Consumer Behavior and Willingness to Pay for Green Products in Faisalabad

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ARTICLE DETAILS	ABSTRACT
	Objective: The goal of this study was to create and evaluate a conceptual framework for better understanding the elements that influence customers' willingness to pay and actual purchase behavior regarding green products. The specific objective was to evaluate the elements that affect a consumer's willingness to pay for green goods in Faisalabad. **Research Gap:** While global research on green consumer behavior and willingness to pay is extensive, there is a significant lack of empirical studies in developing countries like Pakistan. Moreover, no prior study has focused on Faisalabad—a rapidly growing industrial city with unique environmental challenges. **Design/Methodology/Approach:** The study employed a quantitative approach through a structured questionnaire administered to 250 residents of Faisalabad using multistage sampling and OLS (ordinary least square) regression and logistic regression have been used for analysis of data. **The Main Findings:** Results show that people with older age, higher education and higher income have higher willingness to pay for the green products. Trust on commercial entities, environmental ethics and health consciousness are other major factors that determine consumer's willingness to buy the green products. **Theoretical / Practical Implications of the Findings:** The findings contribute theoretically by validating the role of psychological variables especially green trust and environmental ethics in predicting environmentally responsible consumption. Practically, the results highlight the importance of targeting educated and higher-income groups in green marketing campaigns. Policymakers can also benefit from insights suggesting consumer support for environmental taxation, particularly in urban areas, which can guide environmental regulation and awareness programs. **Originality/Value:** This study is the first of its kind conducted in Faisalabad, Pakistan, providing original empirical evidence on consumer behavior towards green products in a developing economy.

1. Introduction

The influence of major business disasters, growing awareness of environmental issues, increased media coverage, and the emergence of environmental activist groups have all contributed to a gradual increase in environmental concern during the past ten years (Kalafatis et al. 1999).

Concern about the environment among consumers has risen in recent years. Because environmental issues

are linked to human consumption patterns, the issue of conservation is closely linked to consumer behavior. As a result, customers must be responsible for reducing environmental damage by purchasing environmentally friendly products.

The increasing customer awareness of environmental sustainability during the last decade influenced many manufacturers to produce green products. Over the last decade, numerous studies have investigated customers' willingness to pay for a variety of product categories.

The desire to pay more for eco-friendly products, however, was not investigated.

Concerns about environmental degradation have given rise to a new market sector known as a "green consumers". These customers have been described as people who stay away from goods that may be harmful to their health, create environmental damage during production, contain ingredients produced from endangered species or the environment, or generate excessive waste. (Raposo and Finisterra do Paço, 2008).

Green products are defined in a variety of ways. but the biggest issue with green products is that they are difficult to define. The term is confusing, the idea limits are poorly defined, and there is no widely acknowledged definition in the literature (Rivera Camino, 2007; Hartmann and Ibanez, 2006). Despite many definitions, Items that are environmentally sustainable are hard to identify. Since every product we purchase, own, use, and discard in our everyday lives has an adverse environmental impact at some point in its life cycle, there is no such thing as a fully sustainable or green product in the strictest definition of the word (Baker and Ozaki, 2008).

Green products help to protect or improve the environment by reducing or eliminating pollution, toxic waste, and the use of toxic substances, as well as by conserving energy or resources (Ottman et al, 2006).

They may have less of an environmental impact than conventional items and be recyclable, reusable, decomposable or renewable (Dangelico and Pontrandolfo, 2010). Green products raise living standards for consumers and society as a whole while reducing environmental risks.

As a result, we defined some definitions to get a better picture of the concept of green products in the literature. Products with functions or ideas related to material collection, manufacture, sales, utilization, and waste disposal that are recyclable, decrease pollution and save energy (Liu and Wu 2009). Products are designed to have the least number of environmental effects possible during their entire life cycle. Nonrenewable resource consumption is reduced, harmful materials are avoided, and renewable resources are used following their replacement rate (Albino, Balice and Dangelico 2009).

