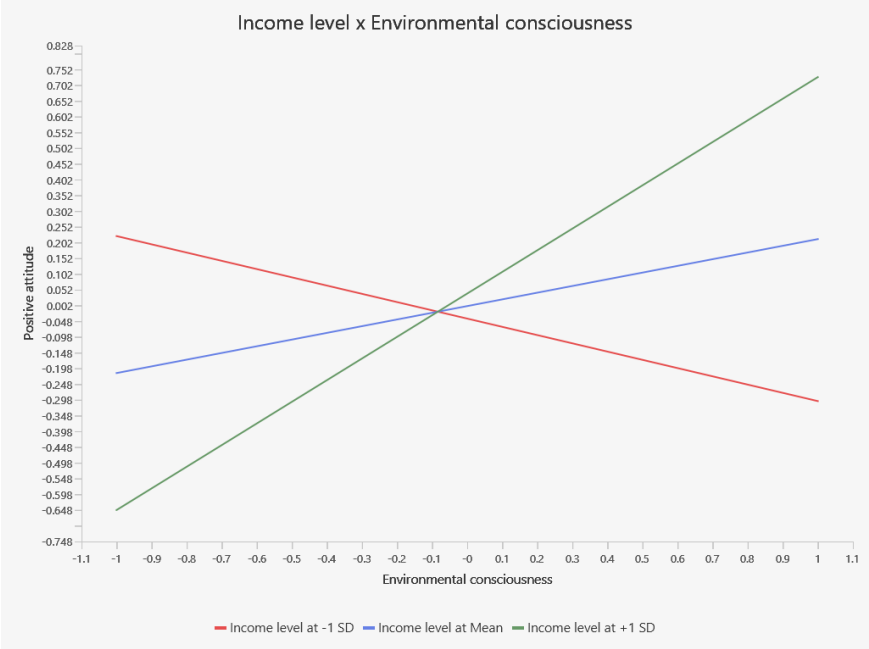

Fig 3: Simple slope analysis

7. Discussion

In the process of identifying the multiple relationships between social-psychological and socio-economic factors that contribute to consumers' willingness to buy reformulated foods in Pakistan, an important moment has occurred: the country is transitioning from being primarily undernourished to overweight. Results confirm both the robustness and the subtlety of our theoretical model. Both of the direct significant effects of Perceived Health Benefits and Environmental Consciousness on Purchase Intention (H1 & H2) demonstrate that the Pakistani consumer is sensitive to the value proposition of modern food products. Confirmation of H1 supports a general

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trend observed across the entire population. As stated earlier, health is a universal motivator and exerts a more substantial influence in countries such as Pakistan, where the burden of a public health crisis is increasing (Jafar et al., 2020). Support for H2, although this is an area that has just begun to develop in Pakistan, demonstrates that a segment of Pakistan's consumer base is evolving; ecological concerns are increasingly part of decision-making for some consumers when purchasing food. These findings need to alert all marketers and government policy-makers to the changes occurring in the consumer market (Hussain & Shahab, 2021).

A significant theoretical contribution of this research was to demonstrate through H3 that Positive Attitude fully mediates the relationship between beliefs (health and environment) and purchase intentions. The finding strongly supported the underlying psychological process: beliefs alone do not generate purchase intentions. Instead, it is the overall positive disposition generated by these beliefs that produces purchase intentions. Therefore, we see the great significance of creating a positive overall image of the product and brand when marketing it. A consumer may know that a product is healthy, yet if they have a neutral or negative view of the product (due to other factors, e.g., mistrust of the brand or insufficient packaging), they will not intend to purchase it. This mediation effect makes the Theory of Planned Behaviour (Ajzen, 1991) more realistic in its application to this industry by providing details on how salient beliefs (as described in this paper) create purchase intentions.

