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## The integration of corporate social responsibility and marketing concepts as a business strategy: evidence from SEM-based multivariate and Toda-Yamamoto causality models

**JEL Classification:** *C12; M14; Q2*

**Keywords:** *customer's buying behavior; Carroll's CSR pyramid; corporate social responsibility; Toda-Yamamoto causality model; SEM-based multivariate modeling*

### Abstract

**Research background:** This paper integrates the marketing and corporate social responsibility concepts by investigating how the previous studies de-bated CSR as a business strategy. This discussion extended from academics to business practices. Hence, this study investigated the concept of CSR as a business strategy in a multifactorial fashion in the marketing field.

**Purpose of the article:** This study evaluates the modified model of CSR initiatives as business and marketing strategy and their impact on customers' buying behavior. For this purpose, we have taken dimensions of Carroll's pyramid of CSR as marketing strategies. We have also examined the influence of brand loyalty and cause-related marketing as mediating variables and technology as a moderator between dimensions of Carroll's pyramid and customers' buying behavior.

**Methods:** We employed modified theoretical & conceptual model for evaluating the direct and indirect hypothesized relationship. We have collected 693 responses from the structured and adapted questionnaire. The survey was done among marketing and senior managers of the Asian

pharmaceutical industry. We employed SEM-based multivariate modeling to examine the hypothesized relationship.

**Findings & value added:** The finding of this research exhibited that dimensions of Carroll's pyramid of CSR have a positive and significant impact on customers' buying behavior. The results further demonstrated that brand loyalty and cause-related marketing positively and significantly impact mediators between CSR dimensions and customers' buying behavior. Finally, the technology has a significant influence as a moderator between exogenous and endogenous factors. The undertaken study demonstrated important theoretical and practical implications. The modified conceptual framework has provided several new dimensions for future researchers to use and replicate in different economic sectors. On the other hand, practitioners of the pharmaceutical industry should incorporate Carroll's CSR pyramid as business strategies to gain the trust and respect of their customers.

## Introduction

The CSR has arisen as an imperative theoretical concept and as a feature on the campaigns of every type of organization, particularly conglomerates and transnational companies. Yet, there is a consistent scholastic discussion amid CSR as a notion that there is no single definition of CSR, which could be accepted universally in a distinctive situation (Balcerzak & MacGregor Pelikánová, 2020). However, large organizations have developed a corporate basis for establishing vital business strategies, and the business world has been applying the concept of CSR without going into the constant definition. In an era dominated by digital media and technology, the importance of establishing and reinforcing positive manifestations has increased instantaneously (Gayathri, 2019). Like individuals, corporations need to develop, strengthen, and impose a positive image of their respective organizations and brands to buy valuable goodwill from their respective target audiences and prospective customers. Corporate social responsibility (CSR) is the oldest activity adopted by managers and organizations for a long time. According to Hildebrand *et al.* (2011), CSR is a highly effective and integral aspect of any business model, which helps an organization to hold itself socially responsible, and in a way, also help nurture a positive image of the brands on its target audiences. Similarly, Javed *et al.* (2018) have confirmed that CSR is one of the most important marketing strategies for an organization's exponential growth. Powel (2011) has established the positive nexus between marketing and CSR, and concluded that the CSR activities have an immense impact on an organization's marketing endeavors and a direct positive effect on marketing and corporate image. Previous literature has demonstrated that the CSR strategies are revolving around the dimensions of Carroll's pyramid of CSR that addresses almost all the spheres of organizational CSR activities (Lu *et al.*, 2020). The previous literature such as Ho *et al.* (2017), Türkel *et al.* (2016), and Moon *et al.* (2015) ex-

explored the effect of CSR on brand loyalty, positive perception through cause-related marketing, and overall marketing impact using a diverse range of methods. The findings show that CSR is the most effective marketing tool, whose benefits should be further studied. Moreover, the results highlighted the evidence that CSR performance influences customer perception through cause-related marketing tools, brand loyalty, and customer buying behavior (Khan *et al.*, 2015). Previous studies' results are inconclusive; thus, previous literature has suggested revisiting the factors and methodologies for robust outcomes (Yang & Basile, 2019).

This paper assimilates the marketing and CSR concepts by investigating how previous studies debated CSR as a business strategy; this discussion extended from academics to business practices. Hence, this study investigated the concept of CSR as a business strategy in a multifactorial fashion in the marketing field. However, most of the literature is limited to the specific dimensions of this construct (Chen *et al.*, 2018; Yunis *et al.*, 2017). Moreover, the results of previous studies are still inconclusive, and authors have suggested reinvestigating the impact of CSR strategies on marketing strategies such as branding, brand awareness, cause-related marketing, brand loyalty, brand image, perception, and buying behavior, etc. (Rahman *et al.*, 2019; Hadjikhani *et al.*, 2016). Most of the literature on the CSR construct discusses in the field of management, very few studies are carried out regarding the concept of CSR in the marketing field, and those studies are limited to the specific social dimensions of organizations (Ahmad *et al.*, 2017; Türkel *et al.*, 2016). In the beginning, the marketing scholars have initiated to examine the elements connected to the CSR concept within the field of marketing, and eventually, they motivated to analyze the social functions of a business to concentrate on the strategic methods to employ the CSR construct (Wang *et al.*, 2015; Yang & Basile, 2019). The undertaken study has integrated Carroll's CSR pyramid dimensions with the marketing dimensions such as brand loyalty, cause-related marketing, and customers' buying behavior. Today, technology is an essential factor in every field of social sciences; similarly, technology has brought a great revolution in marketing. Especially, digital media has developed a new virtual business arena that brought customers and marketers to a new technological platform. Now, the technology has introduced digital advertising, an efficient and cost-effective medium of advertising, and transformed the local markets into global markets. Therefore, the undertaken study has taken technology as moderating variable and evaluates the impact of technology in a relationship of CSR dimensions and customers' buying behavior.

