

EFFECT OF GREEN PRODUCT KNOWLEDGE AND PERCEPTION ON GREEN PURCHASE INTENTION; MODERATING ROLE OF PRICE CONSCIOUSNESS

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ABSTRACT--Green products are rapidly moving from niche markets to large market segments and the number of consumers purchasing green products is rapidly penetrating mainstream markets (Roberts, 1996). As the majority of the consumers are concerned about the environment, green markets are developing rapidly and quickly (Peateie and Crane, 2005). These green markets have created the essence of doing green marketing. Price is one of such factors that may prevent a green consumer to buy an eco-friendly product (Bonini and Oppenheim, 2008). Tanner et al., 2003 also confirms this relationship between buying intentions of consumers and the price of green products. Similarly, environmental awareness in the midst of customers is growing making them more worried about green and buying of foodstuff. By analyzing this by using the theory of reasoned actions, green purchase intentions are affected differently by different and type of prices. Data gathered from 400 customers while structured questionnaires were used to gather primary data from consumers. For hypothesis, testing process macro was used. CFA was run by using AMOS. There have been discussed results along with recommendations and future directions at the end.

Keywords-- Consumer Product Knowledge, Perceived Quality, Perceived Saving, Consumer Green Attitude, Green Purchase Intention, Price Consciousness

I. INTRODUCTION

Environmental consciousness among consumers has been significantly increasing for the last two decades. In the current era, the consumers are more inclined towards purchasing environmental-friendly products instead of the products which are not environment-friendly. Apart from this, consumers are also becoming price-conscious at the same time as different tools of price promotions affect their behavior differently. However, consumers prefer to purchase green products over other options (Yin et al., 2010) because their concern to environment is stronger than their concern for the price (Cerri, Testa and Rizzi, 2018). This preference for buying green products has become the essence of current times due to the significant positive impact of green products on public health and ecology (Cerri, Testa and Rizzi, 2018).

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As far as consumers' behavior and attitude are concerned, various factors influence them and especially in the case of environment-friendly products. According to the study of Yin *et al.*, (2010), these factors comprised but these are not confined to information, experience and knowledge. These three major factors have a major influence on consumers' buying behavior. As experience, knowledge, and information are related to demographics, there may be a significant variation among consumer segments regarding their behavior towards environment-friendly products as per their ages, genders, and income levels (Magnusson *et al.*, 2001).

The above discussion guide that there is a main gap between green purchase intentions and consumer green attitude towards green goods (Ha and Janda, 2012; Kilbourne and Pickett, 2008). Price is one of these factors that may prevent a green consumer to buy an eco-friendly product (Bonini and Oppenheim, 2008). On the contrary, there are a number of factors which affect the responsiveness of an environment-friendly customer towards a product or service. Tanner and Wölfling Kast, (2003) have also confirmed this relationship between buying intentions of consumers and the price of green products. Price perceptions and green procurement approach are considered as significant factors while discussing the concept of prices in relation. The primary objective of this study is to analyze the influence of consumer product knowledge, perceived saving and perceived quality on consumer green purchase intention while using environment-friendly food products and services. By analyzing the relationship among price awareness, this research will not only fill a space in literature but also help the marketer to design policies particularly about pricing plans.

II. PROBLEM STATEMENT

There are several reasons for which consumers may opt for eco-friendly products and services while making several compromises on product quality and/or price. The consumers with such a green attitude are aware of the notion that usage of green products and/or services preserve and save the environment as well as their health. Therefore, they are ready to pay higher rates and compromise on product quality in case of eco-friendly products and/or services when green products compared to less/no eco-friendly goods and/or services.

Apart from increasing evidence that eco-friendliness is increasing among customers, there is still a research gap regarding the relationship between green attitude and purchase intentions of responsible consumers. As discussed earlier, the degree of greenness varies depending upon diverse features such as the price that may impact the purchase decision making of consumers. This gap is further increased in the case of developing nations when there is not enough evidence that consumers in developing nations like Pakistan are sensitive to eco-friendly products or services

III. PROBLEM IDENTIFICATION/RATIONALE OF THE STUDY

The researcher critically analyzed the research gap available in the literature to bridge that gap. This study explains the moderating effects of price consciousness on the relationship between customers' green attitude and consumers' green purchase intentions by getting support from the 'Theory of Planned Behavior' (TPB). Until now, none of earlier studies has explored the price consciousness as moderating effect a moderating variable in the area of eco-friendly purchasing behavior, particularly from the perspective of Green dairy products. Hence, this study has accurately identified research problem in the current area being addressed by this study.

