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CONTENTS

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A Study of Slovak University Students' Experiences of a Fast Food Brand in the Context of Perceived Value, Service Quality and Customer Trust and Loyalty

Ahmet Esad YURTSEVER*

Abstract

People's perceptions of products play an important role in the process of purchasing that product or service. Some of the most important of these perceptions are the quality of the product/service, perceived value and brand experience. Therefore, the consumer's experience with the product, the brand and the perceived value directly affect the perception of the product and therefore the consumer's trust and loyalty to that brand. In this study it is aimed to examine the brand experience, perceived value, service quality and customer trust and loyalty of university students in Slovakia about the products of a fast food restaurant. The survey method was chosen to collect data in this study. The sampling method was chosen as the implementation of the survey application in all main populations creates time and cost constraints. Reliability and correlation analysis of the scales in the questionnaire obtained in the study were performed and interpreted.

Keywords: *Brand Experience, Perceived Value, Service Quality, Customer Trust and Loyalty*

1. Introduction

The concept of the consumer is a very broad concept. Searching for the definition of the consumer; It is necessary to seek answers to questions such as who are consumers, what, why, where, when, for whom, how do they use and dispose of what they buy, using many fields and disciplines from history to psychology, from anthropology to economics (Savaş & Günay, 2015, p. 50). Today, consumers are more conscious and know what they want than in the past. Before purchasing the product or service that the consumer wants to buy, they compare it with many alternatives and they are very knowledgeable about the product or service to be purchased. Consumers share their experiences about that brand, regardless of the product or service they use, the value perceived against the service quality they have seen and the loyalty towards that company vary. This also applies to food and food purchases.

The change in competition conditions, the development of technology and its reach to everyone necessitated some changes in the structures of both consumers and businesses that offer goods and services to consumers (Fettahlıoğlu 2008, p. 1). The fact that consumers have become more conscious

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individuals today has led to the diversification of goods and / or services, the differentiation of requests, needs, perceptions and expectations, and with this, companies began to look for a number of strategies in order to survive in the competitive environment while trying to meet the different demands and expectations of consumers. The fact that every loyal customer that the business can win will make frequent and regular shopping from that business, increases the importance of this issue for businesses. In order to increase their profitability and survive in this fierce competitive environment, businesses have focused only on the customer by developing strategies such as gaining loyal customers and ensuring customer satisfaction (Kotler, 1997). On top of this situation, a customer-oriented management approach has emerged in the direction of how the business can reach and retain customers with different characteristics as much as possible and how they can establish a sustainable relationship. Accepting the concepts of customer satisfaction, customer value and customer loyalty as indicators of the concept of "customer focus", which claims that it begins and ends in the mind of the customer, reveals the importance of these concepts in the service sector, where it is obligatory to consider the wishes and needs of the customers (Hoisington & Naumann, 2003).

In the context of relational marketing, the concept of "perceived value" is considered as an important element. However, the fact that companies offer superior value to their customers is seen among the most successful competitive strategies in today's marketing environment. (Ravald & Gronroos, 1996, p. 19). Today, consumers no longer evaluate products only according to their quality, but also take into account many features. One of the most important of these features is the services provided with the product. The service, which adds an additional value to the product, creates a driving force in product preference (Liljander & Strandvik, 1995).

Services are intangible products offered to consumers by businesses in order to meet customer requests, needs and expectations (Garland et al., 1994, p. 370). However, the concept of service can also be defined as the whole of economic activities that provide time, place, form and psychological benefits. Since the concepts of service and service quality do not have a common and agreed definition in the literature, alternative models have emerged in modeling and measuring service quality. Although the conceptual models of service quality are quite different from each other, they share the same view that service quality is a multidimensional abstract concept (Heskett et al., 1994). The difficulty in measuring abstract concepts such as customers' perception of service quality increases the importance of the selection of the measurement tool as well as the selection of the conceptual model (Yavuz, 2010, p. 5).

In this study, it was tried to measure the brand experience, perceived value, service quality and the level of loyalty towards an international fast food brand of students studying at a university in Slovakia. Also, it is aimed to question the perceived value, service quality and customer loyalty of consumers in Slovakia based on a fast food restaurant. It is aimed to compare the similarities and differences between the two countries by comparing the data obtained with the data to be collected from a study to be carried out on the same subject in Turkey later on. The fact that such a comparative analysis has not been conducted between these two countries before, increases the importance of the study.

In collecting the data of the research, a questionnaire was applied to the students by face-to-face interview method, and the data were collected through questionnaires. Face-to-face interview method was preferred due to the high response rate and fast feedback. Then, reliability test, correlation analysis were applied on the obtained data and the results were interpreted.

2. Conceptual framework

2.1. Brand Experience

Brand can be defined as a name, concept, symbol, word, design, sign, shape, color or a combination of these, which are used to define, promote and differentiate the goods and services of a manufacturer or a group of sellers from those of competitors (Özer, 2008, p. 15). Experience is defined as the image of a high degree of familiarity achieved through some type of exposure related to a particular subject (Braunsberger & Munch, 1998). For example, we can evaluate a consumer who has researched, made a decision and / or used the product for a product as an experienced consumer (Ha & Perks, 2005, s. 440). According to Padgett and Allen (1997) consumer experience; It is a symbolic meaning combination of associative behaviors, feelings and thoughts that occur during service / product consumption. The brand experience of consumers expresses the knowledge and familiarity level of consumers in the brand or brand category (Alba & Hutchinson, 1987, p. 411).

According to Alloza (2008), brand experience can be defined as the perception of whether the quality level of the customers' first contact with the product or their personal experience with the brand is the same as the brand image displayed in the advertisements. Brand experience was formed by the use of the brand by the customer, by talking with others about the brand, and by researching the brand, events and promotions (Ambler et al., 2002, p. 18). Experience with the brand is more effective than the features and benefits of the product. The brand experience can have a deeper impact on the customer and, moreover, it can give the consumer an unforgettable brand confidence. It is suggested that as consumers' brand experience increases, their ability to categorize products according to their characteristics increases (Murphy & Smith, 1982).

Brand experience is considered a strategic approach because it increases people's productivity and therefore is very important in terms of brand loyalty. Brand experience can be thought of as a synthesis of business, marketing, design and technology. The easiest way to achieve uniqueness is through creating a good brand experience (Göker, 2011, p. 41). Consumers feel the brand experience when they are exposed to any of the marketing communication tools such as advertisements on television, brochures, advertisements and web pages (Brakus, et al., 2009, p. 53). Nikhashemi, et al. (2019) in their study, they revealed how important the role of retailers is on consumers buying more products, willingness to pay more, word of mouth communication, loyalty to the brand and moreover, loving the brand.

Consumers do not only buy the product and its features, but rather buy the product's name, logo, package, shape, packaging, and even the environment in which it is displayed. The visual identity of the brand reveals the look and feel of that experience. If a brand wants to have a good experience for the consumers, it should reveal the visuality of the product as much as possible (Başer, 2011, p. 67). In short, all events such as participating in any event of a brand, seeing its advertisements, visiting its web pages, hearing its logo or name from our surroundings, receiving positive or negative opinions about the brand from a friend or relative who uses that brand, and experience with that brand results (Kara, 2015, s. 28). Mukerjee (2018), in his study, examined the effect of brand experience, service quality and perceived value on word-of-mouth communication of retail bank customers by investigating the mediating effect of loyalty. In another study, Wiedmann et al., (2018), in their study to measure the power of experiential marketing, they investigated the causal relationships between brand experience and perceived value. In another study on brand experience and service quality, Prentice et al., (2019), examined the effect of brand experience and service quality on customer engagement. The hypothesis based on these studies is as follows:

H1: There is a significant relationship between perceived value and brand experience in the context of Slovak students' experiences of X fast food restaurant.

H2: There is a significant relationship between service quality and brand experience in the context of Slovak students' experiences of X fast food restaurant.

2.2. Perceived Value

Many studies have shown that the quality of a product or service is not sufficient to lead to behavioral consequences such as direct purchase (Sweeney and Soutar, 2001; Caruana, et al. 2000). Rather, quality indirectly influences behavioral outcomes through a perception of value that mediates the relationship between consumer and seller (Gurski, 2014). Perceived value includes evaluations customers make about their quality relative to the price they pay for products or services after purchase. In this context, consumers evaluate whether the product they buy is worth the money and time they spend and compare the benefits of the product with its costs (Zeithaml, 1988). In another definition, perceived value is the utility value that occurs as a result of the personal perception of the business and consumers (Woodall, 2003, p. 21).

The perceived value is based on four components. These components can be listed as follows (Varon, 2008, p. 148):

- Benefits provided,
- The real performance of these benefits provided by the enterprise and its competitors,
- These benefits provided by the business and its competitors are perceived performances,
- For customers, it is the relative importance of each of these benefits.

The concept of perceived value suggests that consumers' evaluations against a particular product, service or brand are multidimensional and the contribution of these dimensions to perceived value may be independent from each other and at different levels (Tümen, 2011, p. 25). Sheth et al. (1991) have determined that their effects on perceived value are at different levels by examining the dimensions of quality and price separately. In this way, the perceived value dimensions are shaped as follows:

- Quality value
- Monetary value

- Social value
- Emotional value

According to the theory of consumption values, any or all of the perceived value dimensions can affect the perceived value of consumers. All of these dimensions do not necessarily have a role when determining consumer perceptions of a particular product, service or brand. In some cases only one dimension may be effective, in other cases two, three dimensions or all dimensions may be effective.

It may be helpful to clarify and understand the concepts of perceived value and customer value by specifying some relevant features of these concepts in order to understand the concepts of perceived value or customer value more clearly. These features can be summarized as follows (Uzkurt, 2007, p. 29);

- Customer value is the value perceived by the customer.
- Customer value is the perception of total benefits and total costs by the customer proportionally.
- Minimizing costs plays an important role in the creation of customer value as well as increasing benefits.
- The customer's perception of value is relative.

Kuo et al. (2009), in their study, they examined the relationships between service quality, perceived value, customer satisfaction and post purchase intention in mobile value-added services. The three variables used in the study were also used in this study and the relationship between them was tried to be determined. Tam (2010), in his work that creates an integrative model, considers the concepts of perceived value and service quality together. Ishaq (2012), in his empirical study in Pakistan, worked together on the concepts of perceived value, service quality, corporate image and customer loyalty. In her study, Rambitan (2013), examined the effect of perceived value and brand experience on customer purchase intention. Roig (2009), et al. in their study, they examined the perceived value and customer loyalty in financial services together. Also, Dlacic, et al. (2014), in their study investigating the relationship between perceived value and perceived service quality, and its effect on purchase intention, found that there was a significant and positive relationship between both perceived value and service quality and on purchase intention. The hypotheses created in this direction are as follows:

H3: There is a significant relationship between perceived value and service quality in the context of Slovak students' experiences of X fast food restaurant.

H4: There is a significant relationship between perceived value and customer loyalty in the context of Slovak students' experiences of X fast food restaurant.

2.3. Service Quality

Since service is an abstract concept, it is difficult to define the concept of service quality with a single sentence. Therefore, the concept of service quality has been interpreted in different ways by many researchers. If a few examples of comments are shown; Zeithaml (1988), service quality; consumer evaluations of a product's overall perfection and superiority and comparison of product performance with ideal standards, Parasuraman et al. (1988), the difference between consumers' expectations and the yield, performance perceptions of the product, Yu and Fang (2009) the level of meeting the needs of consumers, Cronin and Taylor (1992), defined it as the perception of performance.

Service quality is the feeling formed by what the customer obtains from the service purchased after making the purchase and expresses the level of satisfaction with the service he/she receives. Therefore, the concept of service quality; The features required to be in service in line with the needs and expectations of the customer can be expressed as the level of the service having these necessary features and qualifications (Esin, 2002, p. 24). According to the Stimulus-Organism-Response model, which is frequently used to examine the effects of the service environment on the behaviors of the customer, stimulants in the service environment affect the customers' feelings of satisfaction, domination and vitality in both ways and as a result, the affected emotions are rapprochement (spending more time in the store, taking a closer look at products/services and communicating with other customers) or divergence (not spending too much time in the environment and not responding to communication efforts) (Çelik, 2009, p. 165).

The more successful the service quality is made and felt to the consumer, the more and more efficient the benefit that the company will provide as a return from this situation will be. Since the concept of service quality can be associated with many issues, the importance of this issue is also great. If we need to explain the benefits of service quality to the business one by one (Ghobadian et al. 1994; Tekeli, 2001; Öztürk, 2002; Grönroos, 1984);

- It helps potential customers in the market to choose to operate,
- It contributes positively to the image of the enterprise,
- Provides continuity of customers by helping to establish a bond with newly acquired customers,
- Provides competitive advantage.

The ability to easily imitate the new products or production processes developed, as well as the convenience of the current technological age in price comparison, thanks to elements such as various social networks and television radio, has brought the quality of service as a tool of non-price competition in the process of creating long-term differentiation (Ueltschy et al., 2007). Wong and Sohal (2003), examined the perspectives of service quality and customer loyalty at two levels of retail relationships. In his study, Wu (2006), focused on the concepts of service quality, customer satisfaction and customer loyalty in the e-retailing. Kheng et al. (2010), examined the impact of service quality on customer loyalty in a study of banks in Malaysia. Caruana, (2002), also tried to determine the effect of service quality and the mediating role of customer satisfaction in his study to measure service loyalty. Accordingly, the following hypothesis was formed:

H5: There is a significant relationship between service quality and customer loyalty in the context of Slovak students' experiences of X fast food restaurant.