Environmentally responsible, Eco-friendly products are other names for Green products. (Dagher, Itani, & Kassar, 2015). As in the research literature, the notion is modified in several different ways:" environmentally friendly product, ecological product, environmentally responsible, green projects, eco-friendly product, green product, and so on. Green products are those that have inherent environmental features and are not likely to harm the living environment. Green goods are non-polluting, reusable, and preservable (Shamdasani et al, 1993). Green products, according to Nimse et al, (2007) include product recyclability, minimal packaging, the use of the bare minimum of materials, and energy resource conservation.

Pakistan is one of the leading developing economies in the world. Green is a relatively new idea in Pakistan. In Pakistan, environmental concerns are currently quite low, and the situation calls for urgent attention. This is the first study in Faisalabad to check the impact of green Trust, green consumerism, Environmental ethics, Health consciousness, and Individualism on readiness to spend money on green goods.

In this study, we are trying to find the consumer's behavior about green food products and their readiness to pay for environmental responsible products. In this regard, we analyzed different factors green consumerism, green trust, environmental ethics, awareness, individualism, and health consciousness as independent

variables. These all have a great influence on the consumer's WTP. These variables we collected from previous studies. All variables are used in many literatures.

, Unsustainable consumption patterns leading to resource depletion, Environmental degradation, and climate change has emerged as critical global concerns. increasing industrial share in the economy and the rapid urbanization increase the need of sustainable and responsible consumption. the need for environmentally responsible consumption becomes more urgent. Despite growing awareness globally, Pakistan still lags in the adoption of green products, partly due to limited consumer understanding and weak institutional promotion. This study is motivated by the crucial need to understand what drives consumer willingness to pay (WTP) for environmentally friendly products in such contexts.

Unlike past research that has mainly focused on high income countries, this paper centers on the third largest and an industrial city—Faisalabad— that is situated in the centre of province Punjab to investigate the psychological and socio-economic factors of green purchasing behavior By using a combination of OLS, catagorical response model, and quantile regression, this study offers a nuanced view of consumer behavior across different income levels and different demographic profiles. This paper makes a comparison of the derivers of willingness to pay across different quartiles of WTP. Aim of this paper is to fill a geographic as well as empirical gap, at the same time to suggest marketing, policy, and sustainability related interventions that align with Pakistan's Sustainable Development Goals (SDGs). The paper's contributions are both theoretical—extending green consumer behavior models to under-researched regions—and practical—offering insights to shape future green marketing and environmental policy in Pakistan.

2. Literature Review
Willingness to pay
Consumer's WTP is the highest amount a customer is ready to pay for a good or service (Akehurst, 2012; Barbarossa & De Pelsmacker, 2014). Typically, it is stated as a monetary sum or, occasionally, as a range of costs.

The willingness to pay varies a lot from one customer to the next. Consumers have become more adamant in their decision to buy environmentally friendly products as their environmental awareness has increased.

Mobrezi & Khoshtinat (2016) define willingness to pay for eco-friendly products as the consideration of environmental factors (e.g., price, performance, etc.) while choosing a product with the ultimate objective of reducing consumption's negative effects on the environment.

Green Trust
The willingness to rely on a brand, product, or service because of a belief or expectation for its environmental performance derived from its reputation, empathy,

and competency. As consumers' trust grows, worry and uncertainty fade, and the company's or product's integrity is strengthened. In this study, green trust is examined as the independent variable. By the study of this variable, we try to find the trust level of people in the functionality of green goods. Hart and Saunders, (1997) defines Trust as the degree how much one believes in somebody or an organization. Green trust, as well as consumers' subjective norms, have been found to have a beneficial impact on purchase intention (Jin and Bong Ko, 2017). (Konuk et al, 2015).

Green Consumerism
As stated by Alsmadi,2007 green consumerism refers to pro-environmental consumer behavior. As a result, corporate environmental practices play a significant influence in this regard. Green consumerism, according to McEachern and McClean (2002), is a multifaceted idea that cope with pollution reduction, protecting the environment, making responsible use of non-renewable resources, and protecting wildlife and species.

Green consumers who are cautious when shopping are less likely to make impulse purchases. Green

consumers prioritize environmental concerns when making purchases.