Research Questions

1. Does consumer product knowledge affect consumer green attitude?
2. Does consumer perception affect consumer green attitude?
3. Does the consumer green attitude mediate the relationship of determinants of customer green attitude and green purchase intention?
4. Does the price consciousness moderate the relationship of customer green attitude and consumer green purchase intention?

IV. LITERATURE REVIEW

In green marketing, green attitude solely depends upon attitudes of consumers regarding ecology. Environmental attitude enables an individual to recognize his/her duties and responsibilities to preserve the environment. There are some contradictions in research regarding the relationship between the attitude of individuals towards the environment and their resultant buying behavior (Kotchen and Reiling, 2000). So, organizations have to clearly recognize such recent trends in consumer behavior regarding the environment. This will enable businesses to craft green marketing strategies for their consumers. In green marketing, environmental consciousness among consumers is further increased by developing environmentally sustainable (green) products and services. Such products and services will act as a 'tool of environmental preservation'.

A consumer with a green attitude will always focus on buying sustainable, ethical, and environment-friendly goods that do not harm the environment (Gilg *et al.*, 2005). In the studies of (Chang, 2012, Bhattacharya, 2011 and Boztepe, 2016) it was found that green consumers were more possible to give up bad habits which may harm the environment and they are more likely to change their behavior by buying green products even by compromising on price, quality, and branding of the product. Examples of green purchasing or green consumerism include recycling, minimizing energy consumption, buying hybrid cars, or green food products (Bonini and Oppenheim, 2008).

Knowledge of consumers impacts their environmental behavior in different ways. First of all, knowledge is taken as a personal resource by an individual while making environmental and personal responsibility decisions (Bhattacharya, 2011). Moreover, knowledge also enables a person to apply behavioral control resulting in ability and motivation to act in a certain situation to execute environment-friendly behavior (Carrigan and De Pelsmacker, 2009). Hence, it can be concluded that knowledge about environmental issues motivates a person to adopt an environmentally responsible behavior.

The consumers with high price-conscious tend to search for discounts and relatively lower prices (Alford and Biswas, 2002) and sometimes they may also ignore the quality of the products with the intention save costs (Cuno, 2008). Price-conscious customers are more likely to consume their resources and efforts in searching a low-cost option relative to quality-conscious customers because they are sophisticated and less brand-conscious than quality conscious customers (Milfont and Sibley, 2012). It means that they conducted high levels of research for price-related information to make comparisons among products and services that is a key mediator in their cognitive

processing. They are never looking for impulse buying or cues that would reduce their search while they spend more time in price comparisons and analysis (Boztepe, 2016).

It is important to note that when price-consciousness is combined with environmental consciousness; it may result in a complicated relationship of degree of greenness, green behavior, and consumer attitudes (Hughner *et al.*, 2007). It means that price-conscious green consumer is less likely to make comparisons among environment-friendly products and services. In this process, their degree of greenness may reduce as they can opt for less friendly products and services due to lower prices relative to more friendly products and services (Ha and Janda, 2012). Numraktrakul, *et al.* (2011) stated that value premium as is the additional amount paid for an item rather than the usual value; this could show purchaser's ability to pay for the green item. Moreover, due to their excessive time consumption in price comparisons and cost/benefit analysis, they are less like to demonstrate a green behavior in the long run. Also, the price can be a key determinant in their green purchase decision-making process (Lee Weisstein *et al.*, 2014).

Generally, it is perceived by a large consumer group that green products have poor quality. This group of customers may not be ready to pay premium rates due to their price sensitivity and perceived quality (Milfont and Sibley, 2012). Contrary to this, consumers who are highly responsive for the environment may associate 'greenness' of the product with quality. As a result, they may compromise the performance for greenness by considering greenness as a quality indicator. This highlights the role of perceived quality to affect the purchase intentions and behaviors of consumers (Yin, Wu, Du, & Chen, 2010).