In developing countries' contemporary economic environment, most companies tend to underestimate or overlook CSR's importance. As high-

lighted in the previous studies (Lu *et al.*, 2020; Rahman *et al.*, 2019), CSR is an integral aspect of any corporation's image. Due to financial problems and an environment where every business organization is striving to invest all available resources to improve their bottom line, CSR is often neglected or overlooked. In this study, an attempt will highlight CSR's effects in a business and play an integral role in reinforcing positive customer perceptions by using cause-related marketing tools and customers' buying behavior (Demirel, 2020; Jeon & An, 2019). In doing so, this study also addresses the existing literature gap on this subject in South Asian economies. The study aims to examine, investigate, and research the full extent of CSR activities conducted for South Asia's developing economies from the pharmaceutical industries' perspective. Furthermore, the study will attempt to understand, or rather, collect data from the pharmaceutical industries' target audience to ascertain the relationship and the impact of CSR on its brand loyalty, cause-related marketing, and buying behavior — thus establishing CSR as a useful marketing tool using the dimensions of Carroll's CSR pyramid (Lu *et al.*, 2020; Nurunnabi *et al.*, 2020). According to Moliner *et al.* (2019) and Ahmad *et al.* (2017), there is a dearth of existing literature on the subject. Over the years, the notion of CSR has transformed immensely, along with a drastic transformation in the marketing sector. There are currently scarce studies conducted on the effects of CSR on brand loyalty, cause-related marketing, purchase intentions, and marketing in the contemporary business environment (Tao & Ji, 2020; Kang & Atkinson, 2021). Thus, this research is significant in several folds, such as the modified conceptual framework is evaluated with the dimensions of Carroll's pyramid of CSR, brand loyalty & cause-related marketing as mediating variables, and technology as a moderator. This research is unique because the cause and effect between the variables will be measured through a Toda-Yamamoto causality model and an SEM-based modeling approach. This study's findings will provide new dimensions to the marketing practitioners for devising effective business campaigns by using CSR as a marketing strategy.

The rest of the study is divided into five different sections — Review of literature, which discusses the relevant theories, models, and previous literature — Methodology, discusses the scaling, research design, and statistical tools — Data analysis comprises of estimations, results, and findings — Discussion contains on the debate of existing results and previous studies results — Conclusions & areas of potential future studies.

## **Literature review and hypotheses development**

Several previous literature pieces demonstrated and focused on CSR in South Asian developing economies and emphasized different dimensions of CSR activities. Companies in developing economies most often practice CSR as a marketing tool that provides benefits for the short-run to build on philanthropic projects (Lu *et al.*, 2020; Galant & Cadez, 2017). Furthermore, it also revealed that the researchers on CSR in the South Asian context are more inclined towards child labor, the textile industry, and leather. However, considering other CSR issues, such as stakeholders, environment, and corporate social affirmation, can expand CSR research scope (Han *et al.*, 2019). Thus, the undertaken study recommends adopting more pragmatic and predictive research methodologies in the developing economies. In conclusion, it was noted that the Asian business lacks the CSR aspect compared to other western companies (Gardberg *et al.*, 2019). According to the literature review, the CSR level is lower than the average estimated in America, Europe, and Africa (Woolley & Fishbach, 2017). However, the current study indicates the increase in some CSR issues in South Asian economies in the context of pharmaceutical sectors (Amin-Chaudhry, 2016; Khan *et al.*, 2015).

### *Customer buying behavior*

Yang and Basile (2019) studied CSR's impact on customers' buying behavior through developing and testing a conceptual model. The study empathizes the effect of CSR on buying behavior and analyzes the interaction between product and employee associated CSR activities among the other proportions. The findings clearly show a favorable impact on buying behavior in terms of diversity — linked with CSR activities (Han *et al.*, 2019). Therefore, both product and employee aspects contribute to the correlation between CSR and buying behavior. Studies have stated that customers do not always find CSR actions beneficial and constructive (Singh & Saini, 2016).

The CSR activities can have both negative and positive impacts. Therefore, the consequences are productive and positive only if the CSR actions taken are genuine and truthful. As stated before, CSR's dimensions within the firm should be aligned and compatible to get fruitful and favorable impact (Kuo *et al.*, 2016; Hwang & Lyu, 2018). Therefore, CSR can act negatively and positively on the buyer's choice, and as a result, the brand's reputation and buying behavior can be affected.

Han *et al.* (2019) studied 'the effects of CSR on society's customer contribution as a non-profitable activity. They seek to explore the relationship between CSR and customer buying behavior. Like previous research, they reveal the positive impact of CSR on the consumer's attitude regarding the corporation (Park, 2017; Alrubaiee *et al.*, 2017). Thus, it is substantiated by the several previous kinds of literature that CSR activities have a direct or indirect influence on the buyers in terms of buying behavior.

### *Carroll's pyramid of CSR*

According to Nurunnabi *et al.* (2020), CSR's notion can be simply concluded as an internationally accepted and practiced way to self-regulate by businesses. In layman's terms, CSR is a way for corporations to keep checks on themselves — preventing themselves from being too exploitive or harmful to either the society or the ecosystem they are operating in (Schyninck & Willem, 2018). CSR has been regarded as a vital and growing topic of debate among intellectuals, practitioners, and academicians for the last two decades.

According to Carroll (2016), corporate social responsibility involves the expectations that society holds about an organization in a given time. Therefore, the CSR activities entail four dimensions: legal, ethical, economic, and philanthropic aspects of a company's performance at a given time interval without any rigid hierarchy (Carroll, 1979; Carroll, 1991).

One of the most prominent and beginner researchers of CSR's was Carroll (1979), who played an extensive role in the concept of CSR, and proposed a four-layered pyramid model. According to him, CSR's economic feature was essential, and the remaining dimensions were put in this order concerning importance: legal, ethical, and philanthropic. Thus, Carroll (1979) has presented the most popular model of CSR in the management field, which is the most valued and popular model within the business is Carroll's pyramid model.

As demonstrated in the previous literature by Hoque *et al.* (2018), Loosemore and Lim (2018), and Lu *et al.* (2020), the legal and economic dimensions of Carroll's model have a significant favorable influence on financial, marketing, and organizational performance. The idea of CSR, presented by Carroll (1991), was applied here that described the whole scope of financial, legitimate, and moral responsibilities. Numerous studies have shown a favorable association between the dimensions of Carroll's pyramid of CSR and the buyer's behavior (Gardberg *et al.*, 2019; Gao *et al.*, 2017). Previous literature demonstrated the positive and significant impact of CSR dimensions of Carroll's pyramid on brand loyalty, brand image, and

brand equity. Farid *et al.* (2019) mainly focused on ethical and philanthropic dimensions as CSR practices on brand loyalty and brand image and concluded the significant association. Thus, we have incorporated the dimensions of Carroll's pyramid of CSR in our modified conceptual framework and framed the following hypotheses:

H1: *Ethical dimension of Carroll's pyramid has a significant and positive impact on customer buying behavior*

H2: *Legal dimension of Carroll's pyramid has a significant and positive impact on customer buying behavior*

H3: *Economic dimension of Carroll's pyramid has a significant and positive impact on customer buying behavior*

H4: *Philanthropic dimension of Carroll's pyramid has a significant and positive impact on customer buying behavior.*

#### *Brand loyalty*

Brand loyalty refers to its uniqueness, strength, and appropriacy, which decide the brand's meaningfulness. The significance of CSR is increasing with the increase in customers' CSR expectations by degrees (Khan & Fatma, 2019). Consumers expect both emotional and social values, and CSR has integral importance within the notion of brand loyalty, which helps a company acquire a competitive edge in a market (Manimalar & Sudha, 2016). One of the salient effects of amalgamating CSR into the firms marketing strategies is that it gives damage insurance to shield the brand from attacks or damage (Sharma & Jain, 2019). This increasing competition between the businesses has raised the company's concern towards developing an innovative, marketable, valuable, sustainable brand and brand loyalty (Han *et al.*, 2019; Tuan, 2012). Therefore, the incorporation of CSR into business has become a vital step for growing companies.