Environmental Ethics
One area of ethics is environmental ethics that looks into how people and the environment interact, as well as how ethics play a part in this interaction.

Environmental ethics first appeared in the 1970s (Schuler et al., 2017b), in which people

banded together to protect Mother Nature. Environmental ethics, which includes encyclopedic elucidations on the domain, connects ethical and intellectual connections between humans and the natural world (Tsai and Tsai, 2008). Numerous research have looked into environmental ethics in economic decision-making (York, 2009), Islamic ethics in the environment Egypt (Rice, 2006), ethnography as well (Kopnina, 2012). However, in the context of sustainable development, consumer awareness of environmental ethics is rarely discussed (Lu et al, 2015; Schuler et al, 2017b).

Individualism
Both the physical and social environment as well as the individual have an impact on human behavior. However, the degree of connection between individuals with others and their social circle fluctuate. Some people go about their "own affairs" without regard for others. Some people share each other's hardships as well as their happiness (Hui, 1998). Another researcher, Emotional independence from "groups, organizations, or other collectivities" is what Hofstede (1980) defined as "individualism" (p. 221).

Collectivism
Collectivism is another crucial determinant of people's decisions and buying habits (Laroche et al., 2001). According to Zhao and Chen (2008), individuals with high degree of collectivism are willing to sacrifice their personal interests for the benefit of the group. It has been found that collectivism affects several forms of social behavior. Because they are more prone to think about how their activities affect society, collective bargainers are more likely to be environmentally concerned. When making purchases, consumers are therefore more inclined to select eco-friendly items (Kim, 2011).

In addition, several recent studies have further emphasized the behavioral and contextual determinants of green consumption. For instance, Nguyen et al. (2020) investigated the intention–behavior gap in sustainable purchasing. Ojo and Fauzi (2022) provided a broad review of green behavior in emerging economies. Similarly, Yadav and Pathak (2020) expanded the Theory of Planned Behavior in a developing country context, while Jaiswal and Kant (2021) explored demographic influences on eco-friendly purchasing in India. A recent meta-analysis by Wang et al. (2023) also highlights the cumulative impact of environmental awareness on green consumption behavior across various economies.

3. Data and Methods
To better understand which factors that stimulate consumers' willingness to pay for eco-friendly goods, the study should be conducted at the provincial level and on a larger scale. However, due to time and resource constraints for student researchers, the current study was limited to District Faisalabad. The current study was selected to be conducted in Faisalabad. Both male and female residents of District Faisalabad provided the data. Respondents were chosen using a multistage sampling process in order to collect data.

The study aims to investigate environmental awareness of consumers and health problems in addition to their willingness to pay for environmental improvement. Faisalabad is our chosen study area in this respect. A multistage sampling procedure was used to pick 250 responders. Between January 2021 and March 2021, 350 questionnaires were made available to households in the research areas through in-person interactions. Only 250 of the questionnaires that were provided could be used and competed for this study. The year 2021 saw the completion of this study.

The link between dependent variable, WTP for green products and several explanatory variables is

determined in this study. In our investigation, we focused on two categories of green products: plastic bags and organic fruit. Instead of using only traditional methods, organic food products are grown and produced with minimal artificial chemical substances.

OLS regression model

OLS regression was used in the study to assess the willingness of the consumer to spend. Several independent variables, including age, gender, family type, marital status, education level, income, green trust, green consumerism, health consciousness, individualism, and environmental ethics, were compared to a single dependent variable, the consumer's WTP, using the statistical technique of multiple regression.

Multiple regression analysis was used to predict the willingness to pay (WTP), using the regressors (age, gender, family type, marital status, education level, income, green trust, green consumerism, health consciousness, individualism, and environmental ethics). Rashid et al. (2017) utilized the same model.

To measure the impact of dependent variable in the city Faisalabad with respect to income, age, gender, marital status, family size, family type, green trust, green consumerism, environmental ethics, individualism, and health consciousness the OLS regression was chosen.