2.4. Customer Trust and Loyalty

Customer loyalty is thought to be an important source of long-term business success (Yeniçeri & Erten, 2008, p. 235). The definition of loyalty, which has been expressed over time and most commonly agreed upon, is expressed as a deeply felt commitment to re-purchase a product or service that will be preferred in the future (Tuu et al., 2011, p. 364). The common mix of recent behavior and purchase intention is also used to evaluate the global and total loyalty measure (Nijssen et al., 2003, p. 49). Trust is also a very important factor in consumer loyalty. Baki's work proves this. In his study on online hotel booking, he found that consumers' trust has a positive effect on their loyalty to that brand (Baki, 2020, p. 106).

Customer loyalty positively influences repeat purchasing behavior. In addition, it emerges as a concept that guides businesses to sell at less cost, to the willingness of customers to recommend products or services, and to commitment to the enterprise, thus indicating that they can gain a competitive advantage against competitors (Aksoy, 2014, p. 68). Therefore, it is thought that customer loyalty is a feature that is based on the customers' past experiences and has a say in their future preferences and prevents the customer from turning to alternative, rival businesses (Çatı & Koçoğlu, 2008, p. 171).

Customer loyalty has become a much more important concept for businesses today than it was in the past. This is because, rather than loyalty being a new concept, today's customers whose loyalty is desired is very difficult to win and very easy to lose. However, it is not enough for businesses to want to gain customer loyalty, it is a must that they make an effort to gain customer loyalty and act towards customer loyalty. Because nowadays, customers should not comply with the business, but on the contrary, businesses have to comply with customers (Bayuk & Küçük, 2007, p. 286-287). The degree of customer loyalty to the brand and the business may differ when purchasing a product. A customer's loyalty to the company or brand is not a phenomenon that can occur overnight. Customer loyalty is a process. Each customer may be in different stages of this process (Çatı & Koçoğlu, 2008, p. 170).

The importance of the relationship between customer satisfaction and customer loyalty stems from the fact that customer satisfaction is seen as a determining factor that leads to loyalty, and satisfaction is used as one of the main criteria used to measure loyalty, in determining the level of loyalty of customers (Bayuk & Küçük, 2007, p. 287). In this relationship, it has been found that the mere satisfaction of the customers and their full satisfaction affect the level of loyalty differently, and a high level of customer satisfaction further helps to develop long-term loyalty. Accordingly, the full satisfaction of customers has a major impact on achieving customer loyalty and uncovering higher, long-term financial performance (Jones & Sasser, 1995, p. 89). Ong et al. (2018), in their study, they examined the effect of brand experience on loyalty. In this study, it was also planned to examine the relationship between the two variables. Also Dachyar and Hananto (2014), studied the factors of service quality and customer loyalty in their study using structural equation modeling. In another study using structural equation modeling, Yieh et al. (2007), tried to identify the antecedents of customer loyalty. Accordingly, the following hypothesis was formed:

H6: There is a significant relationship between customer loyalty and brand experience in the context of Slovak students' experiences of X fast food restaurant.

3. Method

The main mass of the study is bachelor, master and doctoral students at Comenius University in Slovakia. This is because the author completed his master's education here for a semester. The sampling method was chosen as the implementation of the survey application in all main populations creates time and cost constraints. It is thought that university students, who generally spend their lives away from their families and considered to have food as one of their biggest problems, will prefer fast food style foods because it is much simpler, effortless and easily accessible, and will have more information on this issue than people in other market segments, and was chosen as a sample. Another reason for choosing university students is that the perceptions and values of other university students are also influenced by similar mass media. For example, similar features and communication among younger generations are increasing through the Internet (Park & Rabolt, 2009, p. 714).

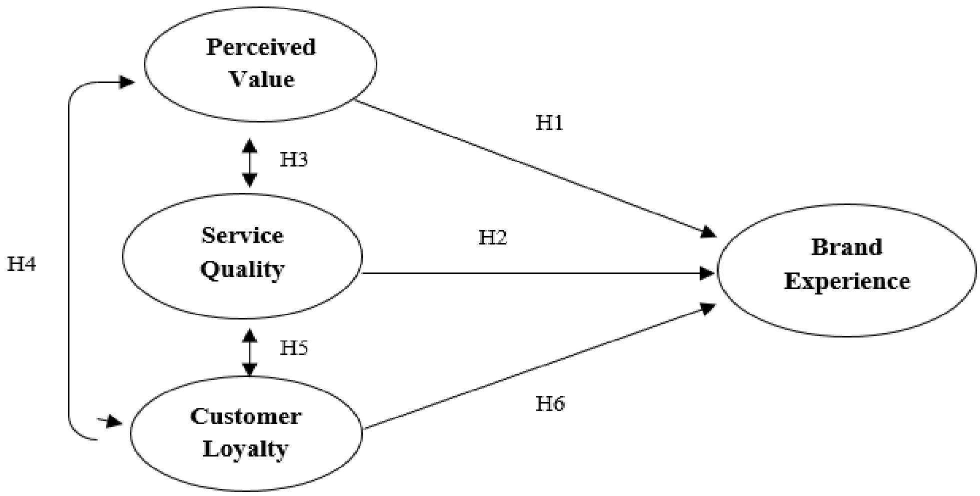
The answers to the questions used in the survey of the research were arranged in the form of a five-point Likert scale. In this section, statements about measuring the brand experience, service quality, customer loyalty and perceived values of consumers for the products and services of the fast food brand that are the subject of the research are included. For brand experience variable, Brakus et al., (2009) scale, for service quality variable, Parasuraman et al., (1988) scale, for customer loyalty variable, Morgan & Hunt, (1994) and Walsh & Beatty, (2007), for the perceived value variable, Sweeney and Soutar (2001), Parasuraman, Zeithaml and Malhotra, (2005), Lee et al., (2007) scale were used.

In the lower part of the survey, questions were asked to the participants to determine their four demographic characteristics: gender, age, income level as a student and the last degree they graduated from. In order to be objective, the people selected in the study were randomly selected in university campuses and dormitories instead of consumers who generally prefer to go to a fast food shop for food and were determined by easy sampling. In the implementation of the study, a questionnaire was applied with the students through face-to-face interview method, and the data were collected through questionnaires. It is known that face-to-face interview method is more advantageous than other methods due to the high response rate and rapid feedback. While determining the number of questionnaires to be conducted, as a result of the literature review, Cohen, et al., (2000) and Çıngı (1994), based on the estimated sample size as given in their sources, and according to the table data with a deviation of 5%, the sample size suitable for this study was determined as 357.

Assuming that there will be incomplete or incorrectly filled questionnaires due to various reasons, 428 questionnaires, more than the minimum sample number (357), were completed by university students. 22 questionnaires, which were incomplete or incorrectly filled, were excluded from the sample, data were obtained from the remaining 406 questionnaires and analyzes were carried out. Reliability and correlation analysis of the scales in the questionnaire obtained in the study were performed and interpreted.

In the study, it was aimed to measure the variables of brand experience, perceived value, service quality, customer loyalty of university students about an international fast food brand and its products through the surveys applied in Slovakia. The proposed model for the study is shown as follows.

Figure 1. Model of the Study



4. Results

The demographic information of a total of 406 consumers participating by filling out the questionnaire with university students from Slovakia is shown in Table 1:

Table 1: Demographic Analysis Results

Demographic Features	Frequency	%
Gender		
Famele	242	59,6
Male	164	40,4
Age		
18-20	105	25,8
21-25	272	67,1
26+	29	7
Income		
500 € and below	295	72,7
501-1000 €	71	17,5
1001-1500 €	26	6,4
1501-1999 €	9	2,2
2000 € and above	5	1,2
Graduation Degree		
High School	290	71,4
Bachelor	85	20,9
Master	28	6,9
Phd	3	0,7

The demographic characteristics of the students participating in the application, given in Table 1 are as follows;

It is seen that the proportion of female participants is 59.6% and that of male participants is 40.4%, and it is reflected in the table that the female population is slightly higher than the male population. Age groups are divided into three groups as 18-20, 21-25 and 26 and above. The percentage of the 18-20 age group is 25.8%, the rate of the 21-25 age range is 67.1%, and finally, the percentage of the age group 26 and over is 7%. As can be seen in Table 1, the participants are mainly included in the age group between the ages of 21-25. Since the participants are students, their income levels are as high as 72.7% and 500 € and below. The rate of those with an income of € 500 1000 is 17.5%, the rate of those with an income of € 1001-1500 is 6.4%, the rate of those with an income of € 1501-2000 is 2.2%, and the rate of those with an income of € 2000 and above is 1.2%. Graduation status of the participants was high school with 71.4%, as the application was applied to university students and most of them were faculty students. Participants with a bachelor's degree are 20.9%, graduate participants are 6.9%, and finally, the rate of doctorate graduates is 0.7.

When the individual reliability analyzes of the scales applied in the study are made, the data related to the results are shown in Table 2:

Table 2: Reliability Analysis Results

SCALES	Cronbach's Alpha
Brand Experience	**0,60**
Perceived Value	**0,82**
Service Quality	**0,75**
Customer Trust and Loyalty	**0,80**

Considering the results of the reliability analysis given in Table 2, the Cronbach Alpha coefficient value of the brand experience variable is 0.60. This value shows that the reliability level of the variable is medium. There are a total of four statements in the brand experience variable, but one of the statements has been omitted for a higher reliability rate. The Cronbach Alpha coefficient of the service quality variable is 0.751. This value shows that the reliability level of the variable is at a strong level. There are a total of fifteen statements in the service quality variable, but two statements were omitted to obtain a higher level of reliability. Cronbach's alpha coefficients of perceived value and customer loyalty and trust variables are 0.829 and 0.805, respectively. These values show that the reliability levels in both variables are at a high level, that is, reliable. There are twelve and eight statements in perceived value and customer loyalty variables, respectively, and none of them were omitted.

The data regarding the results of the correlation analysis between the variables used in the application are given in Table 3.

Table 3: Correlation Analysis Between Variables

Variables	Brand Experience	Perceived Value	Service Quality	Customer Trust and Loyalty
Brand Experience	1	0,400(**)	0,120(*)	0,405(**)
Perceived Value	0,400(**)	1	0,219(**)	0,761(**)
Service Quality	0,120(*)	0,219(**)	1	0,316(**)
Customer Trust and Loyalty	0,405(**)	0,761(**)	0,316(**)	1

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

According to the data in Table 3, where the relationship between the variables in practice is examined, a positive relationship ($p = 0.120$, at the 0.05 level) was found between brand experience and service quality. On the other hand, considering the relationship between other variables, a positive relationship at the 0.01 level was found between all variables. When looking at the table, a high level of significance ($p = 0.761$) stands out especially among the variables of perceived value and customer loyalty. This result shows how important the level of value that consumers perceive and feel towards a firm's products is important in increasing their loyalty and loyalty to that brand, thus increasing their repurchase and profitability of the company.

In line with the data obtained from the study, it was determined that all six hypotheses suggested above were realized and all of them had significant relationships. Considering the results obtained, especially the high level of relationship between perceived value and customer loyalty showed how important it is for customers' perceptions of the brand to be in line with their trust in that brand. As a result of these analyzes, the importance of the perception created by a company against its brand and how this greatly affects customer acquisition and, naturally, profitability has emerged.

5. Recommendations and Conclusion

Nowadays, companies have to take action according to the wishes of the consumers, not their own wishes. Companies have to do this in order to gain more customer and stay competitive. This situation provides the consumers with different alternatives while making their choices, making it easier to evaluate the alternatives, to search and make a choice to reach all kinds of information about the required product or service. Today, with the development of technology, various social media and communication tools, consumer awareness about products and services and the level of consumer information about these products and services have increased considerably. Therefore, marketers should closely monitor differences in purchasing behavior of consumers and shape their marketing strategies accordingly. Many factors can affect the consumer's choice about the product and/or service. Product quality, brand awareness, perceived value, service quality etc. Factors such as can affect both the purchasing behavior of the consumer and the interest and perception of the product.

In this study, analyzes were made on the brand experience, perceived value, service quality and customer loyalty of university students studying in Slovakia about the products of an international fast food company. All of the results were found to be positive and meaningful, and a positive relationship was found between all variables. However, the high-level relationship between perceived value and customer loyalty stands out first. This situation shows once again how important the loyalty of the customers and the brand perception they create are in terms of attracting and retaining customers and thus maintaining the profitability, which is very valuable in competition.

The fact that the loyalty of the customer is affected positively or negatively according to the perceived value of the brand is an issue that businesses should focus on sensitively. Under the guidance of the data obtained from the study, the image of a brand in the eyes of consumers is perhaps the most important factor. As a result of the research, brand experience, which is the second highest value after the highest ratio between customer loyalty and perceived value, is a proof of this. The more positive a customer's experience with a brand is, the more loyal they will be to that brand, and they will shop from that brand more often and say positive things about that brand to those around him. Thus, in today's marketing world where acquiring new customers is very costly and troublesome, loyal customers will increase the profitability of the business.

This study with Slovak students is a very unique study as it may be done with students studying in Turkey later and the data obtained from the two studies can be compared. In addition, this study on fast food has once again revealed how effective the service quality, brand experience and perception of businesses in the service and food sector are on concepts such as customers' brand loyalty and perceived value. Thus, it is expected that the study may contribute to literature.