Previous studies have established CSR initiatives' impact to increase awareness about the marketing tool and its effect on brand loyalty (Mustafa *et al.*, 2019). The findings showed that the economic, ethical, and legal dimensions significantly affect brand loyalty. However, there is a moderate philanthropic and sustainability impact on brand loyalty. Moreover, the results showed a robust favorable association between the CSR and brand loyalty.

According to Ahn *et al.* (2020), the most significant brand equity element is the brand's loyalty and brand image. The researchers used Carroll's (1991) framework to measure corporate social responsibility and Keller's (1993) model to measure its appearance. The findings of this study present that there is a positive relationship between brand loyalty and CSR. Hence, based on previous literature, we have taken brand loyalty as a mediating variable and framed the following hypotheses:

*H5A: Brand loyalty mediates between the economic dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H5B: Brand loyalty mediates between the legal dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H5C: Brand loyalty mediates between the ethical dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H5D: Brand loyalty mediates between the philanthropic dimension of Carroll's pyramid of CSR and customer buying behavior.*

#### *Cause-related marketing*

Several studies have been conducted to elaborate on CSR using brand explanation and cause-related marketing to develop positive perception and impact customers' buying behavior. These studies suggested, the biggest challenge is to mold customers' perceptions and to think because they are regarded as a whole system that they can only change. Important literature is studied to explore CSR's advantages as a tool for cause-related marketing (Sheikh & Beise-Zee, 2011).

Jahdi (2014) carried out research to collect consumers' perceptions of the four stages of economic, legal, ethical, and social aspects of their respective corporates by adopting a multidimensional CSR perspective. The study concluded a positive and significant relationship between CSR dimensions and customers' perception amid cause-related marketing and further established CSR initiatives' favorable impact on the customers' positive perception and its advantages as a marketing tool (Tao & Ji, 2020; Park, 2017). Building upon that notion, the study of Sheikh and Beise-Zee (2011) explored whether CSR stems from a sense of morality and responsibility towards the community or merely as "cause-related marketing" to increase ROI. The study compared and contrasted CSR with CRM to ascertain the



similarities and differences and found that CSR, just like CRM, impacts customer perception and overall buying behavior (Jeon & An, 2019).

An experiment was carried out to rectify various measurement errors in a country distinguished by a wide range of attitudes toward a condition or cause. The evaluation of the data highlights CSR and CRM's positive effect on consumer's behavior or buying behavior (Tao & Ji, 2020). The study's significant finding highlights CRM as a tool that can lower the negative CSR impact significantly in terms of affinity cause in the business world. Hence, based on previous literature, we have taken cause-related marketing as a mediating variable and framed the following hypotheses:

*H6A: Cause-related marketing mediates between the economic dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H6B: Cause-related marketing mediates between the legal dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H6C: Cause-related marketing mediates between the ethical dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H6D: Cause-related marketing mediates between the philanthropic dimension of Carroll's pyramid of CSR and customer buying behavior.*

### *Technology as a moderator*

The researchers believe that globalization has affected the business market as the business process is changing over the last few years, all over the world's companies due to technological advancements (Hussain & Ahmed, 2020; Blair, 2017). The competition has increased numerously with the companies' continuous striving to grow faster and better with Internet-based software and social media networks (Filipovic, 2015; Gayathri, 2019). Therefore, in this competitive market, consumers tend to go with the companies' socially reliable products.

Previous literature such as Ahmed *et al.* (2017) and Ahmed *et al.* (2019) have focused on technology implementation in the industry with CSR practices and evaluated technology's impact. The findings show that by implementing technology-based CSR programs in firms, the companies can effectively implement and track the CSR initiatives and obtain a competitive advantage. Implementing technology-based CSR activities refers to raising responsible competitiveness and building reliable ideas, thinking, and prac-

tices; the most critical factors are cultural compliance and the virtual environment (Romaniuk *et al.*, 2017; Ahuja, 2015).

Several previous studies demonstrated that technology is a significant influencer in marketing and CSR business strategies that enhance organizations' effectiveness and long-term sustainable competitive advantages such as Chitra and Sasikala (2016), Ahmed *et al.* (2017). Thus, based on the previous literature, we have incorporated technology as a moderating variable in a modified conceptual framework and framed the following hypotheses:

*H7A: Technology moderates mediates between the economic dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H7B: Technology moderates between the legal dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H7C: Technology moderates between the ethical dimension of Carroll's pyramid of CSR and customer buying behavior.*

*H7D: Technology moderates between the philanthropic dimension of Carroll's pyramid of CSR and customer buying behavior.*

#### *Theoretical & Conceptual framework*

The undertaken study incorporated Carroll's (1979, 1991) pyramid of CSR in the modified conceptual framework; the Carroll pyramid dimensions are taken as independent variables. We have examined the influence of independent variables on customers' buying behavior as an outcome variable. Our modified framework has taken two mediating variables, such as cause-related marketing and brand loyalty, based on previous literature, and evaluate the impact of mediators between independent variables and the outcome variable. Finally, from previous literature, we have incorporated technology as a moderator between Carroll's pyramid of CSR and customers' buying behavior. Figure 1 is the graphical depiction of our modified theoretical and conceptual model of the undertaken study.

## **Research methodology**

### *Research design and measurement scales*

The undertaken study is cross-sectional and quantitative, and adopted a deductive approach to complete this study. The operational items are derived from the previous literature, and we have constructed an adapted questionnaire in which items of customers' buying behavior are taken from previous studies such as Yang and Basile (2019), Ahmed *et al.* (2019), Park (2017) and Alrubaiee *et al.* (2017).

The implied Carroll's CSR pyramid used Carroll's (1979, 1991) model's dimensions, such as ethical, legal, economic, and philanthropic dimensions as independent variables. We used modified items from previous literature such as Carroll (1991; 2016), Lu *et al.* (2020), Nurunnabi *et al.* (2020), and Hoque *et al.* (2018).