Equation of the model is given as,

$$Y = \beta_0 + \beta_i X_i$$

Equation of the model is given as,

Consumer's willingness to pay $= \beta_0 + \beta_1(gender) + \beta_2(marital\ status) + \beta_3(region) + \beta_4(family\ type) + \beta_5(income) + \beta_6(green\ trust) + \beta_7(green\ consumerism) + \beta_8(individualism) + \beta_9(health\ consciousness) + £$

Logistic Regression

When the dependent variable is dichotomous (binary), logistic regression is the most effective regression technique to use. Seifouri et al. (2018) state that logistic regression explains the relationship between regressors that are measured by different scales and categorical regressand.

In this part, a statistical tool was used to analyze the result. In the current investigation, to identify the result of socio-economic factors on how many consumers think that the government should impose a tax on the purchase of polythene bags, the logistic regression model calculates the probability of the occurrence of an event for more than one explanatory variable (Haile and Nigatu, 2019).

The logistic model is used because dependent variable is categorical nature. A logistic model estimates the probability of occurrence and event for more than one explanatory variable (Haile and Nigatu, 2007). The consumer's WTP to pay is the dependent variable used in this study which is the binary form.

$WTP = \beta_1\ (Age) + \beta_2 X_1\ (Marital\ status) + \beta_3 X_2\ (Education) + \beta_4 X_3\ (Gender) + \beta_5 X_4\ (Income) + \beta_6 X_5\ (Region) + \beta_7 X_6\ (Green\ trust) + \beta_8 X_7\ (Green\ consumerism) + \beta_9 X_8\ (Environmental\ ethics) + \beta_{10} X_9\ (Health\ consciousness) + \beta_{11} X_{10}\ (Individualism) + u$

Where WTP = Dependent variable which is willingness to pay for green goods

β_1 = Intercept value or constant

$\beta_2, \beta_3, \beta_4$, etc. = slopes/ coefficients of different regressor or independent variables

X_1, X_2, X_3, etc. = Independent Variables

u = residuals or error terms

4. RESULTS

Quantile Regression

Researchers can assess the relationship between a predictor or set of predictors and an outcome at different points along the continuous distribution of the outcome variable using quantile regression, as opposed to OLS regression, which is a direct extension of it (Petscher & Logan, 2014,, Logan, & Zhou, 2013, Koenker, 2005; Koenker & Hallock, 2001)

The.25,.50, and.75 quantiles are equivalent to the 25th, 50th, and 75th percentiles, respectively. Along the outcome variable's continuum, the points stand for percentiles (also known as quantiles).

Table. 1 Quantile Regression

Variables	OLS		Quantile 25		Quantile 50		Quantile 75	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Age	.2958	0.000	.0810	0.265	.26661	0.020	.5408	0.000
Gender	.1114	0.953	.8261	0.628	1.5926	0.552	2.169	0.484
Education	.7108	0.040	.3712	0.237	.5491	0.264	1.2095	0.034
Income	.0753	0.003	.0947	0.000	.0686	0.055	.0154	0.708
Family type	2.1996	0.251	1.0949	0.530	3.0650	0.263	2.2680	0.474
Region	-3.5216	0.109	3.3208	0.098	.6358	0.840	-7.6904	0.035
Collectivism	.6773	0.564	-.2493	0.816	-.0519	0.975	.1600	0.934
Health	-1.1753	-0.422	-.5722	0.667	-.8330	0.690	-1.2738	0.598
Green Trust	3.5971	0.000	2.8049	0.000	3.5310	0.004	5.4729	0.000
Environmental Ethics	3.7976	0.081	2.1415	0.275	1.9574	0.524	.7741	0.828
Consumerism	-.1345	-0.918	.5280	0.657	.7388	0.692	.4481	0.835
Cons	17.7490	0.077	-15.1980	0.091	-15.8471	0.260	-11.597	0.476

* $p < 0.10$—there is a statistically significant relationship at 10%, ** $p < 0.05$—there is a highly statistically significant relationship at 5% level of significance, *** $p < 0.01$—there is a very highly statistically significant relationship at 1% level of significance.

Using 1% level of significance, Table 1 demonstrates that age is statistically significant. in OLS regression, whereas it is statistically significant at 5 % for the median group and statistically significant at 1% for the upper quantile group. This finding indicates that consumers are more prepared to pay for organic diet as they get older.