Due to the constraints such as time and cost, university students were selected as the population of the study and the application was carried out with a sample size that can represent the universe. For this reason, the generalizability of the data obtained as a result of the study appears as a constraint in terms of obtaining a definite judgment. However, the fact that future studies can be performed with a larger random sample size by selecting a larger population will allow generalization. On the other hand, the products of a fast food restaurant chain were examined in this study. However, newer and more advanced studies can be done with the help of this study in industrial products, convenience goods, likable goods and services.

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The Effect of Marketing Expenses and Social Media on Financial Performance: The Case of Nigeria*

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Abstract

Marketing and social media have an increasing impact on the sustainability and performance of financial institutions. Marketing expenditures, which are among the quantitative factors, and social media, which is a qualitative factor, affect the performance and profitability of financial institutions. In this context, it is extremely important to examine the relationship between marketing, social media, and corporate performance in financial institutions. In this scientific research, a model was created and tested by considering the number of social media followers of financial institutions, the number of marketing expenditures, and the variables of gross earnings and profit after tax. Regression method and correlation analysis were used to examine the relationships between the variables. The results of the analysis including regression, Kendall and Spearman show that there is a significant correlation between the number of users following the social media accounts of financial institutions and the gross earnings. Both the number of social media followers and the number of marketing expenditures positively affect the after-tax profit of financial institutions.

Keywords: *Social Media, Marketing Expense, Gross Earnings, Financial Institute, Profit After Taxation*

1. Introduction

Technological advancements, growing marketing environment competitions, globalization, economic changes, vigorous customer purchasing behaviour and dynamic environment has evolved a proportional change to the way wherein corporations speak with current and expected clients (Njeri 2014). Social media marketing activities has prompted gigantic change in correspondence and the effectual human connections brought on another point of view. Social media have furnished clients with platforms to frame such an ancestral local area, around an item or brand. In any case, groups that embrace online media as a technique, ought to well known that they are losing an aspect of managing the shoppers. For some corporations these days web-based media is their largest internet presence, surpassing their organization' web sites and electronic mail programs (Mangold & Faulds, 2009). Online media has altered how associations interface and talk with their clients similarly

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as how they develop and realize devotee association inclusion. As indicated by (Tirunillai & Tellis, 2012), business developer and monetary specialists known that social media is the quality means in which customers survey and blog precise products or services and brand specific information contrasted and other mainstream sorts of commercial. Unique with regards to normal on-line buyer conduct measurements, social media activities are included by means of capacity to provide, offer, and unfold statistics across globally, which causes social infectious effect to an exceptional quantity, driving first-rate swiftness info dispersion through internet. This study takes a look to examine whether social media has a massive prescient correlation to corporate overall performance of monetary establishments within Nigeria. In serious market place, innovation can empower financial institutions to act greater proficiently, react more effectively to marketplace styles and to be advanced. This capacity includes an installment framework with a method of trade; movement of resources, the gathering of reserve budget for the motivations at the back of unadulterated time trade and the lower of risks through insurance protection and diversification.

Web-based media promoting is portrayed by utilizing Elena (2016) as an instrument that grants correspondence between individuals, partnerships and different social events from one side of the world to the other to share and instinctively exchanges realities and thoughts to get clients for association and exchange with different organizations. Online media systems and promoting structures i.e LinkedIn, Blog, Instagram, Twitter, and Facebook have offered clients the chance to notice their online projects, plans, reviews, recommendations and assented or differ with respect to various exercises and client administrations. With the probabilities introduced, online media publicizing and showcasing apparently impacts how associations speak with their merchants and clients, eventually the traditional promoting might not have each any such added substances of aiding the clients' necessities and requirements (Kumar et.al 2018). Firm execution has constantly pulled in researchers and experts' consideration, specifically in leadership and management areas. It is considered as strategies via the improvement and productiveness of the company are completed (Gavrea & Stegerean 2011). In the current business organizations, execution can't be not noted on account that it is the benchmark on which the associations measure their level of profundity in correlation with their rivals (Olusanya et.al 2012).

According to Umoh and Sylva (2016), whichever association neglects to accomplish an undeniable degree of performance have the probability of "being simple ephemeral in the event that they don't grow their services performance as they work in a confounding and tempestuous business climate portrayed by firm rivalry, fluctuating interest for services, and increasing expense of procurement of gainful assets". Also (Gavrea & Stegerean, 2011), guarantee that unending improvement in execution is the overall objective of organizations since it is through advancement in execution that the office can extend, achieve advantage and develop their business backwoods. Online media is an imperative factor in the satisfaction of twenty first century venture organizations, as shown through (Culnan et al., 2010), online media can improve performance of organization through developing a computer based client circles which can energize produce imprinting, better prominent offers, improved purchaser experience, and result in new offerings improvement. As indicated through Lam et.al (2016), establishments' social media marketing activities may also accelerate data dispersal and data obtaining and circulation within the businesses organization; also it improve the relationship with clients, vendors, and different outer coordinated efforts.

In sub-Saharan Africa behind South Africa, Nigeria's financial area is the second-biggest with N39.6-trillion (naira) in resources as at August 2019. Newly banks are emerging through foreign investors and mergers and acquisition in Nigerian which develop the capital levels after a drop in oil costs set off an unfamiliar cash lack, and a downturn in 2016 made it hard for organizations to reimburse credits. According to financial analysts numerous bank were responsible by loaning to the oil area while the costs of oil were increasing. After the droop, oil costs have recuperated and with an increase in banks credit loan to this area which leads to an increased unemployment, stifled financial development and weakness in oil costs gives reasons for concerns. Corporate management is seen as probably the greatest test looked by Nigerian financial institutions and monetary bungle or wrongdoing by leader of the board has hampered their exhibition and supportability. No unfamiliar financial institutions ought to arrive the area over the recent 10 years. National financial guidelines specify the total speculation of unfamiliar financial institutions in any of the main ten neighborhood banks should not be over ten percent of their capital. Banks like Great Britain's and Swiss banks in 2018 left Nigeria.

This study of financial industry in Nigeria covers all financial establishments which incorporate banks, other credit conceding, lease financing, and reliability and compensation projects, likewise the central banking. In this research, an analysis consisting of 13 institutions obtained from the main mass that constitutes the finance industry was carried out by using linear regression, Kendall and Spearman correlation analyses. In the light of the data obtained as a result of the analysis, the relationship between social media, marketing, and corporate performance is highlighted.

2. Theorical Framework and Questions

2.1. Research Problem

Chi (2011), portrays web-based media correspondence as a relationship among brands and customers, that offers an individual channel and cash for customer centered frameworks organizations. This is especially substantial for partnerships attempting to procure prevalence. Kaplan and Haenlein (2010), describes online media as a get-together of Web applications that structure concerning the philosophical and imaginative foundations of Web, and which grant the creation and exchange of customer produced content.

Web-based media is viewed as a wide term that portrays programming gadgets which make customer created substance to be adaptable. Subsequently, numerous features are vital for a site to be fully ready to be called a social networking web site; the website should incorporate patron profiles, content, strategies that allows customers to assistant with one another and post input on one another's pages and be important for advanced social affairs relying upon basic needs like style or administrative issues (Cox, 2010). While the articulation informal communication sites' is consistently used equally with web-based media, online media is different considering the way that it permits members to join, by creating individual measurements profiles and appealing accomplices and partners to see those profiles (Kaplan & Haenlein, 2010). Thus, online media is the environment wherein person to person communication happens and control the path through which clients collect data and settle on shopping decisions. As indicated by Kotler and Armstrong (2011), social media encourages customer service roles, such as answering to the customer's needs, given information like financial records, and other requests just as managing consumer grumblings. It permits organizations to relate with clients in a more profound and more significant manners. As opposed to depending on single direction, broad communications messages only, social media considers more intuitive approaches that form focused on two-way client connections.

The earlier decade saw headway of perplexing, various, and expanded interchanges among organizations and their clients by means of online media utilization. According to one perspective, organizations are misusing online media stages to stretch out their expansive band to shopper (Gao et al. 2018), support checking of brand (Naylor et al. 2012), and associations with customers (Rapp et al. 2013). Additionally, clients are consistently empowered through online media and expecting commitment for the advancement of correspondence collaboration, and they're beginning to be producers, partners, and intellectuals of correspondence (Hamilton et al., 2016). According to Lamberton and Stephen (2016), emergence of social media has gradually developed from a solitary promoting means to that of an advertising insight activity (wherein companies can be alerted, dissect, and count on consumer practices), it has gotten gradually fundamental for advertisers to deliberately make use of and use social media to perform superiority over competition and effective performance. Despite some comprehension among advertisers of the need to attract the consideration of customers by means of on-line media frameworks, a few firms have precisely deal with their net-based media look and intrigue (Choi & Thoeni 2016). In any case, for most organizations, the advancing undertaking isn't to start online media advert, however, to pursue web-based media with their promoting technique to attract customers to unite enormous and protracted take foundations with them (Lamberton & Stephen 2016).

Online media is an extraordinary channel for monetary foundations. It's anything but an impetus for marking, advancing, publicizing, corporate interchanges, overhauling and grievance's objective. Moreover, it can lead associations to a wide extent of perils including reputational and brand danger. Negative online media talk can achieve loss of trust and wages; anyway, it can in like manner convey more certified sorts of risk. Numerous associations would now be able to distribute monetary data above online platform, it's important to own strong cycles set up to guarantee against unapproved dissemination and to counter the fake arrival of bogus data, which could influence market costs. Firms growing their online media exercises to make the most of the new chances to interface with clients and a more extensive organization, should know about the dangers, and adopt a proactive strategy to social media hazard management. A few examinations have shown that financial institutions' utilization of social media can prompt incredible points of interest, for example, fortifying relationship with clients and making cognizance. Moreover, there are still challenges that decay the actuation to accept online media as a promoting plan. Fisher (2009), McCann and Barlow (2015), all agree that the critical test is the shortfall of all around made key execution markers to check the effects of the activities.

This paper, focus to decide how and in what manner marketing and social media affect financial performance of financial institutes via the use of a multi-disciplinary approach. For this purpose, examines are achieved through financial institutes that are enterprise in Nigeria. With this major motive, the aims of the studies are as follows:

- To determine the degree at which financial organizations in Nigeria use social media to improve their corporate overall financial performance.
- To examine the degree at which massive financial institutes in Nigeria adopt social media in their marketing campaigns and the way to improve gross income, and profit after tax.
- To actualize management's belief of the position of social media to handle the financial corporation's general performance and brand building campaign.
- To also present a model of awareness of interaction among social media activities and corporate's financial performance of the financial institutes.

Based on the accompanying targets, the exploration questions are as per the following:

- Are the corporate performance indicators affected by the social media marketing?
- What are the impacts of marketing activities on financial values of the financial institutions?
- How as the social media and marketing activities affect corporate performance?
- Is there a positive significant influence of marketing expenses on gross earnings of financial institutions in Nigeria?
- Is there positive significant influence of marketing expenses on profit of financial institutions in Nigeria.
- Are the administrative expenses of financial institution in Nigeria is positively associated with marketing expenses?

2.2 Interaction Among Social Media, Marketing and Financial Performance

Over of years, the feasible techniques of communication between humans have increased and replace the traditional methods; i.e. is the social media systems that are considered to occupy most individuals and companies mind given both parties the chance to interact with each other and share viable information, ideas and criticisms (Daowd, 2016). this bring about a better relationship between organization and their customer and which then turns to increase the company's revenue and reduce its expenditure (Baird & Parasnis 2011). Furthermore, social media has become a dueling marketing place where various industries are able to give more values to their customers; most especially the financial institution (Dănăiață et al., 2014). Despite the favorable and fruitful environment provided by the social media networks, past research on financial organizations as shown that social media marketing effects on overall performance is not appealing (Lovejoy & Saxton, 2012; Franco et al., 2016).

Theories were introduced to further explain the concept of social media marketing strategy within several industries. Social media companies were developed around several views of consistent interactions with potential customer i.e. social network concept, marketing concept and implicit character concept. Social media showcasing is some other detectable authenticity of traditional advertising which allows marketer to expand their communication by way of a good relationship with their customers. Ryan, (2014), sees social media advertising as collaboration between marketer and consumers through a platform. Moreover it relates to the utilization of new generation innovation using marketing devices to improve communication and relationship with customers. It is outstanding that social media advertising has new developed digitalized factor to authorize simple correspondence to consumers, simply enabling good interaction and marketing means. Social media marketing systems make use of internet communication channels i.e. Twitter, Blogs, facebook, mobile-phones, etc. To acquire customers loyalty (Nwokah & Aeenee 2017).

Social media advertising is actualized with the availability of the internet and social networking interaction platforms that give people the chance to share some essential information, gain social connection and to also communicate with other bodies to offer services. Also improves the value and benefit of an organization and encourages consumer's satisfaction and loyalty (Chaffey & Smith, 2013; Charlesworth, 2014). Presently, social media incorporates sophisticated digitalized tool which makes marketing communication so easy. Bax et al., (2013) specify that, numerous companies have made social media essential to their advertising and marketing activities. Social media apparatuses are used by corporations to perform marketing goals, convey new service and offers by constructing client commitment and support.

Social media marketing have some advantages; it helps the marketer to know the way at which their potential consumers think and gain satisfaction (Kanovska & Tomaskova, 2012), it brings new customers in and also maintain the old ones via satisfaction, viability of social media advertising is largely controlled by using correspondence event and correspondence content and also, reduces the job description of marketing agencies and bodies in other to give companies the opportunity to interact directly with consumers.