The modified operational items of cause-related marketing are taken from previous studies, for instance, Tao and Ji (2020), Jeon and An (2019), Sheikh and Beise-Zee (2011), Jahdi (2014), Park (2017). Similarly, we have incorporated the adapted scales of brand loyalty from previous literature such as Ahn *et al.* (2020), Han *et al.* (2019), Khan and Fatma (2019), and Sharma and Jain (2019).

Finally, the modified items of technology as a moderator were taken from previous studies such as Blair (2017), Filipovic (2015), Gayathri (2019), Ahmed *et al.* (2017), and Chitra and Sasikala (2016).

### *Data collection and sampling strategy*

For the data collection, we employed a structured & 5-point Likert scale adapted questionnaire. We used non-probability sampling to collect the responses. The data was collected from marketing and senior managers of the pharmaceutical industry through online mode (email & LinkedIn); we have used the quota-sampling technique for better representation of a sample.

We have collected 156 responses from Pakistan, 211 responses from China, 187 responses from India, and 139 responses from Bangladesh. Thus, we have collected 693 responses from South Asian developing economies. Initially, we had floated 800 questionnaires to the selected respondents. However, we had received 693 questionnaires, which were properly and completely filled. Thus the response rate was 86.63%, which is considered to be satisfactory for online mode.

### *Estimations techniques*

The section demonstrates the statistical and econometrics techniques that have been used for the estimation and data analysis undertaken. We employed SPSS 22, AMOS 22, Conditional process analysis software to carry out the estimation; we used descriptive statistics to analyze the variables' characteristics. We used SEM-based multivariate approaches including exploratory and confirmatory factors analyses, we employed rotated component matrix, factor loadings, composite reliabilities, average variance extracted, KMO & Bartlett's analyses, total variance explained.

We also used conditional process modeling to ascertain the direct and indirect hypothesized relationship between independent variables such as Carroll's pyramid dimensions, mediating variables include cause-related marketing, brand loyalty, technology (moderator), and customers' buying behavior (dependent variable).

Finally, we employed the Toda-Yamamoto causality technique to investigate the cause and effect between the variables. The Toda-Yamamoto causality technique demonstrated the directionality of the factors that are imperative to comprehend the causation amongst the variables.

### *Demographic profile*

Table 1 exhibits respondents' demographic profile, which described that 693 responses were collected from the pharmaceutical industry of China, Pakistan, India, and Bangladesh. Our data sample collected 350(60.5%) responses from the males and 310 (49.21%) from the females. We have taken data in '000', and income was taken in the US dollars. The rest of the demographic analysis is reported in Table 1.

## **Results**

### *Descriptive analysis*

Initially, the descriptive analysis has been conducted to provide information about the mean, standard deviation, skewness, and kurtosis. The readings of Table 2 exhibit that the mean is higher than 3.5 for all the constructs, which is sufficient data information, and readings of skewness & standard deviation ranges between -1.5 to +1.5, and values of kurtosis range between -3 to +3 (Byrne, 2009). Hence, the normality of data information has

also fulfilled that is an essential condition to employ SEM-based multivariate approach (Huang *et al.*, 2004).

### *Reliabilities and validities*

For the undertaken study, the reliabilities and validities are examined through a rotated component rotated matrix in which we derived factor loading of all the items of constructs. The outcomes of Table 3 demonstrate that the composite reliabilities and average variance extracted are further derived from factor loadings. As per the rule of thumb, the derived values of Cronbach's Alpha and composite reliabilities should higher than 0.6 (Byrne, 2009). Moreover, the factor loading ranging from 0.85 to 0.96, thus, it fulfilled the required of discriminant validities (Hair *et al.*, 2017), and readings of average variance extracted are higher than 0.50, which also met the minimum criterion of convergent validities (Fornell & Larcker, 1981). Thus, the collected data information is highly reliable, and we can proceed with the advanced analyses.

### *Exploratory factor analysis — EFA*

In SEM-based multivariate analyses, we first employed exploratory factor analysis to condense and reduce the items and constructs. We used a rotated component matrix and analyzed the factor loadings of all the things and constructs. We have incorporated eight constructs and twenty-four operational items. We had three customers' buying behavior items as a dependent variable and three items each for economic, legal, ethical, and philanthropic as the independent variable.

Moreover, three items each for brand loyalty and cause-related marketing as mediating variables, and three items of technology as a moderator, the results of Table 3 exhibit that the factor loadings of all the items have more than 0.60 values. Thus, we have retained all the items and constructs (Emory & Cooper, 1991).

### *Kaiser-Meier Orkin (KMO) and Bartlett's method*

According to Kaiser (1974), the data's fitness and suitability could be measured through the KMO and Bartlett's Sphericity techniques. The readings of Table 4 revealed that the value of KMO is 0.717, which is considered as good. Similarly, Bartlett's Sphericity's readings demonstrated a strong correlation between the items and constructs at the 5% significance

level ( $p < 0.05$ ) that is also showed the appropriateness of the data information (Lu *et al.*, 2020).

#### *Total variance explained*

As the outcomes of Table 5 demonstrated that the total initial eigenvalues of each construct are higher than one, and cumulative total variance is 86.004 (86.00%), which showed the reliability of the data and constructs. However, the minimum threshold reading of total cumulative variance should be 0.50 or 50% (Hair *et al.*, 2017). Hence, the objective of CFA has been fulfilled, and now we can retain all the constructs and items.

#### *Confirmatory factor analysis — CFA*

In the SEM-based multivariate approach, we have incorporated the hypothesized measurement model, and confirmatory factor analysis is the right and direct method to evaluate the measurement model (Hair *et al.*, 2017). Our considered hypothesized measurement model has taken customers' buying behavior as a dependent variable and economic, legal, ethical, and philanthropic dimensions as independent variables. Moreover, we have taken brand loyalty and cause-related marketing as mediating variables and technology as moderator for our considered measurement model.

We have taken eight constructs and twenty-four items for our hypothesized measurement model and infuse the data sample into observed and unobserved variables (Fornell & Larcker, 1981; Lu *et al.*, 2020). The readings of Table 6 demonstrated the different fit-indices are within the prescribed limits. Thus, it is concluded that our hypothesized measurement model is appropriate for the customers' buying behavior.