V. HYPOTHESES

- H1: Consumer product knowledge has a positive and significant effect on consumer green attitude.
- H2: Consumer green attitude has a positive and significant effect on green purchase intention.
- H3: Perceived quality has a positive and significant effect on consumer green attitude.
- H4: Perceived saving has a positive and significant effect on consumer green attitude.
- H5: Price Consciousness will moderate the relationship between consumer green attitude and green purchase intention.

H6: Consumer green attitude will mediate the relationship between consumer product knowledge and green purchase intention.

H7: Consumer green attitude will mediate the relationship between Perceived quality and green purchase intention.

H8: Consumer green attitude will mediate the relationship of Perceived saving and green purchase intention

VI. MATERIAL AND METHODS

The basic objective of this study was to discuss and analyze the impact of product knowledge, perceived quality, and perceived savings on the purchase intentions and behavior of green customers. For this purpose, the focus was on testing the listed hypotheses.

This study has followed a pragmatic approach by quantitative research methods. The quantitative tool that I have used for gathering primary data was a questionnaire survey that is considered as one of the most effective quantitative social research methods (Cooper and Schindler, 2006).

We have gathered data from a sample of 400 general customers while they were involved in the study by means of questionnaire surveys. Structured questionnaires were used to gather primary data from consumers of Twin cities of Punjab (Pakistan). I have handed over the questionnaire that the consumer filled it and returned the survey later. Statistical Package Social Science (SPSS) and AMOS software were used to analyze the data collected from the questionnaire. I used factor analysis for data validation and analysis. For data reliability, Chronbach's Alpha was utilized. For hypothesis testing, process macro was used and for CFA (confirmatory factor analysis) AMOS was used.

The entire returned questionnaire thoroughly checked and data entered. Data screening was used to check whether the data set was complete. Regression analysis through process macro of Hayes was executed to determine how well determinants of consumer green purchase attitude predict consumer green purchase intention. The final step of the data analysis in this research included the total hypothesized moderation. Model 1, was run through process macro to check the influence of independent variables on the dependent variable in the presence of the moderator. Model number 4 was run through process macro of Hayes to check the impact of independent variables on the dependent variable in the presence of the mediator. Model number 16 was run to check the mediation and moderation on complete model, which were merged in one statistical analysis, whereby model sixteen of Hayes (2013) was selected.

Reliability Analysis

Table 1: Reliability Test

| Variable | Cronbach's Alpha | Number of Items |
|----------|------------------|-----------------|
| PC | 0.846 | 3 |
| CPK | 0.812 | 5 |
| PS | 0.843 | 6 |
| CGA | 0.856 | 7 |
| GPI | 0.908 | 11 |
| PQ | 0.852 | 5 |

The value of Cronbach's alpha for the scale employed to measure was 0.846, 0.812, 0.843, 0.856, .908, and 0.852 for PC, CPK, PS, CGA, GPI and for PQ respectively. These values display the decent consistency result that displays a greater consistency among the questions.

Table 2: Correlation Analysis

| Variable | Mean | Std. Dev. | CPK | PC | PS | PQ | CGA | GPI |
|----------|-------|-----------|--------|----|----|----|-----|-----|
| CPK | 2.300 | 0.777 | (0.81) | | | | | |

| | | | | | | | | |
|-----|-------|-------|--------|--------|--------|--------|--------|--------|
| PC | 2.482 | 0.775 | .505** | (0.64) | | | | |
| PS | 2.591 | 0.917 | .384** | .539** | (0.84) | | | |
| PQ | 2.295 | 0.854 | .552** | .639** | .569** | (0.85) | | |
| CGA | 2.256 | 0.786 | .557** | .532** | .389** | .589** | (0.86) | |
| GPI | 2.472 | 0.828 | .560** | .673** | .573** | .699** | .567** | (0.91) |