In the light of introducing social media and combining some traditional strategies and the passion of marketing services is fundamentally by compelling advance practices in the mild of technological advancement of social media, noticeably media plans, and protecting firm on a customer who has isolated idea. Further, social media advertising explicitly offers tremendous possible benefits, via more essential versatility and precision, but this might lead to business challenges (Batra & Keller 2016). Social media marketing builds consumer satisfaction, loyalty, offers business awareness information, and produces / grandstands leads.

Social media marketing platform is a profoundly unique area with new accentuation and viewpoints springing up, in particular in keeping with the position marketers play in making vital changes (Fox & Kotler, 2000). Social media advertising concept is massive and complicated part of company strategies, because of a restricted characteristics of social media marketing contrasted with different marketing attempts. Social media advertising was not fully accepted to limelight but was just seen as affordable technique for the duration of the 80's and 90's, and but will stand firm in the new millennium 2000s (Bloom & William, 1981). It has some key attributes that can separate it from traditional advertising but is intrinsically adaptable. Contingent upon the organization, there won't be substantial contrasts by way of any stretch of the creativeness. Social media advertising is selling thru reasons and social problems is an important piece of social undertaking, but it aims is to always elevate advertising projections genuinely. However, it will develop the community and the whole society at large by solving the customers problems through customer service.

Since social media marketing postulations is more similar to a "set of standards" instead of a conventional theory, there are not many missions that incorporate all friendly marketing develops all the while (Kaplan & Haenlein, 2010). Most intercessions are "inexactly" founded on zocial media marketing standards, regularly including just a couple of parts of this extensive hypothetical and specialized structure, most strikingly audience examination (frequently through survey research), consumers segmentation and association of the society.

As in step with Vater et.al., (2012), significant thing is blending in marketing banking services. Al over the world today, monetary companies are carrying-out wide cluster of activities which put a valorous step on new advanced technology, which they expect will in a fashionable feel alternate on how they engage and take in clients. Most financial institutions are intensely making an investment on advanced gadgets which are easy for customers to use quickly to run their financial needs whilst in a rush. Specific people are creating intelligent instruments which assist clients with examining their ways of managing money and reinforce their cash the management abilities, but several of them are influencing the media platforms by engaging consumers in wealthy Facebook pages which form trademark and values in other to captivate customers to per-take in sharing individual data. Every one of these activities denotes a significant exertion to saddle quick advanced technology, unhindered gadgets application and lively public media access to financial institutions' connection with clients. In any case, generally the digital pioneers - just as banks that still can't seem to cross the computerized

Rubicon, are likewise in risk of competition and customers' holding off wireless inter-connectivity.

Several developed financial organizations remain currently using social application platform to drive client possession and faithfulness. Combining the social media services definition, economical advantage and more customer service control will affect financial organization development direction. Seeing social media as a chance for constant conversations and exploration with clients gives marketers an incredible asset that most banks still can't seem to exploit. Furthermore, this is progressively on the incorporation of media applications to form customer data, investigating information provided in other to show significant bits of knowledge and afterward using these experiences to make a really comprehensive advanced technique.

Financial enterprise in Nigeria is quite probable unique and serious companies in entire Nation. The monetary commercial enterprise has modified quickly for past years, shifting from unconfirmed and customer support arrangement to undeniably aggress weather in which competition for profits is the maximum issue. The Nigerian economic institutions might now be capable of find a way into the global meaning of a monetary enterprise. Social media advertising technique is progressively being embraced in all regions of the economic system, mainly the monetary institute provider area. Marketing techniques is a good determinant of any company's success and competitive advantage in any advertising climax. Social media advertising is necessary activities to every business firm and the system is vital to Nigeria's financial institutions because of instability, competitions and marketing environment risk. Consequently, all monetary establishments should utilize advertising strategy to build up their strength (Olujide & Aremu, 2009).

Social media advertising process role in the financial region is to assist with giving elective answers to problems experienced marketing activities. Subsequently, the advantage of marketing to financial institutions is accomplished when business firms decide requirement needed and consumer's needs by coordinating advertising activities to blend with other necessities. The importance of social media is on the grounds that it assists marketers to be efficient and the view of how consumers and the world interact. This ensures marketer to associate and share thoughts to shoppers for better service. The activity of social media advertising and marketing method in economic sector is giving elective answers to marketing problems. In this manner, benefit of marketing in the financial ventures is accomplished by coordinating the desire of the purchasers and the marketing activities in the direction of their needs (Bulut & Mandaric, 2012). Social media sets out freedom to upgrade businesses. For instance, net video is another path for organization to talk with customers in a greater enthusiastic climate. Joining the utilization of sound and more suitable visualizations on the internet, and may be crucial experience for customers, and advancement. Using web videos permits businesses to ward off the substantial expenses of making TV plugs; it's been discovered that clients are typically sure to like video advertisements in preference to picture commercials.

Social media lets in companies' business operation personnel to understand what prospect customers are announcing about their brand and rivals (Kotler & Armstrong, 2011). They become acquainted with their clients' requirements via friendly communication as social media gives a process to explore marketing environment, then engage in discussion which gives huge deals; aims and objectives of every business firm which depends on the volume of deals and benefits (Nobilis, 2010).

Gross sale increases as marketing medium, and channel is well coordinated to meet the need of the consumer, also social media guarantees huge competitive advantages from organization sales by furnishing them with better approaches to discover, interface which comprehend the consumer (Evans & McKee, 2010). For a deals, the next sales are the most important which increases the asset of the organization (Fournier & Avery, 2011). Social media as ability to help brand comprehension; ask people to utilize the administrations which may at last incite more arrangements returns especially when the mission winds up getting acclaimed on the web (Barwise & Meehan, 2010). Regularly a nice brand isn't connected to being picked over an opponent in the market divide, however all things being equal, it's anything but a response for the conceivable outcomes issue.

Kumar and Solo (2018) perceive 4 components of customer responsibility regard, explicitly customer lifetime regard, customer reference regard, customer sway worth, and customer data regard. This estimation comes with another approach to manage customer valuation, which can help advertisers choosing more suitable and powerful indispensable decisions that enable long stretch regard responsibilities to customers. In an online media setting, this customer responsibility regard enables firms to benefit by urgent customer resources (e.g. data stores, impact capital, network assets, and innovativeness), in a way the impact can outfit firms with a sensible advantage (Harmeling et al. 2017). Client responsibility postulation includes the meaning of understanding customer motivations as a fundamental for the firm to make suitable Social Media Marketing Strategies, because heterogeneous customer motivations coming about on account of different points of view and associations can affect their online media rehearses and certainly Social Media Marketing Strategy results.

It is like manner centers around the undertaking of contributions from the parties involved (e.g. online media responsibility exercises) and customers (e.g. webbased media rehearses), similarly as the meaning of different degrees of instinct and interconnectedness in yielding sound advancing outcomes (Harmeling et al. 2017). Pansari and Kumar (2017) assert that associations can benefit by such customer responsibility in both generous (e.g. market share, profit and higher incomes) and insignificant (e.g. input) ways.

Social media is a tool of broad communications. For instance, Facebook a platform via social media has an overall crowd of about 1.86 billion participants consistently, better to any traditional channel of correspondence like printed paper, radio, TV (zephoria.com). Population of Facebook participants on month-to-month premise has increased. The prediction additionally identifies with further platform. Been explicitly identified with Facebook, the total number in 2019 was 2.96 billion which will be more as the year progresses (www.statista.com).

The platform is an expansive term which allude online activities that empower people, networks and organizations to interface just to form local area via making, adjusting, sharing and drawing in with client produced content that can be effortlessly gotten to. It remembers a wide range of social online channels for differing structures, not restricted to pictures, web discussions, wikis, message sheets, digital broadcasts, weblogs, and recordings (Sloan & Haase, 2017). The platforms has progressively gotten extra famous in the last couples of years to such an extent that conventional media stages have been consigned to the back sit as far as business esteem just as ubiquity. Lewis (2009) upheld the predominance of social media over conventional media highlighting the decrease in the benefit of TV slots, just as the way that some are shutting everything down. Lewis (2009) contrasted the utilization of conventional media and the utilization of web-based applications managing trademark, discovered that new media bests the old once. it was seen as a result that firm viewed competition and financial climate as a threat, so the need to eliminate their spending plans particularly publicizing which has constrained made them to depend on a less expensive option of marketing, especially social media.

Prior assessments have broken down the usage of media connections in firms, yet a couple has investigated the impact of the result in monetary industry (Chikandiwa et al., 2013). For instance, Nyambu (2013) planned to develop the effect of online media promoting the result of media transmission relationship in Kenya; an example of Safaricom Ltd subject to an examination centered to forty-eight delegates working at Safaricom Ltd head office in Westlands in customer association and collaborations division for the year 2013. The backslide assessment found that web-based media updated the introduction of the firm as it's anything but a stage for promoting effortlessly diverged from various sorts of advertising available.

Along, Njeri (2014) hoped to set up the effect of social media participation's on monetary exhibition of 44 business banks in Kenya for the time period 2011-2013 relying upon essential information, accumulated using semi-coordinated surveys and optional information from the banks' money related reports. Using distinctive direct backslide models, the results uncovered that the business banks have seen a critical extension in the typical number of new customers. This has happened to an improvement in the ordinary development portfolio and pay the extent that the premium obtained.

Karjaluoto et al. (2015) tries to investigate the association between a company's social media activity and two outcomes, to be explicit, association reputation and association monetary result and as indicated by an examination that was coordinated to 9,802 respondents from different age, gender, and nearby get-togethers of 59 firms that are being run in Finland for year 2013. The eventual outcomes of the two-followed Pearson's relationship exhibited that a company's Social Media activity is simply part of the way associated with its monetary

presentation and isn't associated with corporate standing. Moreover, Parveen et al. (2015) analyzed the different explanations behind web-based media utilization and its impact on authoritative result as indicated by a subjective technique. The data for the assessment were accumulated from six firms working in Malaysia that take part in web-based media for their business practices through semi-coordinated incredible meetings with ranking executives. The results showed that online media is used for a couple of purposes in firms, such as publicizing and headway, showcasing, data accessibility, building customer relations and some more. The results moreover show that online media incredibly influences the exhibition of firms with respect to progress in customer relations and customer help works out, redesign in data accessibility and cost decline the extent that promoting and customer support. Schivinski and Dabrowski (2013) examined customers' impression of brands because of social media correspondence utilizing 504 Facebook clients. The aftereffects of their experimental examinations showed that client created web-based media correspondence affected brand value and brand mentality.

3. An Implementatıon on Social Media, Marketing and Corporate Performance of Financial Institutes

3.1 Sampling and Data Collection

13 banks actively working in Nigeria in 2020 constitute the sample of the study. Although there are many social media platforms in the world, the data of Twitter, Facebook, and Instagram platforms have been used in this study, considering the number user of them.

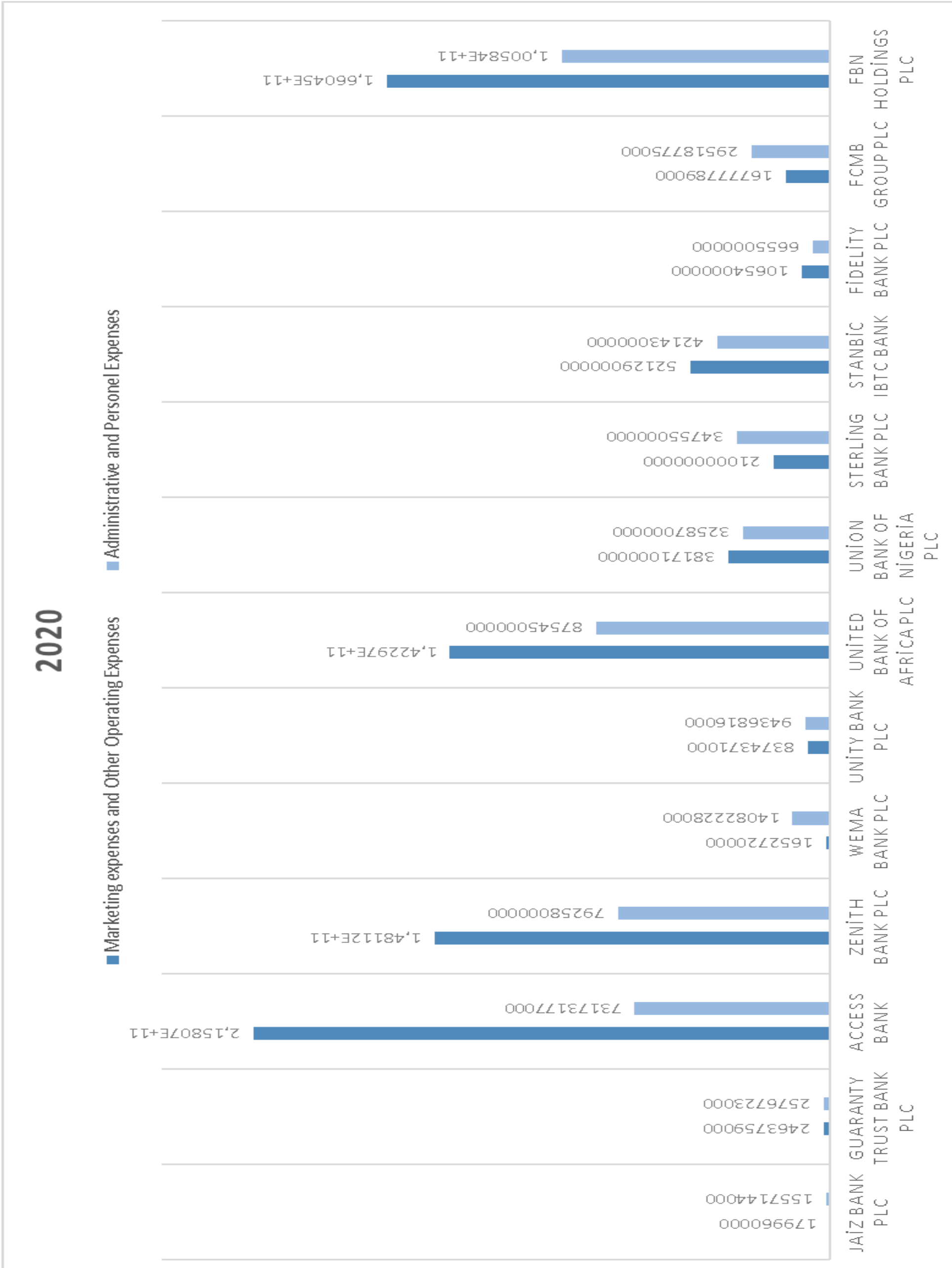
Financial data are compiled from annual reports and financial statements published publicly by banks. The number of social media followers was obtained from the official social media accounts of the relevant banks. The data used and obtained in the study are evaluated for purely scientific purposes. The results obtained in the research and the evaluations made are not financial investment advice. The research used secondary information. Secondary statistics is the information that has already been amassed thru primary resources and made comfortably available for researchers to use for their personal research. It is a kind of facts that has already been amassed in the past. Quantitative data is accrued in this study.