#### *Structural equation modeling — SEM*

Similarly, in the SEM-based multivariate approach we have considered a hypothesized structural model, and again confirmatory factor analysis is the right and direct method to evaluate the measurement model (Hair *et al.*, 2017). Our considered hypothesized structural model has taken customers' buying behavior as a dependent variable and economic, legal, ethical, and philanthropic dimensions as independent variables. Moreover, we have taken brand loyalty and cause-related marketing as mediating variables and technology as moderating factor for our considered measurement model. We have taken eight constructs and twenty-four items for our hypothesized measurement model (Fornell & Larcker, 1981; Lu *et al.*, 2020). The read-

ings of Table 6 demonstrated the different fit-indices are within the prescribed limits. Thus, it is concluded that our hypothesized structural model is appropriate for the customers' buying behavior.

### *Hypothesized direct relationship*

For the direct hypothesized relationship, we employed conditional process modeling. We measured the standardized regression weights between independent variables such as economic, legal, ethical, and philanthropic dimensions and customers' buying behavior as an outcome variable.

The results of Table 7 exhibits that hypotheses H1, H2, H3, and H4 are supported because readings of  $T > 2$  and  $p < 0.05$ , therefore, it is concluded that the economic, legal, ethical, and philanthropic dimensions have a positive and significant impact on customers' buying behavior. The direct hypothesized relationship further revealed an individual construct's influence. It exhibited that the ethical dimension has the highest impact, i.e., 0.6241, and then the philanthropic dimension has an effect of 0.3844. Hence, it is confirmed the most critical two dimensions are ethical and philanthropic. However, economic and legal dimensions are not discretionary; instead, every organization must follow these dimensions.

### *Mediation analysis*

We employed conditional process analysis to measure the impact of mediating variables, for instance, brand loyalty and cause-related marketing, which is an association between dimensions of Carroll's pyramid of CSR, and customers' buying behavior. Table 8 showed that we used two methods to measure the mediation, the first is called the Bootstrapping method (Hayes & Rockwood, 2020), and the second are the Normal theory method (Sobel, 1986). We examined that the zero does not occur between BootLLCI and BootULCI in Bootstrapping method. Thus, it is confirmed that brand loyalty and cause-related marketing significantly impact Carroll's pyramid of CSR and customers' buying behavior.

Similar outcomes have been deduced from the Normal theory method because  $Z > \pm 1.96$  and  $p < 0.05$ , hence, the hypotheses H5A to H5D and H6A to H6D are supported. It is finally concluded that brand loyalty and cause-related marketing have a significant and positive mediation between exogenous and endogenous variables.

### *Moderation analysis*

For the moderation analysis, we employed a conditional process approach. We have evaluated the impact of technology as a moderator between dimensions of Carroll's pyramid of CSR and customers' buying behavior. For this purpose, we have framed hypotheses H7A to H7D. The findings of Table 9 suggested that technology has a significant impact between dimensions of Carroll's pyramid of CSR such as economic, legal, ethical, and philanthropic dimensions, and customers' buying behavior because  $T > 2$  and  $p < 0.05$ . Hence, it is concluded that technology served as a significant moderator between dimensions of Carroll's pyramid of CSR, and customers' buying behavior.

### *Visualization of the conditional effect*

According to Hayes and Rockwood (2020), the graphical depiction of moderation is imperative to comprehend the influence of moderating variables between exogenous and endogenous variables. The findings of Figures 2, 3, 4 and 5 demonstrated a consistent increase in customers' buying behavior with the changes of readings of moderating variables. However, exogenous variables were kept constant. The orange color exhibits moderation. The gray color shows the customers' buying behavior. The blue color demonstrates the independent variables such as the economic, legal, ethical, and philanthropic dimensions of Carroll's CSR pyramid. Hence, it is finally concluded that hypotheses H7A to H7D are supported, and technology has a significant moderation between exogenous and endogenous variables.

### *Toda-Yamamoto causality analyses*

The cause and effect between the variables evaluated using the Toda-Yamamoto causality model have several benefits over other causality models. It does not bind to have all the data series in the same integrated order. Therefore, we employed and measured the causality and direction between the variables.

The outcomes of Table 10 demonstrated that independent variables such as economic, legal, ethical, and philanthropic dimensions have two-way causality with customers' buying behavior. However, brand image, cause-related marketing, and technology have one-way causation to customers' buying behavior.



## Discussion

The undertaken study's findings have demonstrated that CSR is an effective business strategy to enhance brand loyalty and customers' buying behavior. The economic and legal dimensions of Carroll's CSR pyramid have a positive and significant impact on customers' buying behavior. Previous literature also confirmed similar results in which legal and economic dimensions are vital for any CSR business strategy (Lu *et al.*, 2020; Nurunnabi *et al.*, 2020; Hoque *et al.*, 2018).

This research's findings have further demonstrated that the ethical and philanthropic dimensions of Carroll's CSR pyramid have a significant and positive influence on customers' buying behavior. Previous studies have also shown the same outcomes: ethical and philanthropic dimensions are the discretionary CSR business strategies; therefore, these two dimensions are more critical than others (Yang & Basile, 2019; Park, 2017; Alrubaiee *et al.*, 2017). The undertaken study outcomes have further exhibited that brand loyalty is a significant and positive mediator between the dimensions of Carroll's pyramid of CSR and customers' buying behavior. The literature has found that the management of the organization adopts CSR as a strategy to enhance its market share. CSR also impacts brand loyalty, and it strengthens company value (Ahn *et al.*, 2020; Han *et al.*, 2019; Khan & Fatma, 2019; Sharma & Jain, 2019).

The findings further revealed that cause-related marketing is also a significant and positive mediator between CSR strategies and customers' behavior. Previous literature such as Tao and Ji (2020), Jeon and An (2019), Sheikh and Beise-Zee (2011), Jahdi (2014), and Park (2017) explored whether CSR stems from a sense of morality and responsibility towards the community or merely as "cause-related marketing" to increase ROI.

The literature compared and contrasted CSR with CRM to ascertain the similarities and differences and found that CSR, just like CRM, impacts customer perception and overall buying behavior. Finally, the outcomes of this research exhibited that the technology served as a significant moderator between the dimensions of Carroll's pyramid of CSR and customers' buying behavior. Several previous studies demonstrated that the technology is a powerful influencer in marketing and CSR business strategies that enhances the effectiveness of organizations and long-term sustainable competitive advantages such as Blair (2017), Filipovic (2015), Gayathri (2019), Ahmed *et al.* (2017), and Chitra and Sasikala (2016).

The Toda-Yamamoto causality model demonstrated that the two-way causation between the dimensions of Carroll's pyramid of CSR and customers' buying behavior.