Gender is statistically significant at 10% level of significance in OLS regression, whereas it is also statistically significant for the lower, median and upper quantile group. The results show that consumer's WTP is higher among males.

Education is statistically significant at 5% level of significance in OLS regression, whereas it is statistically insignificant for the lower and median quantile group and statistically significant at 5% for the upper quantile group. The findings suggest that the respondent's education and willingness to pay are positively correlated.

In contrast to OLS regression, which is statistically significant at the 1% level of significance, income is statistically significant at the 1% level of significance for the lower

quantile group and statistically significant at 5% for the middle quantile group. In the case of upper quantile group the income is insignificant. The positive relation in OLS and lower and middle group of quantile shows that with increasing the income people have WTP for the environmental responsible goods but for the upper income group there is no impact on their willingness to pay.

Family type is statistically insignificant in OLS regression. It is also statistically insignificant for the lower, median, and upper quantile group.

Using 10% significance level, we find that the region is found to be a significant determinant in OLS regression and in the lower and median quantile groups, whereas it is statistically significant for the upper quantile group at 5% level of significance. The results of the OLS and the upper group of quantiles show that there is negative relationship between region and consumer's WTP for the green goods. Collectivism and health are statistically insignificant in OLS regression, lower, middle, and upper quantile groups.

Green trust is found to be significantly associated with WTP even at 1% significance level in OLS regression, also lower, middle, and upper quantile groups. The results shows that there is a positive relation between green trust and consumer's readiness to pay for the green goods. Environmental ethics is statistically significant at 10% level of significance in OLS regression, lower, middle, and upper quantile groups. It is also showing positive relation.

Consumerism is statistically significant at 10% level of significance in OLS regression, lower, middle, and upper quantile group. It is also showing positive relation in all quantile groups, but negative relation shows in OLS.

Logistic Regression Results
Table. 2 Logistic Regression Results

Tax	Coef.	Std. Err.	Z	P>|z |	[95% Conf. Interval]	
Gender	-.2056728	.2925644	-0.70	0.482	-.7790886	.3677429
Marital status	.3086222	.3231242	0.96	0.340	-.3246897	.941934
Age	.007618	.012911	0.59	0.555	-.0176872	.0329231
Education	.1041029	.0552804	1.88	0.060	0042448	.2124506
Income	.0041327	.004714	0.88	0.381	-.0051066	.0133719
Family type	.0557456	.3026538	0.18	0.854	-.5374449	.648936
Region	1.374508	.3745251	3.67	0.000	.6404525	2.108564
Consumerism	.0020149	.1682456	0.01	0.990	-.3277404	.3317703
Green trust	.3639663	.219507	1.66	0.097	-.0662595	.7941921
Health consciousness	.0916715	.2228518	0.41	0.681	-.34511	.5284531
Collectivism	-.2721799	.1682899	-1.62	0.106	-.602022	.0576623
Environmental Ethics	.7135085	.3370062	2.12	0.034	.0529885	1.374029
Cons	-5.6768	1.725187	-3.29	0.001	-9.058104	-2.295496

A binary logistic model's outcome shows that there is no impact of household's age on consumer's tax sentiment. According to the logistic regression model's findings, respondents' educational attainment is positively correlated with taxes and statistically significant. The education z-value is 1.88, indicating that respondents are more conscious of and have a more positive attitude toward environmental issues as their educational attainment increases. They also support the introduction of a charge on the purchase of plastic bags.

The results show a positive association between respondents' education and their concern about whether a tax should be imposed or not. According to the logistic regression results, there is significant association between region and the consumer's willingness to impose a tax on polythene bags. The z value of the region is 3.67, which is highly significant. People belonging to urban areas were more likely to accept the imposition of tax on polythene bags than the people belonging to rural areas. The results of the logistic regression model show that the income of respondents is statistically insignificant and positively related to the tax. The z value of income is 0.88. The positive value of z value shows that with increasing the income of consumers they are able to pay more tax and agreed that the government should impose tax on the purchase of polythene bags. The result of the logistic model reveals that the relationship between the gender of a household and a consumer's opinion about tax is statistically insignificant. The z value of gender is -0.70. The negative sign with z value represents negative relationship between the respondent's gender and their view about the imposition of tax on the purchase of polythene bags.