	Facebook	**Twitter**	**Instagram**
Jaiz Bank Plc	258853	28300	19500
Guaranty Trust Bank Plc	6137819	1700000	721000
Access Bank	2632260	675000	453000
Zenith Bank Plc	6220801	1300000	513000
Wema Bank Plc	168882	84500	55700
Unity Bank Plc	108030	50700	23600
United Bank of Africa Plc	2872283	837300	334000
Union Bank of Nigeria Plc	1035438	225900	107000
Sterling Bank Plc	635400	124200	110000
Stanbic IBTC Bank	1112984	313100	124000
Fidelity Bank Plc	1040837	200700	141000
FCMB Group Plc	1647553	153800	110000
FBN Holdings Plc	3163107	650400	755000

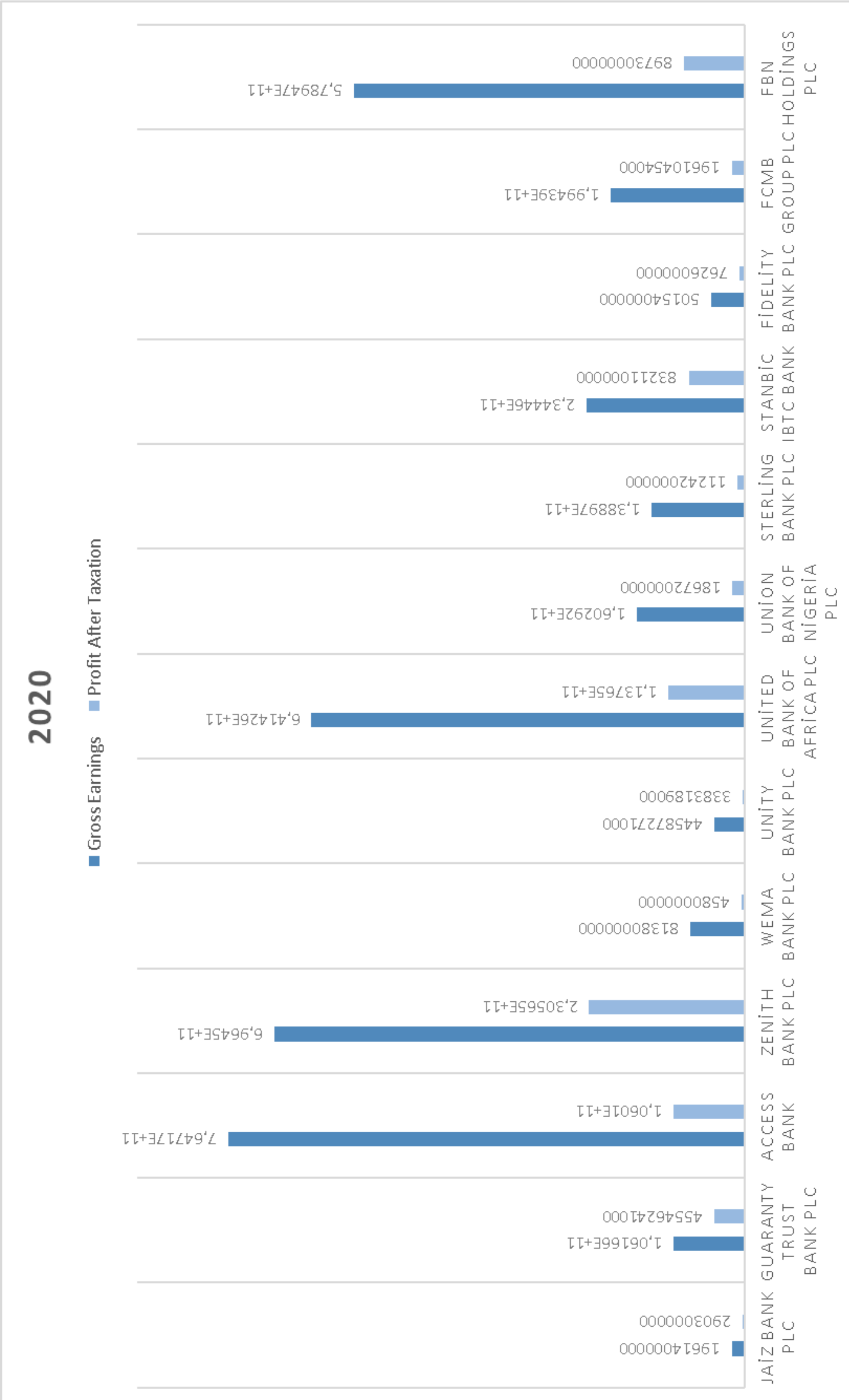
Table 1. The Number of Followers by Social Media Platform

Quantitative records were analyzed with the use of statistical software program and the output was supplied using analytical information. Qualitative facts changed into transcribed and analyzed with the usage of content material evaluation approach wherein responses can be organized primarily based on issues and tendencies established. Multiple linear regression, and correlation analysis were used to measure association between objectives stated as variables. It outfitted information on effect of a free factor while simultaneously controlling the aftereffects of various fair factors. 1 displays the number of followers of financial institutes.

The graphs of the marketing expenditures and general administrative expenses of financial institutions in 2020 are as follows. According to Graph 1, Access made the highest expenditure. FBN and United are other institutions with high expenses. When Graph 2 is analyzed for gross earnings, it is seen that Access reaches the highest value. Zenith, United, and FBN are other organizations with high gross earnings. In terms of profit after tax, it is understood that FBN and United have high values.



Graphic 1. Expenses of Financial Institutes in 2020 (Nigerian Naira)



Graphic 2. Gross Earnins and Profit After Taxation of Financial Institutes in 2020.

(Nigerian Naira)

3.2 Restatement of Research Hypotheses

In the study, the number of social media followers and marketing expenditures were defined as independent variables. Gross earnings and profit after taxation of financial institutions are dependent variables. General administrative expenses are included as a control variable in the research. Figure 1 displays the research model showing relationships between independent and dependent variables. Hypotheses are as follows:

H1: The number of social media followers of Nigerian financial institutes positively affects the marketing expenses of financial institutes.

H2a: The number of social media followers of Nigerian financial institutes positively affects the gross earnings of financial institutes.

H2b: The marketing expenses and other operating expenses of Nigerian financial institutes positively affect the gross earnings of financial institutes.

H3a: The number of social media followers of Nigerian financial institutes positively affects the profit after taxation of financial institutes.

H3b: The marketing expenses and other operating expenses of Nigerian financial institutes positively affect the profit after taxation of financial institutes.

H4a: The number of social media followers of Nigerian financial institutions positively affects the gross earnings of financial institutions together with general administrative expenses.

H4b: Marketing and other operating expenses of Nigerian financial institutions positively affect the gross earnings of financial institutions along with general administrative expenses.

H4c: General administrative expenses of Nigerian financial institutions positively affect the gross earnings of financial institutions.

H5a: The number of social media followers of Nigerian financial institutions positively affects the profit after taxation of financial institutions together with general administrative expenses.

H5b: Marketing and other operating expenses of Nigerian financial institutions positively affect the profit after taxation of financial institutions along with general administrative expenses.

H5c: General administrative expenses of Nigerian financial institutions positively affect the profit after taxation of financial institutions.

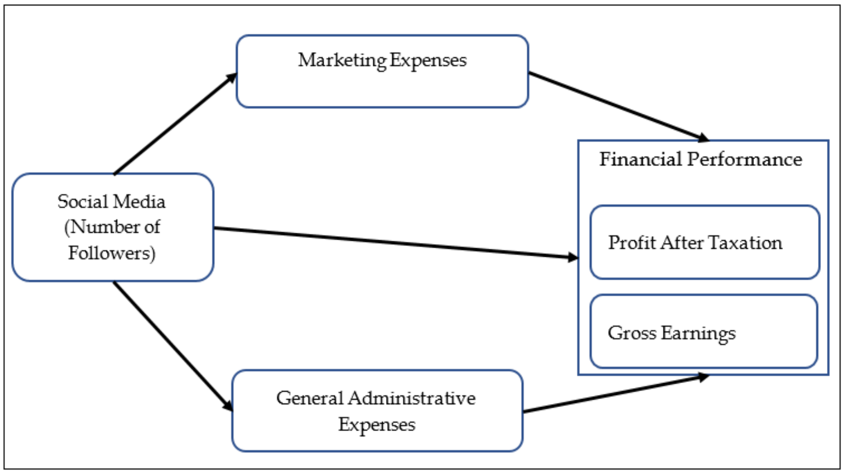


Figure 1. The Research Model

3.3 Findings

In this part of the study, the hypotheses are tested. First, the normality was examined. Afterward, the hypotheses were tested by performing correlation analysis and multi-linear regression analysis. Table 2 displays descriptive statistics for variables.

	Marketing expenses and Other Operating Expenses	Administrative and Personel Expenses	Profit After Taxation	Gross Earnings	The Number of Total Followers
Valid	13	13	13	13	13
Missing	0	0	0	0	0
Mean	6.334e +10	3.956e +10	2.857e +11	5.673e +10	2.827e +6
Std. Deviation	7.595e +10	3.466e +10	2.763e +11	6.693e +10	2.825e +6
Skewness	1.015	0.607	0.854	1.604	1.181
Kurtosis	-0.557	-1.089	-1.103	2.795	0.369
Minimum	1.800e +8	1.557e +9	1.961e +10	2.903e +9	182330.000
Maximum	2.160e +11	1.010e +11	7.650e +11	2.310e +11	8.559e +6

Table 2. Descriptive Statistics (In Nigerian Naira)

The kurtosis and skewness values on Table 1 confirm to the normal distribution according to the threshold recommended by Hair et al., (2013).

Table 3. Correlations

	Pearson		Spearman		Kendall	
	r	p	rho	p	tau B	p
MEOPEX-ADMPEX	0.918 ***	< .001	0.918 ***	< .001	0.769 ***	< .001
MEOPEX-GROSSER	0.977 ***	< .001	0.923 ***	< .001	0.795 ***	< .001
MEOPEX-PROATX	0.775 **	0.002	0.846 ***	< .001	0.692 ***	< .001
MEOPEX-NUMFLW	0.476	0.100	0.571 *	0.045	0.462 *	0.030
ADMPEX-GROSSER	0.929 ***	< .001	0.885 ***	< .001	0.667 ***	< .001
ADMPEX-PROATX	0.765 **	0.002	0.808 **	<0.001	0.615 **	0.003
ADMPEX-NUMFLW	0.430	0.143	0.500	0.085	0.436 *	0.042
GROSSER-PROATX	0.855 ***	< .001	0.945 ***	< .001	0.846 ***	< .001
GROSSER-NUMFLW	0.564 *	0.045	0.709 **	0.009	0.564 **	0.007
PROATX-NUMFLW	0.725 **	0.005	0.868 ***	< .001	0.718 ***	< .001

MEOPEX: Marketing Expenses and Other Operating Expenses

ADMPEX: Administrative and Personal Expenses

GROSSER: Gross Earnings

PROATX: Profit After Taxation

NUMFLW: Number of Social Media Followers

* p < .05, ** p < .01, *** p < .001

Table 3 displays correlation results. According to Kendall and Spearman results, there is a positive linear relationship between marketing expenditures and general expenditures. However, this correlation could not be achieved in the Pearson analysis. According to Kendall, Spearman, and Pearson analysis results, there is a very high and positive correlation between marketing expenditures and gross earnings. Kendall, Spearman, and Pearson analysis results confirm that there is a very high and positive correlation between marketing expenditures and profit after taxation. Kendall and Spearman analysis results display that, there is a positive linear relationship between marketing expenditures and the number of followers. However, this correlation could not be achieved in the Pearson analysis. Kendall, Spearman, and Pearson analysis results confirm that there is a very high and positive correlation between general expenditures and gross earnings. All three correlation coefficients also approve of whose relationship between administrative expenses and profit after taxation. The correlation between general expenditures and the number of followers was found to be significant only according to Kendall analysis. There is a moderate positive correlation between the number of social media followers and gross earnings. A positive and significant correlation was found between the number of social media followers and profit after taxation. The Table 4 displays the results of hypothesis testing. The linear regression method was used to test the hypothesis.