## **Conclusions**

The undertaken study concluded that CSR provides benefits to society and that it promotes development in the organization. Social responsibility is customers' expectations from the organization and companies to enhance their brand loyalty and customers' perception. The CSR framework is being promoted in business because it allows management to fulfill legal and ethical responsibilities. The study further concluded that corporate social responsibility encourages organizations' accountability with responsibilities and organizations' profitability increases. The study also concluded that corporate social responsibility is promoted in an organization for the business's growth.

In globalization, enterprises are adopting CSR as an opportunity to improve the business process and make the organization competitive. The challenges are increased in the market due to rapid development. However, customers are likely to purchase reliable products, and they prefer brands from a company working for social causes. In light of primary results, organizations are developing strategies to transform customer perception in their favor, and for that, they are focusing on customer mindset, purchasing trends, and other practices. It has been derived from findings that CSR activities are promoted positively because of their impact on brand reputation. However, CSR has a relationship with the customer's satisfaction and purchase intention. Customers purchase a brand with a positive image and provide preference to the companies working for social benefits.

The findings have demonstrated that the CSR practices develop positive brand loyalty, the image in customers' minds and purchase intentions. Brand loyalty and brand image is a reflection of the customer's memory; emphasizing brand as an organization's brand image holds customers' loyalty, and it can strengthen by management with the help of meaningful association. Brand association shows its uniqueness and makes the organization competitive in the market. Cause-related marketing practices have a favorable effect on customers' minds. The CSR business strategies transformed into cause-related marketing practices further positively impact brand loyalty, brand image, corporate image, and customers' buying behavior. It reflects that companies' measures of cause-related marketing are taken by companies for the wellness of society positively impact brand image, brand loyalty, and organizational performance. The cause-related marketing can improve the brand value, customers' perception, and customers' purchase intentions.

Finally, the technology has made a tremendous role for effective CSR business strategies to enhance the brand image, brand loyalty, and cause-

related marketing that have a positive impact on customers' buying behavior. The causation analyses concluded the two-way directionality has been existed between CSR strategies and customers' buying behavior and one-way causation from brand loyalty, cause-related marketing, and technology to the customers' buying behavior.

#### *Theoretical and practical implications*

The undertaken study demonstrated important theoretical and practical implications. The modified conceptual framework has provided several new dimensions for future researchers to use and replicate in different economic sectors. On the other hand, the practical implications demonstrated that the industry should incorporate Carroll's CSR pyramid as a business strategy to gain the trust and respect of their customers. The pharmaceutical industry can enhance brand loyalty and brand value by implementing CSR as a business strategy. The companies can increase their market share and corporate image and positively impact customers' buying behavior by adopting cause-related marketing as CSR initiatives. Finally, the CSR initiative, as marketing tools heavily relied on technology, the Internet, social media, digital media, and search engine optimization, have brought a revolution in the marketing field. Thus, the senior management of the pharmaceutical industry of the South Asian countries should adopt the technology for implementing CSR strategies in the marketing field.

#### *Limitations and areas of future research studies*

The undertaken study has certain limitations; for instance, we have taken only a few South Asian countries. Thus, it is recommended to future researchers that they should take more developing and emerging economies for more generalizable findings. We have considered only four dimensions of Carroll's pyramid of CSR as a business strategy; future researches might be carried out by taking more robust models of CSR dimensions. Similarly, this research has considered only brand loyalty and cause-related marketing as mediating factors. However, future studies might use other important marketing dimensions as mediating variables with CSR multidimensional models. Lastly, we employed only technology as a moderator in the modified model. Thus, it is recommended to future researchers that they could incorporate more robust moderators for better results. Finally, this study is limited to the pharmaceutical sectors of regional countries. Hence, it is recommended to replicate this modified model in other sectors of the economy.

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## Annex

**Table 1.** Demographic Analysis

Demographics		Frequency	Percent
Gender	Male	380	54.8%
	Female	313	45.2%
Marital Status	Single	389	56.1%
	Married	283	40.8%
	Divorced	21	3.1%
Age (In Years)	20-30	250	36.1%
	30-40	134	19.3%
	40-50	84	12.2%
	50-60	116	16.7%
	More than 60	109	15.7%
Education	Graduation	331	47.8%
	Post Graduation (Local)	217	31.3%
	Post Graduation (Foreign)	90	13.0%
	Ph.D. degree	55	7.9%
Experience (In Years)	1-5	179	25.8%
	5-10	198	28.6%
	10-15	86	12.4%
	15-20	98	14.1%
	More than 20	132	19.1%
Income (In USD 000)	2-5	119	17.2%
	6-9	301	43.4%
	10-13	147	21.2%
	14-17	82	11.8%
	More than 18	44	6.3%
Total – N		906	

**Table 2.** Descriptive Analysis

Factors	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Customers' Buying Behavior	693	3.8081	1.07620	-.889	.093	.249	.185
Economic Dimension	693	3.7749	1.07446	-.819	.093	.144	.185
Legal Dimension	693	3.8903	.97636	-.984	.093	1.214	.185
Ethical Dimension	693	3.9394	1.10140	-.947	.093	.279	.185
Philanthropic Dimension	693	3.9668	1.11495	-.963	.093	.237	.185
Brand Loyalty	693	3.8427	1.04650	-.927	.093	.527	.185
Cause-Related Marketing	693	3.7980	1.06149	-.782	.093	.209	.185
Technology	693	3.8716	1.06411	-.926	.093	.436	.185

**Table 3.** Reliabilities & validities

Factors	Items	FL	CA	CR	AVE
Customers' buying behavior	CBB1	.934			
	CBB2	.880	.888	.941	.841
	CBB3	.936			
Economic dimension	ED1	.929			
	ED2	.904	.908	.949	.867
	ED3	.951			
Legal dimension	LD1	.930			
	LD2	.903	.871	.948	.859
	LD3	.948			
Ethical dimension	ETD1	.929			
	ETD2	.905	.862	.949	.860
	ETD3	.948			
Philanthropic dimension	PD1	.928			
	PD2	.903	.970	.943	.846
	PD3	.929			
Brand Loyalty	BL1	.930			
	BL2	.902	.917	.948	.858
	BL3	.947			
Cause-related Marketing	CRM1	.926			
	CRM2	.905	.887	.944	.847
	CRM3	.931			
Technology	TEC1	.930			
	TEC2	.904	.936	.947	.857
	TEC3	.943			

**Table 4.** Bartlett's & KMO Techniques

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.717
Bartlett's Test of Sphericity	Approx. Chi-Square	12790.053
	Df	276
	Sig.	.000

**Table 5.** Total variance explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
	Total	% of variance	Total	% of variance	Total	% of variance
1	3.080	12.832	3.080	12.832	2.601	10.838
2	2.947	12.279	2.947	12.279	2.598	10.824
3	2.814	11.725	2.814	11.725	2.597	10.820
4	2.612	10.885	2.612	10.885	2.595	10.811
5	2.511	10.463	2.511	10.463	2.593	10.805
6	2.406	10.026	2.406	10.026	2.560	10.667
7	2.277	9.488	2.277	9.488	2.560	10.665
8	1.994	8.308	1.994	8.308	2.538	10.575

Extraction Method: Principal Component Analysis.