The logistic regression model's findings indicate that the marital status of respondents is statistically

insignificant and positively related to the tax. The z value of marital status is 0.96. The results of the model show that the family type of respondents is statistically insignificant and positively related to the tax. The z value of the family type is 0.18. The result showed that the relationship between tax and trust is statistically significant and positive. With the increasing level of trust, consumers are more willing to pay tax on the purchase of polythene bags. The result shows that collectivism has no impact on the consumer's opinion about tax imposition. The results also show that collectivism and consumers' opinion about taxes are negatively correlated. The results of the model indicated that green consumerism has an insignificant but positive impact on the consumer's opinion about tax imposition. The result of the logistic regression model reveals that the relationship between the gender of a household and a consumer's opinion about tax is statistically insignificant. The z value of gender is -0.70. The negative sign with z value represents the negative relationship between the respondent's gender and their view about the imposition of tax on the purchase of polythene bags. The results of the logistic regression model show that the marital status of respondents is statistically insignificant and positively related to the tax. The z value of marital status is 0.96. The finding of the model show that the family type of respondents is statistically insignificant and positively related to the tax. The z value of the family type is 0.18. The result indicates that trust has a positive impact on the tax behaviour of consumers and statistically significant.

With the increasing level of trust, consumers are more willing to pay tax on the purchase of polythene bags. The result of logistic regression shows that collectivism has an insignificant impact on the consumer's opinion about tax imposition. The findings also indicate that collectivism and consumers' opinion of taxes are negatively correlated. The regression's finding showed that green consumerism has an insignificant but positive impact on the consumer's opinion about tax imposition.

5. CONCLUSION

1970s environmental conservation movement began as a small voice and has now expanded into a well-known worldwide green marketing campaign. Governments and regulatory bodies have been compelled by environmental concerns to develop sustainable and eco-friendly products as well as rules and regulations. Individual companies have taken steps to become more environmentally friendly.

The goal of this research was to provide some insights into the elements that influence consumers' choice and their purchasing behavior for environment responsible products in Faisalabad. In this research, primary data has been used.

The WTP (willingness to pay) for green products is higher among people with older age, higher education and higher income. Trust on commercial entities, environmental ethics and health consciousness are other important elements that influence consumers' propensity to buy eco-friendly goods.

According to the survey's findings, many consumers have excellent intentions but choose not to purchase green products since they are more expensive and of worse quality than their non-green counterparts. Therefore, in addition to environmental considerations, producers should think about the cost and quality of eco-friendly goods to draw in these customers.

The results indicate that educated individuals who concerned about environmental sustainability and health conscious are more likely to pay a premium for products whose functionality is generally dependable and significant. To promote green products and practices, educational campaigns must be planned with message content that should reflect the importance of health, safety, and personal advantages.

Policy Recommendations
  i. Awareness campaigns are essential to promote green behavior with special focus on health benefits, and environmental ethics.
  ii. Transparent labelling and certification are needed to be incentivised and made obligatory to gain consumer confidence.

iii.   As the results suggest a strong association between education and green consumption. Therefore, there is need to include chapters on green consumption and environmental ethics in the syllabus at primary school level.

iv.   Regional Policy Tools**: Urban areas revealed greater support for green taxes; hence, pilot programs on eco-taxation or subsidies in urban centers may be initiated first in the urban areas.

v.   Partnerships with retailers, discounts or loyalty points for green purchases should be introduced in the super markets.

Limitations and Future Research

This study is limited to the city of Faisalabad and may not be generalizable to all regions of Pakistan. Additionally, the reliance on self-reported data introduces potential bias. Future research should consider longitudinal designs and broader geographic samples, potentially integrating behavioral experiments to validate WTP more objectively.

Despite these limitations, this study lays essential groundwork for understanding green consumer behavior in a developing country context and offers actionable insights for both policymakers and marketers.

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