Table 4. The Result of Hypothesis 1

H1			
Variable	β	t	p
Number of Total Followers	0.476	7.796	0.000
H2			
Variable	β	t	p
Number of Total Followers	0.128	1.949	0.080
Marketing Expenses and Other Operating Expenses	0.916	13.932	<0.001
H3			
Variable	β	t	p
Number of Total Followers	0.459	2.663	0.025
Marketing Expenses and Other Operating Expenses	0.557	3.189	0.010
H4			
Variable	β	t	p
Number of Total Followers	0.130	2.111	0.064
Marketing Expenses and Other Operating Expenses	0.721	5.130	<0.001
Administrative and Personal Expenses	0.211	1.543	0.157
H5			
Variable	β	t	p
Number of Total Followers	0.463	2.630	0.027
Marketing Expenses and Other Operating Expenses	0.227	0.565	0.586
Administrative and Personal Expenses	0.357	0.914	0.384

Table 4 confirms that the number of followers on social media significantly influences the marketing and other operating expenses of financial institutions. Therefore, H1 is accepted. In other words, the number of social media followers is associated with the marketing expenditures of financial institutions. The number of followers on social media, and marketing expenses significantly influence the gross earnings of financial institutions. Therefore, H2a, and H2b are accepted. The findings inform that both the number of followers on social media and marketing expenses significantly influence profit after taxation of financial institutions. Therefore, H3a, and H3b are accepted. H4a and H4b hypotheses are accepted, whereas the H4c hypothesis is rejected. In other words, general administrative expenses do not have a significant impact on earnings when compared with marketing expenses and the number of social media followers. The results show that the H5b and H5c hypotheses are rejected, whereas the H5a hypothesis is accepted.

Conclusion

In this scientific study, which analyzes the relationship between social media, marketing expenditures and performance in financial institutions through financial data and social media data, 13 financial institutions listed in the stock exchange in Nigeria were taken as a sample. The relationship between marketing expenditures, social media and profitability was tried to be determined by using the linear regression method of the financial indicators of 13 companies in the financial institutions index. Financial data were compiled from the balance sheet (financial position table) and income statement that the companies operating in the relevant business line shared with the public in 2020. Social media data has been compiled from the approved official social media accounts of the relevant institutions. In the analysis, first of all, correlation values were measured. The Spearman, Kendall, and Pearson coefficients showed that social media correlates financial institutions with income and profit. It has also been determined that marketing expenditures have a high correlation with income and profitability. Regression analyzes were performed in the light of the findings obtained from the correlation analysis. In the first regression equation, it was found that social media had a significant effect on marketing expenditures. In the second stage, the effects of both social media and marketing expenditures on gross earnings were investigated and found to be significant. In the third regression analysis, the effect of social media and marketing expenditures on profit after taxation was examined. Both independent variables significantly affect profit after tax. General administrative expenses were used as the control variable in the study. Regression analysis results showed that general administrative expenses increased the total variance. On the other hand, general administrative expenses did not significantly affect profits or gross earnings.

In the world of business and finance, there is a new structure based on the internet. Digital transformation is increasingly affecting and changing businesses. The correct meaning of the digital transformation of financial institutions, which are considered as the locomotive of the services sector, is important. Social media provides an important communication channel for customers to convey their requests, suggestions and complaints directly and quickly to financial institutions. Proper management of this communication channel will enable financial institutions to reach more customers.

Twitter, Facebook, Instagram etc. Social media applications offer important facilities for individuals to express their expectations from businesses. In addition, the awareness of customers can be increased thanks to the discussions and interactions that develop on social media. In this context, the following suggestions were made in line with the results obtained in the research.

- Financial institutions are the main intermediaries of capital and money flow. Therefore, social media applications should be included more in managing communication with customers in a fast, secure and transparent manner.

• Social media allows even the farthest customer to have their voice heard. In this context, financial institutions should use their social media accounts more actively and increase their response times.

• The number of young users on social media is increasing day by day. For this reason, financial institutions can give priority to social media applications that young people can follow more easily.

• In order to increase interaction on social media accounts, some advantages should be provided to those who are members or customers of financial institutions on these platforms. These advantages will increase both the effectiveness of marketing activities and communication.

• Marketing expenditures have an important place in the income statement. However, it would be beneficial if the budget to be allocated for marketing is compatible with new media rather than traditional communication.

• Financial institutions can obtain many data analytics through social media applications. In this context, software for the analysis of data analytics and an expert team should be available.

• Regression results confirm that there is a significant relationship between the number of social media followers and gross earnings. In this context, social media should be used more for businesses to gain new customers.

In this research, generalizations were made by using the data obtained from the companies operating in the field of finance. Conducting cross-sectoral research in future research will have a positive impact on better understanding and development of the efficiency of financial institutions. In this study, performance analysis was made in the context of social media and marketing expenditures. Future research can investigate the interactions with social media and marketing by considering factors such as intellectual capital, corporate image, brand value along with quantitative factors. Due to the time and cost constraints of the research, the finance sector was examined as a sample. In other studies, cross-country comparisons can be made by compiling data from other countries and regions.

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APPENDIX. Sites and Social Media Accounts where Data Collected.

	Financial Data	Instagram	Facebook	Twitter
Jaiz Bank Plc	https://africanfinancials.com/document/ngjaizbank-2020-ar-00/	https://www.instagram.com/jaizbankplc/	https://www.facebook.com/JaizBankPlc/	https://twitter.com/jaizbankng
Guaranty Trust Bank Plc	https://www.gtbank.com/uploads/financialinformation/March2021-CondensedUnaudited-Group-Financial-Statements.pdf	https://www.instagram.com/gtbank/?hl=tr	https://www.faebook.com/gtbank/	https://twitter.com/gtbank
Access Bank	https://africanfinancials.com/document/ngaccess-2020-ar-00/	https://www.instagram.com/myaccessbank/	https://www.facebook.com/AccessBankPlc/	https://twitter.com/myaccessba nk
Zenith Bank Plc	https://africanfinancials.com/document/ngzenith-2020-ar-00/	https://www.instagram.com/zenithbankplc/	https://www.facebook.com/Zenithbank/	https://twitter.com/zenithbank
Wema Bank Plc	https://africanfinancials.com/document/ngwemaba-2020-pr-00/	https://www.instagram.com/wemabank/	https://www.facebook.com/wemabankplc/	https://twitter.com/wemabank
Unity Bank Plc	https://africanfinancials.com/document/ngunityb-2020-ir-hy/	https://www.instagram.com/unitybankplc/	https://www.facebook.com/unitybank/	https://twitter.com/unitybankplc
United Bank of Africa Plc	https://africanfinancials.com/document/ng-uba2020-ar-00/	https://www.instagram.com/ubagroup/	https://www.facebook.com/ubagroup/	https://twitter.com/ubagroup
Union Bank of Nigeria Plc	https://www.unionbankng.com/wpcontent/uploads/2019/07/AnnualReport2020.pdf	https://www.instagram.com/unionbankng/	https://www.facebook.com/Unionbankng/	https://twitter.com/unionbank_ ng
Sterling Bank Plc	https://africanfinancials.com/document/ngsterln-2020-ar-00/	https://www.instagram.com/sterlingbank/	https://www.facebook.com/SterlingBankNigeria/	https://twitter.com/sterling_bankng
Stanbic IBTC Bank	https://africanfinancials.com/document/ng-ibtc2020-ar-00/	https://www.instagram.com/stanbicibtc/	https://www.facebook.com/StanbicIBTC/	https://twitter.com/stanbicibtc
Fidelity Bank Plc	https://africanfinancials.com/document/ngfideli-2020-ab-00/	https://www.instagram.com/fidelitybankplc/?hl=tr	https://www.facebook.com/FidelityBankplc/	https://twitter.com/fidelitybank plc

Electricity Prices and Stock Market Performance: Evidence from Borsa Istanbul*

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Abstract

In this study, the effects of electricity prices on the change of the closing price of the Borsa Istanbul 100 index and its sub-sector price indexes are analyzed with non-linear autoregressive distributed lag models by using the Turkish monthly data for the June 2006 to February 2018 period. The findings suggest that there is an asymmetric relationship between the changes in electricity prices and the Borsa Istanbul price index. The dynamic effects of electricity price changes on the Borsa Istanbul and its sub-sector price indexes reveal that all price indexes demonstrate significantly rapid and strong responses to negative changes in a period of about 3 months while introducing considerably stronger responses to positive changes in a period of generally 9 months. Therefore, a negative shock in electricity prices conducts to a rise in price indexes in the short-run. However, a positive shock in electricity prices dominates in the long-run for all price indexes except Technology.

Keywords: *Electricity Prices; Stock Exchange; Asymmetry; Cointegration; NARDL.*

JEL Classification: *Q40; E44; C13.*

1. Introduction

There are extensive studies concerning the effects of energy prices on stock markets. The majority of these studies use oil or gas prices as energy prices. However, the effect of electricity prices on economic performance is a more direct form compared to oil prices. The purpose of this study is to analyze the effects of electricity prices on the stock market for an emerging economy -Turkey.

Energy is an indispensable part of the economic order and daily life. However, providing the necessary energy source mostly from fossil fuels creates negative effects on the environment and these negative effects underline the necessity of energy innovation (see, for example, Balcilar, Bekun & Uzuner, 2019, Baloch, Ozturk, Bekun &

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Khan 2020 and Adedoyin, Ozturk, Agboola, Agboola & Bekun, 2021). On the other hand, energy is the basic building block of economic performance, electricity is one of the most widely available forms of energy, and it is considered an integral part of the production as well as the economic growth process. While evaluating a country's economy, the stock market of that country is also taken into consideration, because stock exchanges serve as a barometer for the country's economy (Dursun&Ozcan, 2019, p.191). Considering these facts, it is important to examine the effects of energy prices on the stock market. Studies that concern the relation between energy prices and the stock market mostly investigate the effects of crude oil prices on stock markets. The results originating from these studies are far away from presenting a unity since they reveal contradicting conclusions for different countries. For instance, studies such as Jones and Kaul (1996), Sadorsky (1999), Park and Ratti (2008), O'Neil, Penm and Terrell (2008), Darmawan, Siregar, Hakim and Manurung (2020), Alam (2020) and Le (2020) found that the oil prices have a negative effect on the stock market while Narayan and Narayan (2010), Shabbir, Kousar and Batool (2020) and Khan, Teng, Khan Jadoon and Khan (2021) found a positive effect. On the other hand, Cong, Wei, Jiao, and Fan (2008), Apergis and Miller (2009) and Kumar, Pradhan, Tiwari and Kang (2019) did not find a statistically significant relationship between the stock market and oil prices. Furthermore, there are few papers that examined the relationship between natural gas prices and the stock market (see, for example, Kumar, Pradhan, Tiwari & Kang, 2019, and Acaravci, Ozturk&Kandir, 2012). Both studies found that there was no long-run relationship between natural gas and stock prices.

Using crude oil prices for energy prices may have various challenges. For instance, several problems occur when economic agents use crude oil prices as energy input prices, provided that Brent or WTI is adopted as a crude oil price indicator. There is no stable relationship between Brent or WTI benchmark oil and Turkey's import oil that possess low gravity features. Plus, unsettled and ever-changing tax rates spark off an inconsistent and altering relationship between crude and after-tax petroleum product prices. For example, Turkish authorities may look to amend tax regulations in circumstances where the Turkish Lira value of petroleum product prices increase. By altering tax rates based on the increasing exchange rates, authorities make sure that petroleum product prices remain unchanged.

Contrary to many studies that examine the effect of energy prices on the stock market, this study uses electricity instead of oil to represent energy prices. In addition, it differs from other studies in the literature in that it is the only study that examines the effect of electricity prices not only on the BIST 100 index but also on all sub-sectors. This paper attempts to assess the effect of energy prices on the stock market directly by observing the electricity prices rather than crude oil prices. To the best of our knowledge, there is only one former study that has examined the effect of electricity prices on stock market returns (Souhir, Heni&Lotfi, 2019). Their results found the evidence of long-run dependence between electricity market returns and Nordic Market index and 11 other sector indexes.

Studying the effect of energy prices on the stock market for Turkey bears significant importance since Turkey's energy usage rapidly increased after the 1980s (Enerji İşleri Genel Müdürlüğü, access date: 29.01.2020). However, Turkey, like most of the European countries, imputes high tax rates on petroleum products. Even corporate tax revenues shown under direct taxes fall behind tax revenues from petroleum products classified under indirect taxes (Alcan, 2014, p.89). Due to relevant tax codes, oil prices cannot directly affect the stock market. On the other hand, the number of sectors directly using natural gas is quite low; however, natural gas energy is heavily used in electricity generation. Although natural gas import prices are restrained from public sharing, electricity prices that firms determine are discoverable in Turkey. In this respect, it is more meaningful to assess the effects of electricity prices on stock market prices rather than looking at the effects of oil and natural gas prices on the stock market.

Electricity is the leading secondary energy source, which accounts for 19% of the total final energy consumption, a share that is set to increase as demand growth for electricity outpaces all other fuels in the world (IEA, 2018). Moreover, electricity is considered to be one of the essential driving forces of economic output in all economies, therefore, directly and indirectly, complements labor and capital as inputs in the production process (Sekantsiand&Motlokoa, 2016, p.150).