However, the significant confirmation of H4 presents a critical contextual qualification. The moderating effect of Income Level on the Environmental Consciousness-Attitude relationship underscores the economic constraints that drive consumer behavior in developing economies. Clearly, the "Ethical Consumer" in Pakistan is a luxury available to only the most affluent consumers. For the vast majority of consumers, the environmental virtues are a secondary concern when weighed against economic survival (Bashir & Schilizzi, 2013; Carrington et al., 2010). This finding directly addresses the primary research question by identifying another critical boundary condition influencing consumers in this issue and by demonstrating a potentially lucrative market segmentation. This finding clearly illustrates why a one-size-fits-all approach to promote the environmental virtues of reformulated foods will not succeed. The aims of this study have therefore been achieved comprehensively. Not only have we identified the major drivers, but we have also provided evidence of the psychological mechanisms by which this occurs (mediation), and the critical social and economic boundary conditions (moderation) that affect the acceptability process. Therefore, we have a more comprehensive and applicable understanding than was previously possible using the simpler models.

8. Conclusion

This study demonstrates that, while the decision to buy reformulated products in Pakistan results from an uncomplicated but slightly more complex thought process (cognitive-affective), the thought process has a direct impact on the consumer's purchase likelihood due to their environmental and health-related perspectives. Additionally, economic factors significantly affect consumers' thought processes; therefore, while a positive view of the environment could lead to an upbeat assessment of the product, lower-income consumers are at a disadvantage compared to average consumers.

Theoretical Implications: While this study represents a significant theoretical contribution by demonstrating how the TPB was successfully applied to this new culture, it also illustrates the mediational model, showing that the mediational variable, attitude, is a critical mediator. In addition, this study added a new socio-economic factor to the model, thereby improving its accuracy and applicability across multiple emerging markets.

Practical Implications: This study provides a roadmap for food product manufacturers and marketers to inform future strategic planning. 1) Manufacturers and marketers need to focus on the tangible health benefits for all segments of the market. 2) Marketing strategies to develop strong positive attitudes toward the reformulated products, because that is the most common pathway for the beliefs to influence purchasing decisions, and 3) A segmented marketing plan based upon income. The environment is likely to be a competitive advantage for higher-income consumers; however, for lower- and middle-income consumers, the primary considerations include health, taste, and affordability, and therefore, marketing systems will need to be developed to address these requirements. Policymakers will also have a foundation for developing information for public health

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campaigns to promote the consumption of reformulated products, highlighting the health benefits for each population segment. Policymakers will also have a basis for considering subsidy programs or tax grants to make healthy, sustainable food products accessible to all consumers, regardless of income.

Limitations of the Research and Directions for Future Research: This work has limitations. The transverse or cross-sectional design utilized precludes, of course, causal inferences. The sample, though adequate, was drawn from urban centers, thus limiting the generalizability of the delivery to rural populations in Pakistan. Future research will find it fruitful to employ longitudinal designs, treat actual or realistic buying as the dependent variable, and examine other possible mediators (e.g., perceived trust) and moderators (e.g., food neophobia and nutritional knowledge) in the TPB. Also, studying product categories (such as dairy products, snacks, oils, etc.) is sure to yield interesting findings. Nevertheless, despite these limitations, this program provides a sound, basic understanding of the drivers of reformulated food acceptance in Pakistan. It will thus inform more productive operational strategies for both businesses and public health in this emerging dynamic market.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.

Ali, A., & Şenturk, İ. (2019). Justifying the impact of economic deprivation, maternal status and health infrastructure on under-five child mortality in Pakistan: An empirical analysis. *Bulletin of Business and Economics (BBE), 8*(3), 140-154.

Ali, J., & Kapoor, S. (2019). Understanding the food consumption patterns in Pakistan. *British Food Journal, 121*(2), 442–455.

Anees, M., & Yan, W. (2019). An Overview about the Challenges of Urban Expansion on Environmental Health in Pakistan. *Journal of Energy and Environmental Policy Options, 2*(3), 64-71.

Annunziata, A., & Vecchio, R. (2013). Consumer perception of functional foods: A review. *British Food Journal, 115*(8), 1160–1182.