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Regression Analysis

Table 3: Impact of CPK on GPI with the mediating role of CGA

| Antecedent | | Consequent | | | | | | | |
|-------------------------------|-----|------------|--------|-------|-------------------------------|-----------|--------|--------|-------|
| | | M (CGT) | | | | Y (GPI) | | | |
| | | B | SE | P | | B | SE | p | |
| X (CPK) | a1 | 0.5636 | .04210 | 0.000 | a2 | c' | 0.3778 | 0.9496 | 0.000 |
| M (CGT) | | --- | --- | --- | | b1 | 0.3893 | 0.0490 | 0.000 |
| Constant | iM1 | 0.9601 | 0.1022 | 0.000 | iM2 | i2 | 0.7242 | 0.1106 | 0.000 |
| R ² = 0.3104 | | | | | R ² = 0.4075 | | | | |
| F(1,398) = 179.1048, p = .000 | | | | | F(1,398) = 181.7179, p = .000 | | | | |
| | | | | | Effect | SE (Boot) | LLCI | ULCI | |
| | | | | | (95% CI) | | | | |
| TE: CPK-->GPI | | | | | 0.5972 | 0.442 | 0.5101 | 0.6843 | |
| DE: CPK-->GPI | | | | | 0.3778 | 0.0496 | 0.2802 | 0.4754 | |
| CPK-->CGT-->GPI | | | | | 0.2194 | 0.491 | 0.1253 | 0.3160 | |

The above table illustrates the outcomes of mediated regression. There is a raise of 9.71% after the addition of CGT as the mediator in the model. The total effect of CPK on GPI is also significant at $b = .5972$ with bootstrapped values (0.5101 and 0.6843 excluding zeros) at a 95% confidence interval. Direct and indirect effects are also significant at 95% confidence interval with effect value of 0.3778 and 0.2194, with bootstrap values of (0.2802 and 0.4754, 0.1253 and 0.3160 excluding zeros) respectively.

Table 4: Impact of PS on GPI with the mediating role of CGA

| Antecedent | | Consequent | | | | | | | |
|------------|-----|------------|--------|-------|-----|---------|--------|--------|-------|
| | | M (CGT) | | | | Y (GPI) | | | |
| | | B | SE | P | | B | SE | P | |
| X (PS) | a1 | 0.3334 | 0.3960 | 0.000 | a2 | c' | 0.3753 | 0.3590 | 0.000 |
| M (CGT) | | --- | --- | --- | | b1 | 0.4269 | 0.0419 | 0.000 |
| Constant | iM1 | 1.3926 | 0.1087 | 0.000 | iM2 | i2 | 0.5358 | 0.1081 | 0.000 |

$$R^2 = 0.1514 \quad R^2 = 0.4674$$

$$F(1,398) = 70.9982, p = .000 \quad F(2,397) = 174.2127, p = .000$$

| | Effect | SE (Boot) | LLCI | ULCI |
|-----------------|--------|-----------|----------|--------|
| | | | (95% CI) | |
| TE: PS-->GPI | 0.5176 | 0.0371 | 0.4446 | 0.5905 |
| DE: PS-->GPI | 0.3753 | 0.0359 | 0.3047 | 0.4459 |
| CPK-->CGT-->GPI | 0.1423 | 0.0296 | 0.0921 | 0.2086 |

The table illustrates the outcomes of mediated regression with perceived savings. Firstly, the effect of perceived saving was verified on consumer green purchase attitude. There is an increment of 31 % after the inclusion of consumer green purchase attitude as the mediator in the model. The total effect of PS on GPI is also significant at $\beta = .5176$ with bootstrapped values (0.4446 and 0.5905 excluding zeros) at a 95% confidence interval. Direct and indirect effects are also significant at 95% confidence interval with effect value of 0.3753 and 0.0359, with bootstrap values of (0.3047 and 0.4459, 0.0921 and 0.2086 excluding zeros) respectively.