Electricity price fluctuations may affect stock returns in two main channels: firm-level and consumer level. At the firm level, electricity is important for the production of various goods and services. The rise in electricity prices increases production costs. These high costs can reduce cash flow and diminish stock returns. At the consumer level, rising electricity prices can affect consumer spending by reducing the amount of disposable income, and redound on firm-level revenue and demand for products.

All in all, the effects of decreasing or increasing electricity prices in the stock market differs at both firm and consumer level. When prices are decreasing, firms that keep their products at high price levels or a downward rigidity in nominal will be reluctant to set lower prices. Contrarily, in a market where prices are increasing, firms will attempt to curtail their production or reflect the increasing prices to their customers.

In literature, various papers have considered and examined the asymmetric relationship between energy prices that are measured with crude oil prices and economic activity (Mork, 1989; Mork, Olsen &Mysen, 1994; Lee, Ni &Ratti, 1995; and Ferderer, 1996). They suggest that energy price hikes have a negative impact on GDP, but a falloff in prices does not necessarily lead to a positive impact on output.In addition, there are studies examining the asymmetric effect of oil prices on the stock market (Cheikh, Naceur, Kanaan & Rault, 2020; Marschner & Ceretta, 2021; Abubakirova, Syzdykova, Dosmakhanbet, Kudabayeva & Abdulina 2021; Hashmi, Chang & Bhutto 2021; and Jiang & Liu 2021)These studies reveal that positive and negative fluctuations in oil prices for different financial markets have asymmetric effects on stock price indices, but this effect differs on a market basis.Therefore, in order to reflect these characteristics, the asymmetric effect of electricity prices on Borsa Istanbul and its sub-sector economic activity (service, financial, industry, and technology) price indexes were investigated by using Shin, Yu, and Greenwood-Nimmo (2013) cointegration method in a non-linear Autoregressive Distributed Lag (NARDL) model. For this purpose, monthly data that covers the period from June 2006 to February 2018 is used. The estimates indicate the presence of asymmetry for Borsa Istanbul 100 price index and electricity prices. The empirical evidence reveals that Borsa Istanbul and its sub-sectors price indexes react faster to decreasing in electricity prices when compared to increasing ones in the short run. On the other hand, increasing electricity prices dominates that of a negative one in the long-run.

The rest of this paper structured as follows; section 2 provides both empirical methodology and the analysis results. Section 3 concludes the paper.

2. Methodology and Empirical Results

The study aims to examine whether or not there are short and long term asymmetric effects of electricity prices on the Borsa Istanbul 100 (BIST) price index and its sub-sectors. For this purpose, asymmetric cointegration in a non-linear autoregressive distributed lag model introduced by Shin, Yu and Greenwood-Nimmo (2013) is used. The current study employs the monthly data covering the period from June 2006 to February 2018. The data for Electric Prices (EP) are taken from State Statistical Institute, the data is the sub-component of the consumer prices index (CPI) (code: 0451001), and the data on exchange rate, BIST price index and its sub-sectors (Services, Financial, Industrial and Technology) are obtained from Electronic Data Delivery System of the Central Bank of the Republic of Turkey. Both the Electricity Price data and the index price data are converted into the US dollar by being divided into the exchange rate. All of the transformed series are expressed in natural logarithms.

There is an extensive literature that use the Engle and Granger (1987) and Johansen (1988) cointegration methods to examine the long-run relationship as an asymmetric linear combination of non-stationary stochastic regressors. These two methods require that at least two of the variables in the system have the same integrated degrees. If the variables have different integrated degrees Pesaran, Shin, and Smith (2001) propose a cointegration method in a linear Autoregressive Distributed Lag model framework. However, if asymmetric cointegration is present Granger and Yoon (2002) bring forward the idea that "hidden cointegration" is defined between positive and negative separations in the variables. They indicate that if a series' positive and negative components are cointegrated, a linear model may give misleading results. Therefore, Shin et al. (2013) develop a test for the short and long-run asymmetric relationships of variables using the Non-Linear ARDL (NARDL) model.

NARDL model that is employed in this paper is a relatively new technique for detecting both long- and short-run asymmetries between economic variables without requiring the same order integration between two variables. Considering the asymmetric cointegrating regression:

$$BIST_t = \alpha + \beta^+ EP_t^+ + \beta^- EP_t^- + u_t \qquad (1)$$

where β^+ and β^- are asymmetric long-run parameters and EP_t^+ and EP_t^- are partial sum processes of positive and negative changes in EP_t where:

$$EP_t^+ = \sum_{j=1}^{t} \Delta EP_j^+ = \sum_{j=1}^{t} \max(\Delta EP_j, 0),$$

$EP_t^- = \sum_{j=1}^{t} \Delta EP_j^- = \sum_{j=1}^{t} \min(\Delta EP_j, 0)$.

These decompositions are used in the standard ARDL model to gather the asymmetric changes in the short and long-run relationships of variables. The standard linear ARDL (p, q) cointegration model can be written as

$$\Delta BIST_t = \alpha + \gamma x_t + \rho BIST_{t-1} + \theta EP_{t-1} + \sum_{j=1}^{p-1} \gamma_j \Delta BIST_{t-j} + \sum_{j=0}^{q-1} \varphi \Delta EP_{t-j} + \varepsilon_t \quad (2)$$

where x_t is a vector of deterministic regressors (such as trend and seasonal dummies). By combining (1) with the ARDL (p, q) model, we obtain the following asymmetric error correction model:

$$\Delta BIST_t = \alpha + \gamma x_t + \rho BIST_{t-1} + \theta^+ EP_{t-1}^+ + \theta^- EP_{t-1}^- + \sum_{j=1}^{p-1} \gamma_j \Delta BIST_{t-j} + \sum_{j=0}^{q-1} \left(\pi_j^+ \Delta EP_{t-j}^+ + \pi_j^- \Delta EP_{t-j}^-\right) + e_t$$

$$= \alpha + \gamma x_t + \rho \xi_{t-1} + \sum_{j=1}^{p-1} \gamma_j \Delta BIST_{t-j} + \sum_{j=0}^{q-1} \left(\pi_j^+ \Delta EP_{t-j}^+ + \pi_j^- \Delta EP_{t-j}^-\right) + e_t \quad (3)$$

where $\xi_{t-1} = BIST_{t-1} - \beta^+ EP_{t-1}^+ - \beta^- EP_{t-1}^-$ is the non-linear error correction term.

The asymmetric dynamic multiplier effect of a unit change in EP_t^+ and EP_t^- on $BIST_t$ are obtained from the asymmetric ARDL model (3) defined by

$$m_h^+ = \sum_{i=0}^{h} \frac{\partial BIST_{t+i}}{\partial EP_t^+},\ m_h^- = \sum_{i=0}^{h} \frac{\partial BIST_{t+i}}{\partial EP_t^-} h = 0,1,2\ldots$$

Note that as $h \to \infty$, then $m_h^+ \to \beta^+$ and $m_h^- \to \beta^-$, where $\beta^+ = \frac{-\theta^+}{\rho}$, $\beta^- = \frac{-\theta^-}{\rho}$. β^- and β^+ are the asymmetric long-run parameters.

An asymmetric ARDL model can be employed when variables are stationary at the level and first difference or mixture of these. However, if the variables are stationary at the second difference, then a non-linear ARDL model could not apply, and model inferences will be misleading. For this reason, this empirical analysis, in the first stage analysis the degree of integration of the variables determined using three different unit root or stationarity tests. These are the Augmented Dickey and Fuller (1981) (ADF) test, Phillips and Perron (1988) (PP) test, and KPSS test developed by Kwiatkowski, Phillips, Schmidt and Shin (1992). The null hypothesis of the ADF and PP tests are the presence of a unit root, and the alternative hypothesis is that the series is stationary. In the KPSS test, the null hypothesis is that the series are stationary, while the alternative hypothesis is that the series are non-stationary. Table 1 suggests that the result for all three tests show that variables are stationary in the first difference; and thus, non-linear ARDL method may be applied considering ADF, PP and KPSS tests.

Variables		ADF	PP	KPSS
BIST	Level	-2,2237	-2,6481	0,2288***
	First Difference	-9,4263***	-9,4160***	0,0367
Service	Level	-2,3864	-2,5168	0,3512***
	First Difference	-9,6055***	-9,6979***	0,0463
Financial	Level	-2,1303	-2,6403	0,2454***
	First Difference	-9,5019***	-9,5534 ***	0,0352
Industry	Level	-1,9444	-2,7782	0,2530***
	First Difference	-8,7116***	-8,6868***	0,0367
Technology	Level	-0,0659	-2,7438	0,2870***
	First Difference	-9,6795***	-9,7598***	0,0599
EP	Level	-1,8554	-2,0227	0,6095***
	First Difference	-9,9447***	-10,4017***	0,0395

***, **, * indicate level of significance at the 1%, 5%, 10% respectively.
In the KPSS test, the null hypothesis indicates that the series is stationary.

Table 1: Unit Root and Stationarity Tests

Following Granger and Yoon (2002) for the hidden cointegration; in the second stage; we test whether there is an asymmetric relationship between the variables. Shin et al. (2013) have developed two test procedures for this and firstly, they follow Banerjee, Doladoand Mestre (1998) and propose a t-test (t_{BDM}) of the joint null hypothesis H_0: ρ = 0 (no cointegration) against $H_A: \rho < 0$ (cointegration). Then, they follow Pesaran, Shin and Smith (2001) and propose an F- test (F_{PSS}) with the null hypothesis $H_0: \rho = \theta^+ = \theta^- = 0$.

	BIST	*Service*	*Financial*	*Industry*	*Technology*
t_{BDM}	-3,0840*** (0,0025)	-3,5158*** (0,0006)	-3,0610*** (0,0027)	-3,0854*** (0,0025)	-2,1244** (0,0355)
F_{PSS}	4,2611*** (0,0066)	5,3398*** (0,0017)	4,1538*** (0,0076)	4,2250*** (0,0069)	2,1566* (0,0962)

p-values are given in parentheses.

***, **, * indicates level of significance at the 1%, 5%, 10% respectively.

Table 2: Bounds Testing for Asymmetric Cointegration

Table 2 reports F_{PSS} and t_{BDM}test statistics for the asymmetric cointegration with each of *BIST*, *Service*, *Financial*, *Industry*, and *Technology* price indexes. Both statistics reject the null hypothesis, and thus we can conclude there is a long-run asymmetric relationship between variables for *BIST* and sub-sector of economic activity price indexes.

In the third stage, the Wald test statistics is used to test whether there is a long and short-term asymmetrical relationships. The null hypotheses used for long and short-run asymmetric relations testing are as follows:

$H_0: \beta^+ = \beta^-$for the long-run (W_{LR})

$H_0: {\pi_j}^+ = {\pi_j}^-$ j= 1,…, q-1 for the short-run (W_{SR})

The rejection of null hypotheses both in the long-run and short-run shows the existence of long-run and short-run asymmetric relationships, respectively.

	BIST	*Service*	*Financial*	*Industry*	*Technology*
W_{LR}	80,9928*** (0,0000)	200,1126*** (0,0000)	76,9491*** (0,0000)	73,3137*** (0,0000)	7,8969*** (0,0057)
W_{SR}	220,6572*** (0,0000)	1848,889*** (0,0000)	220,9606*** (0,0000)	232,5356*** (0,0000)	370,4744*** (0,0000)

p-values are given in parentheses.

***, **, * indicates level of significance at the 1%, 5%, 10% respectively.

Table 3: Long-run and Short-run Symmetry Tests

Table 3 reports the test statistics for long-run and short-run symmetry. The Wald test statistics reject the null hypothesis both for long-run and short-run symmetry at the level the %1 of significance for the *BIST* and its sub-sector price indexes. Thus, we can conclude that there are both short and long-run asymmetric relationships between *EP* and Price Indexes. In line with these results, Hashmi et al. (2021) found an asymmetrical relationship between oil prices and stock prices for Russia, Venezuela, Mexico, Norway, China, India and Japan, both in the long run and in the short run, while Jiang and Liu (2021) obtained similar results for China, Hong Kong, America and Britain.

	BIST	*Service*	*Financial*	*Industry*	*Technology*
Variable	**Panel A: NARDL Specification**				
$BIST_{t-1}$	-0,1690*** (0,0025)				
$Service_{t-1}$		-0,2501*** (0,0006)			
$Financial_{t-1}$			-0,1628*** (0,0027)		
$Industry_{t-1}$				-0,1683*** (0,0025)	
$Technology_{t-1}$					-0,0860** (0,0355)
EP^{+}_{t-1}	-0,0400 (0,6595)	0,0264 (0,7979)	-0,0311 (0,7444)	-0,0734 (0,3873)	-0,1319* (0,0931)
EP^{-}_{t-1}	0,0004 (0,9964)	0,0863 (0,4527)	0,0101 (0,9221)	-0,0363 (0,6906)	-0,1200 (0,1363)

ΔEP^{+}	-1,3189*** (0,0024)	-0,9777** (0,0373)	-1,4156*** (0,0018)	-1,2818*** (0,0022)	-1,4793*** (0,0001)
ΔEP^{+}_{t-2}		-0,0975** (0,0188)			
ΔEP^{+}_{t-3}		0,7389** (0,0232)			
ΔEP^{+}_{t-6}		-0,6813** (0,0294)			
ΔEP^{-}	-5,5595*** (0,0000)	-5,2792*** (0,0000)	-5,7965*** (0,0000)	-5,3788*** (0,0000)	-4,5978*** (0,0000)
ΔEP^{-}_{t-1}	3,2746*** (0,0000)	2,9203*** (0,0000)	3,3992*** (0,0000)	3,2013*** (0,0000)	2,8151*** (0,0000)
$\Delta Service_{t-4}$		0,1365** (0,0221)			
$\Delta Service_{t-5}$		0,1378** (0,0187)			
$\Delta Service_{t-6}$		0,1349** (0,0208)			
Constant	0,3675*** (0,0012)	0,5312*** (0,0001)	0,3663*** (0,0014)	0,3656*** (0,0012)	0,1907** (0,0264)
Panel B: Long-run Coefficients					
β^{+}	-0,2364 (0,6751)	0,1054 (0,7912)	-0,1909 (0,7532)	-0,4364 (0,4265)	-1,5343 (0,1495)
β^{-}	0,0026 (0,9964)	0,3450 (0,4007)	0,0622 (0,9211)	-0,2156 (0,7040)	-1,3965 (0,2052)
Panel C: Diagnostic Statistics (p-values)					
χ^2_{SC}	0,4246	0,3534	0,4948	0,4835	0,5561
χ^2_{White}	0,0000***	0,0054***	0,0000***	0,0000***	0,0000***

p-values are given in parentheses. ***, **, * indicates level of significance at the 1%, 5%, 10% respectively.