Ares, G., Giménez, A., & Gámbaro, A. (2015). Do consumers value health claims? A meta-analysis. *Food Research International, 77*, 156–166.

Bashir, M. K., & Schilizzi, S. (2013). Determinants of rural household food security in Pakistan. *Journal of Agricultural and Resource Economics, 38*(1), 1–19.

Bhatti, S. M., Al Mamun, A., Wu, M., et al. (2023). Modeling the significance of green orientation and culture on green innovation performance: Moderating effect of firm size and green implementation. *Environmental Science and Pollution Research, 30*, 99855–99874.

Bigliardi, B., & Galati, F. (2013). Innovation trends in the food industry: The case of functional foods. *Trends in Food Science & Technology, 31*(2), 118–129.

Cain, M. K., Zhang, Z., & Yuan, K.-H. (2017). Univariate and multivariate skewness and kurtosis for measuring nonnormality: Prevalence, influence, and estimation. *Behavior Research Methods, 49*(5), 1716–1735.

Carlo, D. (2025). Economic Activity, Carbon Emissions, and Health Outcomes: A Cross-National Study of OIC and Non-OIC Countries. *Journal of Business and Economic Options, 8*(4), 47-57.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers do not walk their talk: Towards a framework for understanding the gap between ethical purchase intentions and actual buying behaviour. *Journal of Business Ethics, 97*(1), 139–158.

Celik, M. (2021). Impact of Recycling Container Placement and Communication Strategies on Waste Paper Collection. *Journal of Policy Options, 4*(2), 37-42.

Crites, S. L., Fabrigar, L. R., & Petty, R. E. (1994). Measuring the affective and cognitive properties of attitudes: Conceptual and methodological issues. *Personality and Social Psychology Bulletin, 20*(6), 619–634.

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research, 28*(3), 307–319.

ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 02 (2025)

Dunlap, R. E., & Jones, R. E. (2002). Environmental concern: Conceptual and measurement issues. In R. E. Dunlap & W. Michelson (Eds.), *Handbook of environmental sociology* (pp. 482–524). Greenwood Press.

Fan, W., & Iqbal, M. (2022). Economic, Social, and Environmental Determinants of Automotive Industry Competitiveness. *Journal of Energy and Environmental Policy Options*, *5*(4), 36-43.

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Psychology Press.

Follows, S. B., & Jobber, D. (2000). Environmentally responsible purchase behaviour: A test of a consumer model. *European Journal of Marketing, 34*(5–6), 723–746.

Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding, and use. *Food Policy*, *44*, 177–189.

Guerrero, L., Guardia, M. D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., & Hersleth, M. (2009). Consumer-driven definition of traditional food products and innovation in traditional foods: A qualitative cross-cultural study. *Appetite, 52*(2), 345–354.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publications.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Homer, P. M., & Kahle, L. R. (1988). A structural equation test of the value–attitude–behavior hierarchy. *Journal of Personality and Social Psychology, 54*(4), 638–646.

Hussain, M., & Shahab, S. (2021). Environmental awareness and its determinants among university students in Pakistan. *Journal of Cleaner Production, 279*, 123740.

Iqbal, J., & Noman, M. (2025). Digital Financial Technologies as Drivers of Inclusive Growth: A Strategic Review of Pakistan's Fintech Landscape. *Journal of Business and Economic Options*, *8*(4), 12-22.

Jafar, T. H., Haaland, B. A., & Rahim, A. (2020). The rising burden of non-communicable diseases in Pakistan: A synthesis of findings from the National Health Survey. *Journal of Pakistan Medical Association, 70*(1), 1–5.

Khan, K. K. (2020). Assessing the Impact of Climate Change on Women's Health: A Case Study in Lahore, Punjab, Pakistan. *Journal of Policy Options*, *3*(3), 82-89.

Kock, F., Berbekova, A., & Assaf, A. G. (2021). Understanding and managing the threat of common method bias: Detection, prevention, and control. *Tourism Management, 86*, 104330.