Table 5: Impact of PQ on GPI with the mediating role of CGA

| Antecedent | | Consequent | | | | | | | |
|---------------------------------|-----|------------|-----------|--------|---------------------------------|---------|--------|----------|-------|
| | | M (CGT) | | | | Y (GPI) | | | |
| | | B | SE | p | | B | SE | P | |
| X (PQ) | a1 | 0.5416 | 0.0373 | 0.000 | a2 | c' | 0.5422 | 0.0415 | 0.000 |
| M (CGT) | | --- | --- | --- | | b1 | 0.2506 | 0.0451 | 0.000 |
| Constant | iM1 | 1.0137 | .0913 | 0.000 | iM2 | i2 | 0.6622 | 0.0940 | 0.000 |
| [| | | | | | | | | |
| $R^2 = 0.3464$ | | | | | $R^2 = 0.5250$ | | | | |
| $F(1,398) = 210.9363, p = .000$ | | | | | $F(2,397) = 219.4343, p = .000$ | | | | |
| | | Effect | SE (Boot) | LLCI | | ULCI | | (95% CI) | |
| | | | | | | | | | |
| TE: PS-->GPI | | 0.6779 | 0.0348 | 0.6095 | | 0.7463 | | | |
| DE: PS-->GPI | | 0.5422 | 0.0415 | 0.4605 | | 0.6238 | | | |
| CPK-->CGT-->GPI | | 0.1357 | 0.0403 | 0.0602 | | 0.2179 | | | |

The table displays the consequences of mediated regression with perceived quality. Initially, the impact of perceived quality was verified on consumer green purchase attitude.

TABLE 6: Impact of CPK on GPI, mediating role of CGA, moderating role of PC

| Antecedent | | Consequent | | | | | | | |
|------------|----|------------|--------|--------|----|---------|--------|--------|--------|
| | | M (CGA) | | | | Y (GPI) | | | |
| | | b | SE | P | | B | SE | P | |
| X (CPK) | a1 | 0.2794 | 0.0339 | 0.0356 | a2 | c' | 0.2106 | 0.0356 | 0.1608 |

| | | | | | | | | | |
|--------------|-----|--------|--------|--------|-----|----|-----------------------|--------|--------|
| M (CGA) | | --- | --- | --- | | b1 | 0.9219 | 0.1487 | 0.0000 |
| V (PC) | | --- | --- | --- | | b2 | 0.1585 | 0.0787 | 0.0447 |
| VxX (CGAxPC) | | --- | --- | --- | | b3 | -0.1061 | 0.0327 | 0.0013 |
| Constant | iM1 | 1.3322 | 0.1169 | 0.0000 | iM2 | i2 | 0.0431 | 0.3598 | 0.9047 |
| | | | | | | | $R^2 = 0.1462$ | | |
| | | | | | | | $R^2 = 0.3881$ | | |
| | | | | | | | $F(1,398) = 68.1252,$ | | |
| | | | | | | | $F(4,395) = 62.6277,$ | | |
| | | | | | | | $p = 0.000$ | | |
| | | | | | | | $p = .0000$ | | |

Table 7: Impact of PQ on GPI, mediating role of CGA, moderating role of PC

| Antecedent | | Consequent | | | | | | | |
|--------------|-----|-------------------------|--------|--------|-----|-------------------------|---------|--------|--------|
| | | M (CGA) | | | | Y (GPI) | | | |
| | | b | SE | P | | B | SE | P | |
| X (PQ) | a1 | 0.0556 | 0.0264 | 0.0356 | a2 | c' | 0.0374 | 0.0227 | 0.1007 |
| M (CGA) | | --- | --- | --- | | b1 | 1.0397 | 0.1534 | 0.0000 |
| V (PC) | | --- | --- | --- | | b2 | 0.2301 | 0.0812 | 0.0048 |
| VxX (CGAxPC) | | --- | --- | --- | | b3 | -0.1061 | 0.0327 | 0.0013 |
| Constant | iM1 | 2.1092 | 0.0769 | 0.000 | iM2 | i2 | 0.0625 | 0.3789 | 0.8690 |
| | | R ² = 0.0111 | | | | R ² = 0.3374 | | | |
| | | F(1,398) = 4.4471, | | | | F(4,395) = 50.2745, | | | |
| | | p = 0.0356 | | | | p = .0000 | | | |