**Table 6.** Fit-indices measures

The goodness of Fit Measures	Absolute Fit Indices			Relative Fit Indices			Non-centrality-based Indices			Parsimonious Fit Indices		
	$\chi^2/df$	Probability	GFI	NFI	IFI	TLI	CFI	RMSEA	RNI	PCFI	PDF	
Measurement Model	3.97	0.0221	0.98	0.95	0.98	0.97	0.96	0.034	0.96	0.86	0.84	
Structural Model	3.86	0.0238	0.96	0.97	0.99	0.98	0.98	0.029	0.97	0.87	0.86	
Criterion (Threshold values)	< 5.0	< 0.05	> 0.95	> 0.90	> 0.95	> 0.95	> 0.95	< 0.05	> 0.95	> 0.75	> 0.75	

Where: PCFI: Parsimonious fit-index; PNFI: Parsimony-adjusted normed fit-index;  $\chi^2/df$ : Relative chi-square; TLI: Tucker-Lewis index; NFI: Normed fixed-index; CFI: Comparative fit-index; GFI: Godness of fit-index; IFI: Incremental fixed-index; RMSEA: Root mean squared error of approximation; RNI: Relative Non-centrality index.

**Table 7.** Hypothesized direct relationship

Hypotheses	Variables	Regression Paths	Standardized Regression weights (β)	SE	T	P	Decision
H1	Economic Dimension	ED † → CBB	0.1970	0.0469	4.20	0.0000	Supported
H2	Legal Dimension	LD † → CBB	0.2912	0.0406	7.17	0.0000	Supported
H3	Ethical Dimension	ETD † → CBB	0.6241	0.0272	22.93	0.0000	Supported
H4	Philanthropic Dimension	PD † → CBB	0.3844	0.0377	10.19	0.0000	Supported

Note: † = Predictor; DV=CBB=Customers' buying behavior; ED=Economic dimension; LD=Legal dimension; ETD=Ethical dimension; PD=Philanthropic dimension.

**Table 8.** Mediation analysis

Hypotheses	Mediation	Bootstrapping Method				Normal Theory Method				
		Indirect Effect	Boot SE	Boot LLCI	Boot ULCI	Indirect Effect	SE.	Z*	Prob.**	
H5A:	ED→BL→CBB	.4425	.0344	.3750	.5115	.4425	.0376	11.77	0.0000	Supported
H5B:	LD→BL→CBB	.4322	.0330	.3661	.4952	.4322	.0363	11.91	0.0000	Supported
H5C:	ETD→BL→CBB	.1378	.0303	.0790	.1985	.1378	.0267	5.16	0.0000	Supported
H5D:	PD→BL→CBB	.3521	.0265	.3024	.4069	.3521	.0306	11.52	0.0000	Supported
H6A:	ED→CRM→CBB	.1642	.0258	.1136	.2151	.1642	.0348	4.72	0.0000	Supported
H6B:	LD→CRM→CBB	.1520	.0273	.0986	.2056	.1520	.0329	4.62	0.0000	Supported
H6C:	ETD→CRM→CBB	.1184	.0230	.0728	.1636	.1184	.0198	5.97	0.0000	Supported
H6D:	PD→CRM→CBB	.0652	.0223	.0209	.1079	.0652	.0309	2.11	0.0350	Supported

Note: DV=CBB=Customers' buying behavior; ED=Economic dimension; LD=Legal dimension; ETD=Ethical dimension; PD=Philanthropic dimension; BL=Brand Loyalty; CRM=Cause-related Marketing. \* Referred the Z>±1.96; \*\* Indicates p<0.05

**Table 9.** Moderation analysis

Hypotheses	Moderator	Moderation	Coefficient	SE	T	P*	LLCI	ULCI	
H7A:	TEC	ED x TEC	Moderating Effect of TEC b/w ED and Customers' buying behavior (CBB)	-0.2292	0.0154	-14.93	0.0000	-0.2601	-0.1996
H7B:	TEC	LD x TEC	Moderating Effect of TEC b/w LD and Customers' buying behavior (CBB)	-0.1508	0.0168	-8.97	0.0000	-0.1838	-0.1178
H7C:	TEC	ETD x TEC	Moderating Effect of TEC b/w ETD and Customers' buying behavior (CBB)	-0.0618	0.0144	-4.28	0.0000	-0.0901	-0.0334
H7D:	TEC	PD x TEC	Moderating Effect of TEC b/w PD and Customers' buying behavior (CBB)	-0.1488	0.0161	-9.24	0.0000	-0.1804	-0.1172

Where 'x' denoted for the multiplicative sign; \* Indicates rejection of Null Hypotheses at  $p < 0.05$ ; CBB=Customers' buying behavior; ED=Economic dimension; LD=Legal dimension; ETD=Ethical dimension; PD=Philanthropic dimension; TEC=Technology