Machove, M. (2022). Multiscale Asset Pricing: Integrating Wavelet Analysis and High Order Moments into the Fama-French Model. *Journal of Business and Economic Options*, *5*(1), 8-15.

Marc, A., & Ali, A. (2023). The role of environmental conditions and purchasing power parity in determining quality of life among big Asian cities. *International Journal of Energy Economics and Policy*, *13*(3), 292-305.

Marc, A., & Roussel, Y. (2024). Exploring the Link Between Public Health and External Debt in Saudi Arabia. *Journal of Business and Economic Options*, *7*(4), 1-12.

Marc, A., Poulin, M., Ahmad, K., & Ali, A. (2025). CO_2 emissions, globalization, and health: A dynamic panel analysis of life expectancy in BRICS. *Environment, Development and Sustainability*, 1-33.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396.

Mehmood, A., Siddique, H. M. A., & Ali, A. (2022). Impact Of Health On Worker Productivity: Evidence From South Asia. *Bulletin of Business and Economics (BBE)*, *11*(2), 1-8.

Modibbo, H., & Inuwa, N. (2020). Health outcomes and economic growth nexus: Evidence from Nigeria. *Journal of Business and Economic Options*, *3*(2), 46-55.

Rahat, A., & Hayat, A. (2020). Psychological Health of Children Engaged in Hazardous Labor: A Study in Lahore, Pakistan. *Journal of Policy Options*, *3*(2), 70-74.

Raja, U., & Iqbal, N. (2019). Ensuring Worker Safety in Lahore's Large Industries: A Study on Occupational Health, Safety, and Risk Management. *Journal of Energy and Environmental Policy Options*, *2*(4), 117-124.

Rehman, A. U., & Malik, S. (2020). Environmental and Health Hazards of Pakistan's Leather Industry. *Journal of Energy and Environmental Policy Options*, *3*(3), 96-103.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *The Journal of Psychology, 91*(1), 93–114.

Russo, L. (2022). The impact of slow productivity on healthcare costs in a no-growth: An empirical analysis. *Journal of Policy Options*, *5*(4), 22-28.

Schwartz, S. H. (1977). Normative influences on altruism. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 221–279). Academic Press.

Sörqvist, P., Haga, A., Holmgren, M., & Hansla, A. (2015). The green halo: Mechanisms and limits of the eco-label effect. *Food Quality and Preference, 43*, 1–9.

Sujarittanonta, P. (2021). The Role of Customer Service and Promotions in Shaping Consumer Preferences for Motorcycle Accessories. *Journal of Policy Options*, *4*(4), 9-14.

Tang, W., & Azman, M. (2024). Enhancing environmental awareness through public awareness programs. *Journal of Energy and Environmental Policy Options*, *7*(2), 10-16.

Ufaq, A. (2019). Analyzing the impact of government expenditure on the health sector: Evidence from Pakistan. *Journal of Business and Economic Options, 2*(2), 54-66.

Urala, N., & Lähteenmäki, L. (2007). Consumers' changing attitudes towards functional foods. *Food Quality and Preference, 18*(1), 1–12.

Van Loo, E. J., Caputo, V., Nayga, R. M., & Verbeke, W. (2015). Consumers' willingness to pay for sustainable food: A meta-analysis. *Food Policy, 54*, 1–9.

World Health Organization. (2020). *Global report on diabetes*. World Health Organization.

WWF-Pakistan. (2020). *Environmental degradation in Pakistan*. WWF-Pakistan.

Yadav, R., & Pathak, G. S. (2016). Intention to purchase organic food among young consumers: Evidence from a developing nation. *Appetite, 96*, 122–128.

Yan, S., & Sriboonchitta, S. (2024). Governance, renewable energy, and urbanization: Drivers of environmental outcomes in Asia. *Journal of Energy and Environmental Policy Options*, *7*(4), 42-51.

Zang, J. (2022). Harnessing Coopetition for Competitive Advantage: A Cluster-Based Analysis. *Journal of Policy Options*, *5*(2), 14-19.