Table 8: Impact of PS on GPI, mediating role of CGA, moderating role of PC

| Antecedent | | Consequent | | | | | | | |
|--------------|-----|------------|--------|--------|-----|---------|-------------------------|-------------------------|--------|
| | | M (CGA) | | | | Y (GPI) | | | |
| | | b | SE | P | | B | SE | P | |
| X (PS) | a1 | 0.0441 | 0.0211 | 0.0375 | a2 | c' | 0.0281 | 0.0182 | 0.1240 |
| M (CGA) | | --- | --- | --- | | b1 | 1.0205 | 0.1539 | 0.0000 |
| V (PC) | | --- | --- | --- | | b2 | 0.2204 | 0.0812 | 0.0069 |
| VxX (CGAxPC) | | --- | --- | --- | | b3 | - | 0.0341 | 0.0028 |
| | | | | | | | 0.1023 | | |
| Constant | iM1 | 2.0765 | 0.0913 | 0.000 | iM2 | i2 | 0.0874 | 0.3772 | 0.8168 |
| | | | | | | | R ² = 0.0108 | R ² = 0.3368 | |
| | | | | | | | F(1,398) = 4.3554, | F(4,395) = 50.1506, | |
| | | | | | | | p = 0.0375 | p = .0000 | |

VII. CONCLUSION

The basic objective to conduct this research was to have better consideration among marketers and customers to distinguish at different point counting those who buy no green food. A lot of investigations showed that one

main consideration that considered being the boundary to green nourishment utilization is its cost, yet specified the expansive scope of conceivable components that impacts green sustenance basic leadership, there are others that may be considered as boundaries to green sustenance utilization among purchasers. For example, customer item learning on green nourishment and also move made by the advertiser either to advise or to advance has not achieved the ideal level in empowering manageable utilization with green sustenance. In any case, despite the fact that shoppers had the item learning what added to the manageability of the condition because of belief of comfort of their present utilization example won't change their recognition towards green sustenance item however great it is.

The survey of the literature proposes that ecologically mindful respondents have a tendency to be guided by estimations of correspondence, supportiveness and compassion for the condition. A person's conduct affects nature. While consumers have inspirational conducts towards obtaining items which are ecological benevolent. Assist environmental knowledge and level of greenness has turned out to be filled in buy choices of numerous people attributable to more noteworthy ecological cordial items mindfulness and uplifting disposition.

Green buy expectation for ecological cordial items is administered by the level of greenness for the results of the buy on the environment. Organizations showcasing methodologies underline on the negative effect of items on the earth. Along these lines, firms must put resources into their situating techniques and market correspondence methodologies to change over this antagonism into an open door. It can be inferred that green buy disposition positively affects green buy goal and subsequently green buy conduct. Positive green buys disposition towards ecological neighborly items impact shopper's buy goal to pay the cost for earth benevolent items and at last, the buy aim to purchase natural items likewise increments. The more positive buyer saw the nature of the green item, and the higher the purchaser green buy state of mind towards natural items, the more positive the ecological inviting buy conduct will be.

VIII. LIMITATIONS OF THE STUDY

In this research thesis, there are some limitations that deserve future research. The limitation of this study is that the sample was restricted to a Rawalpindi and Islamabad.

Furthermore, this study is a cross-sectional investigation which is information just gathered at one purpose of time. Shoppers' buy conduct will continually change now and again because of numerous variable impacts. Along these lines, the aftereffect of this finding is unseemly to clarify and mirror the example of customers' buy conduct. In another word, this exploration just ready to portray the example of shoppers' buy conduct at one purpose of time.

IX. FUTURE RESEARCH DIRECTION

Since consumer's perception towards green product has a strong correlation with the purchase intention of green products, therefore it is better to further investigate the details of how the availability of green products may impact the purchase intention. Hopefully, this might help marketers with better selling point when promoting these products to the public at large. Consequently, it is very much important if such communication message or educational activities can be initiated at the earlier stage before the consumption behavior becomes a habit. Events

such as green products fairs and shows should be held and showed among young consumers at an early age before they reach the stage of determining their future identity and self values. I also suggest that longitudinal study is more suitable for future research.

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