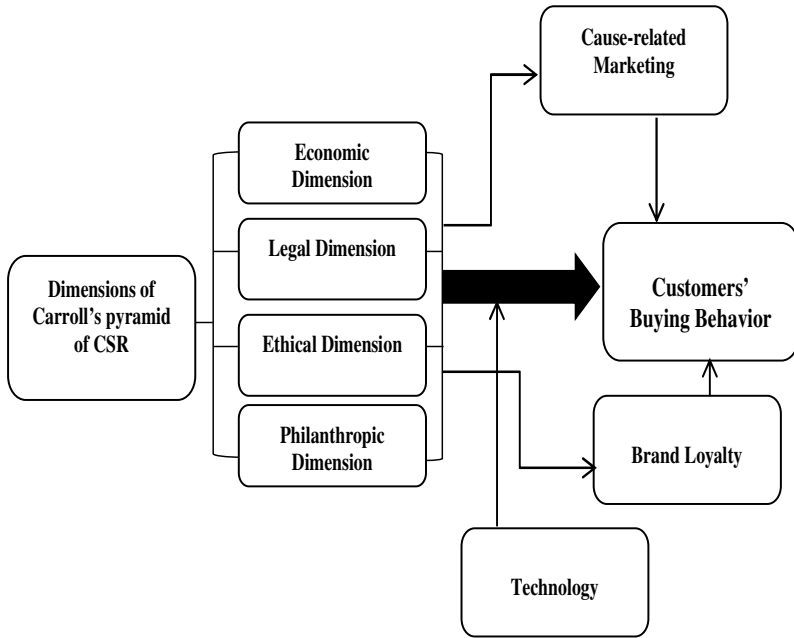
**Table 10.** Causality Analysis

S. No.	Null Hypotheses	Chi-Square	P-Value	Granger Causality
1	ED does not Granger cause on CBB CBB does Granger cause on ED	5.115 1.981	0.0478** 0.0921 *	YES YES
2	LD does not Granger cause on CBB CBB does Granger cause on LD	7.217 5.772	0.0032** 0.0311**	YES YES
3	ETD does not Granger cause on CBB CBB does Granger cause on ETD	6.234 4.989	0.0165** 0.0433**	YES YES
4	PD does not Granger cause on CBB CBB does Granger cause on PD	8.115 2.231	0.0009** 0.0952*	YES YES
5	BL does not Granger cause on CBB CBB does Granger cause on BL	5.888 1.781	0.0397** 0.3329	YES NO
6	CRM does not Granger cause on CBB CBB does Granger cause on CRM	2.367 0.852	0.0910* 0.3769	YES NO
7	TEC does not Granger cause on CBB CBB does Granger cause on TEC	5.345 0.781	0.0493** 0.3843	YES NO

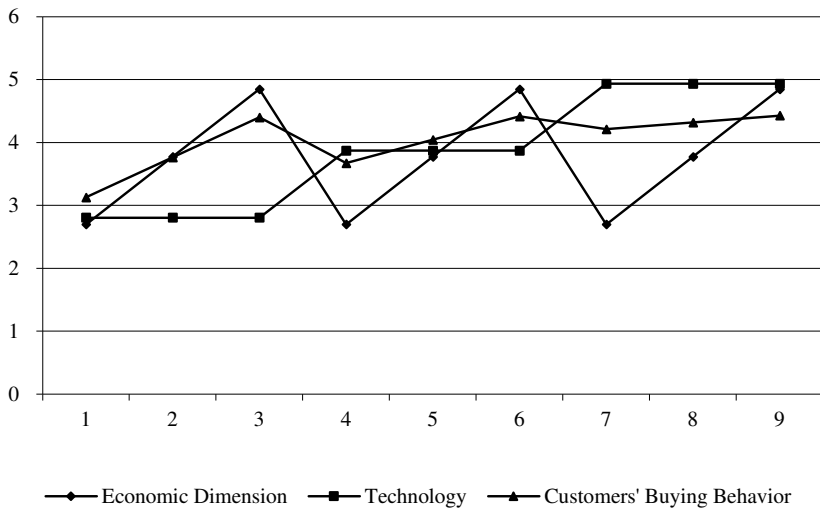
Note: CBB=Customers' buying behavior; ED=Economic dimension; LD=Legal dimension; ETD=Ethical dimension; PD=Philanthropic dimension; BL=Brand Loyalty; CRM=Cause-related Marketing; TEC=Technology

Where \*p<0.01 at 10% level of significance and \*\*p<0.05 at 5% level of significance

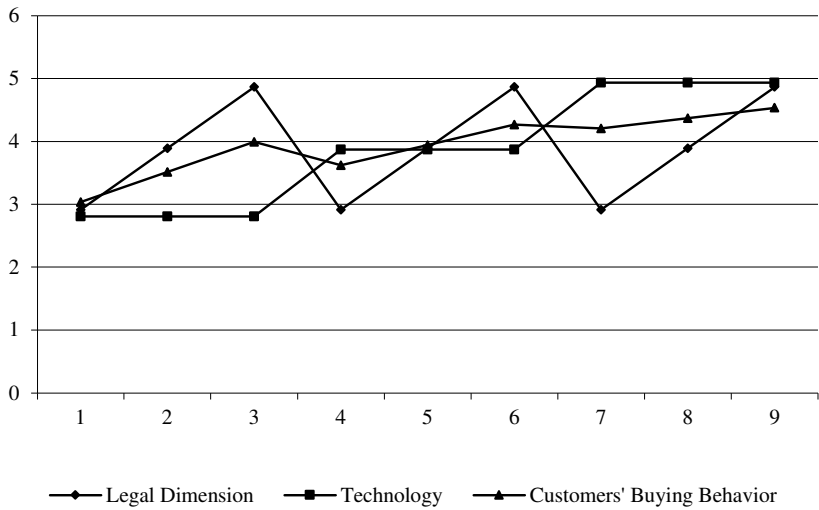
**Figure 1.** Conceptual & theoretical framework of undertaken study



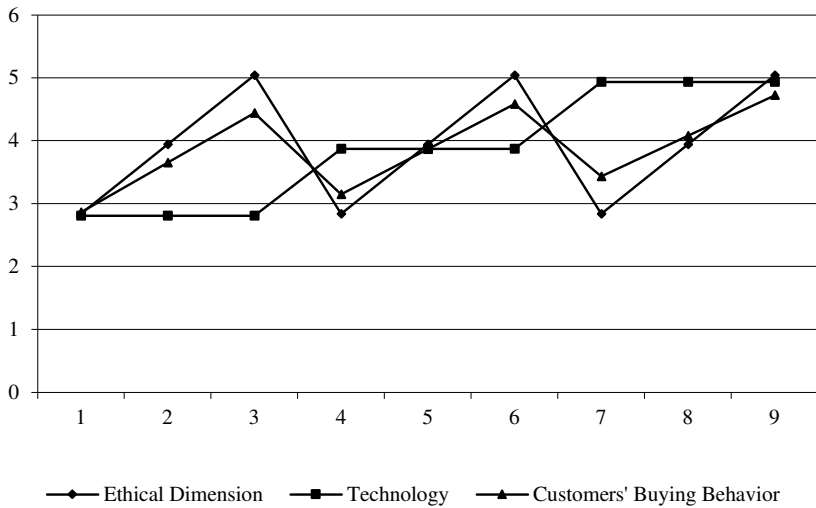
**Figure 2.** Moderation of Technology between Economic Dimension and Customers' Buying Behavior



**Figure 3.** Moderation of Technology between Legal Dimension and Customers' Buying Behavior



**Figure 4.** Moderation of Technology between Ethical Dimension and Customers' Buying Behavior





**Figure 5.** Moderation of Technology between Philanthropic Dimension and Customers' Buying Behavior