Table 4: Estimation of the Nonlinear ARDL Model for BIST 100 and the Stock Exchange's Sub-Components

In Table 4, Panel A presents the parameter estimates of the NARDL model. In the long-run, the estimated parameter of the positive change of *EP* (EP_{t-1}^{+}) is found negative for all price indexes except for *Service,* which means an increase in *EP* decreases the price indexes. While all price indexes except *Industry* and *Technology* increase in response to negative changes of *EP* (EP_{t-1}^{-}). However, positive and negative changes of the *EP* for all sectors and *BIST* price indexes are not statistically significant except *Technology* index. In the short-run, both the estimated coefficients ΔEP^{+} and ΔEP^{-}, express positive and negative variations, and they are found negative and statistically significant for all indexes. In other words, while *EP* increase (decrease) in the short-run; *BIST*, *Service, Financial*, *Industry,* and *Technology* indexes decrease (increase). However, the decrease in the previous period of $\Delta EP_{t-1}^{-}$is statistically significant and positive, which causes a decline in all price indexes.On the other hand, Souhir et al. (2019) observed that the results of the unconditional correlation coefficients can be seen as having different levels of positive correlation between electricity market returns and financial, industry and technology stock returns.

Panel B reports the results of long-run coefficients. Results confirm the above analysis. The relationship between *EP* and price indexes in the long-run equilibrium ($\beta^{+}$and β^{-}) are found statistically insignificant. These results suggest that a relationship between *EP* and *BIST* includes asymmetry in the short-run but not in the long run.

Panel C presents diagnostic statistics results. $\chi_{SC}^{2}$is for the autocorrelation test developed by Breusch and Godfrey (1978), and the null hypothesis of the test refers to the situation in which there is no autocorrelation. The test statistics suggest that the null hypothesis cannot be rejected and could not find autocorrelation problems in discussed models. $\chi_{White}^{2}$is for the heteroscedasticity test developed by White (1980). The null hypothesis that there is no heteroscedasticity is rejected at the 1% significance level.

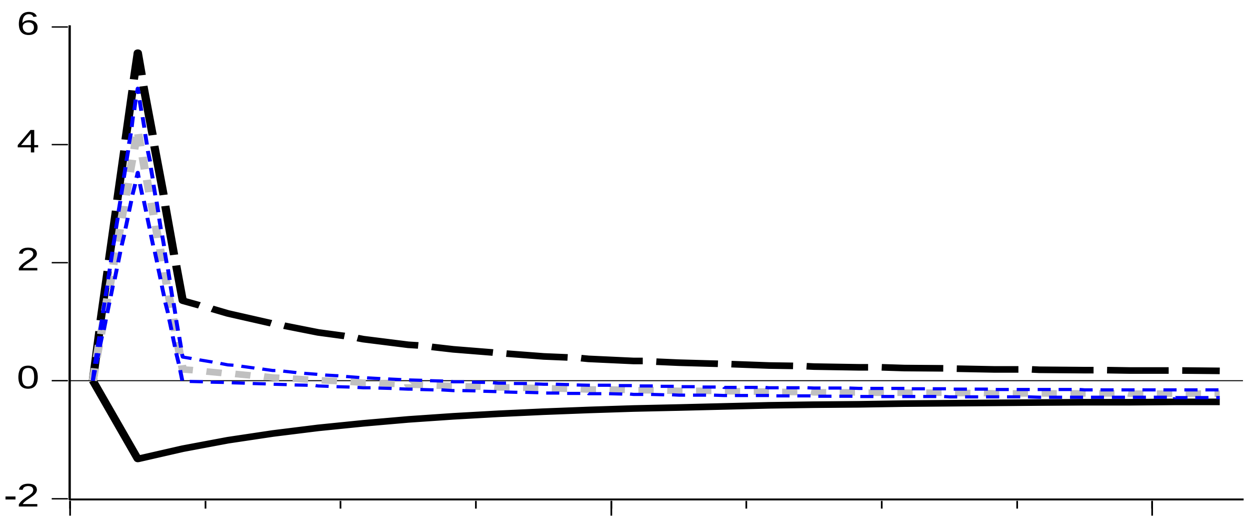

Figure 1: Electric Prices-BIST Price Index Dynamic Multiplier

Figures 1, 2, 3, 4, and 5 present the asymmetric responses of *BIST*, *Service*, *Financial*, *Industry,* and *Technology* price indexes to positive and negative *EP* shocks. These responses are observed for 24 months. Accoding to the colors in the figure, the black bold straight line gives the effect of one unit positive shock in *EP* on the *BIST* and sub-sectors, the black bold dashed line shows the effect of one unit negative shock in *EP* on the *BIST* and its sub-sector of economic activity prices indexes and at last the gray dashed line demonstrates the difference between these two. Blue dashed lines form the upper and lower band of the confidence interval of 90%. In Figures 1, 2, 3, 4, and 5, a negative shock in *EP* (a decrease in electricity prices) causes a rapid increase during the first two months, and this increasing effect decreases rapidly for *BIST* and all sub-sector price indexes. A similar effect on magnitude cannot be observed for the effect of higher electricity prices. However, the difference between positive and negative shocks in *EP* is reported since the grey broken line diminishes and disappears after three months for all price indexes except for *Service*. For *Service* price index after three months the effect of a positive shock dominates the negative one for up to six months. Then again between six and eight months, negative shock starts dominating the effect of a positive shock. After the ninth month, the effect of a positive shock again dominates the negative one for all price indexes except *Technology*. The equilibrium corrections are achieved after nearly one year for *BIST, Financial,* and *Industry* price indexes, however, for *Technology* it takes a shorter period (nearly two months). On the other hand, for the *Service* index, the asymmetric effect of *EP* pass through is more persistent, and it takes nearly two years. Overall, dynamic multipliers suggest that a negative shock in *EP* conducts to a rise in price indexes in the short-run. However, a positive shock in *EP* dominates in the long-run for all price indexes except *Technology*.

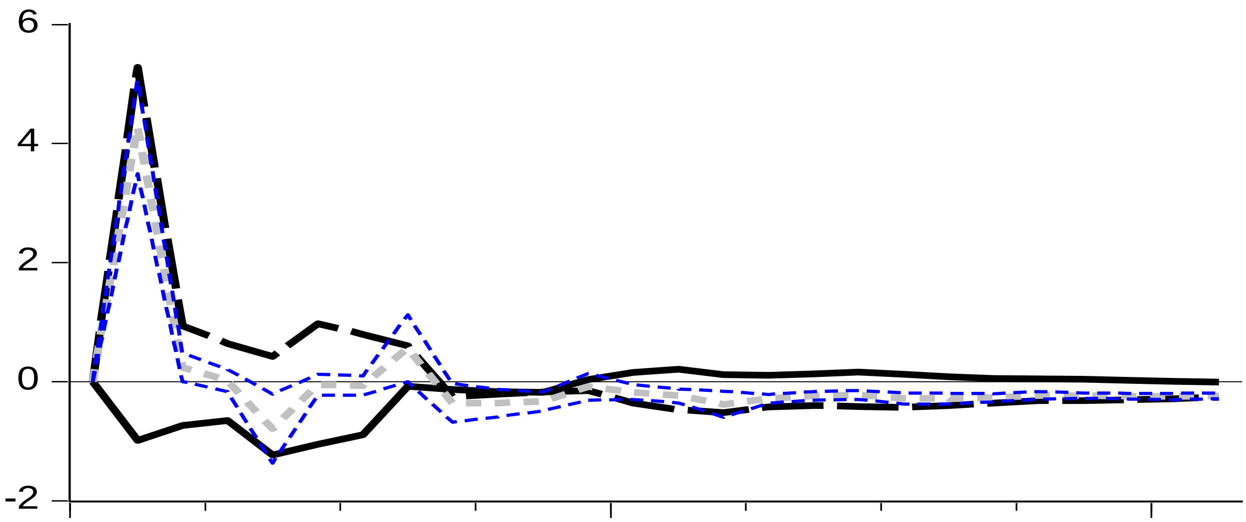

Figure 2: Electric Prices-Service Price Index Dynamic Multiplier

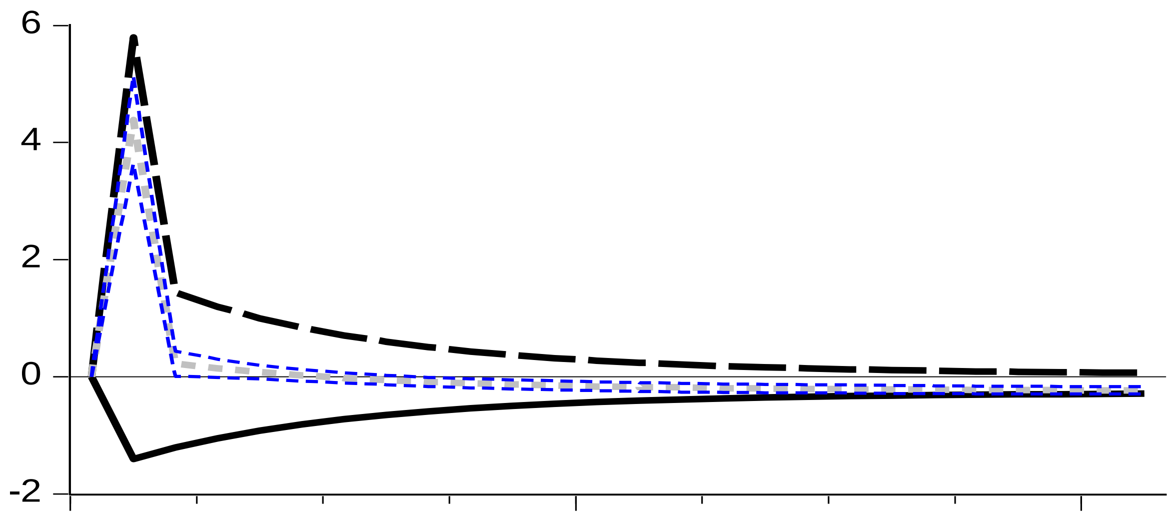

Figure 3: Electric Prices-Financial Price Index Dynamic Multiplier

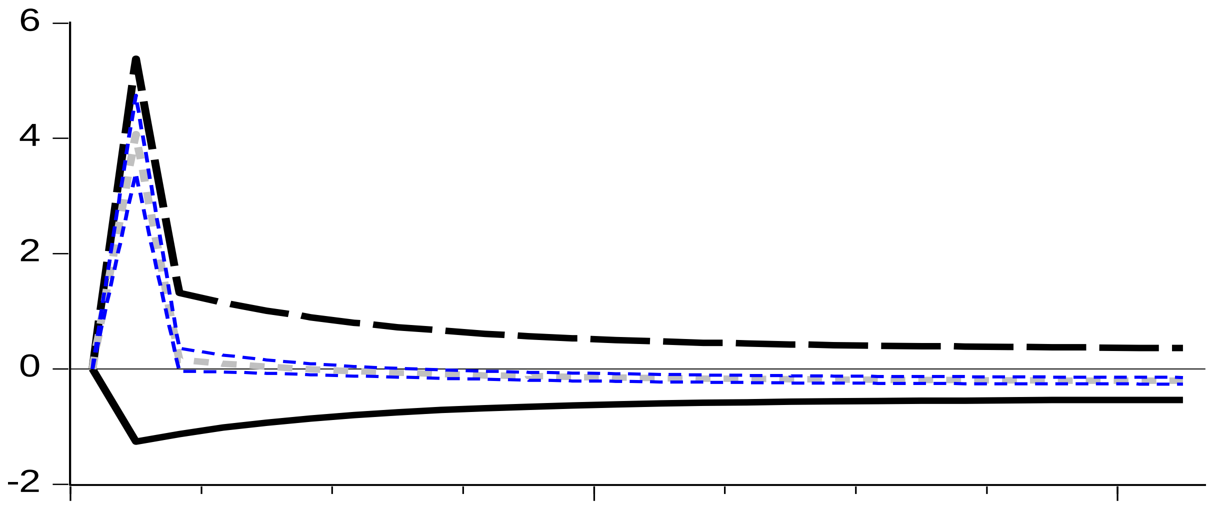

Figure 4: Electric Prices-Industry Price Index Dynamic Multiplier

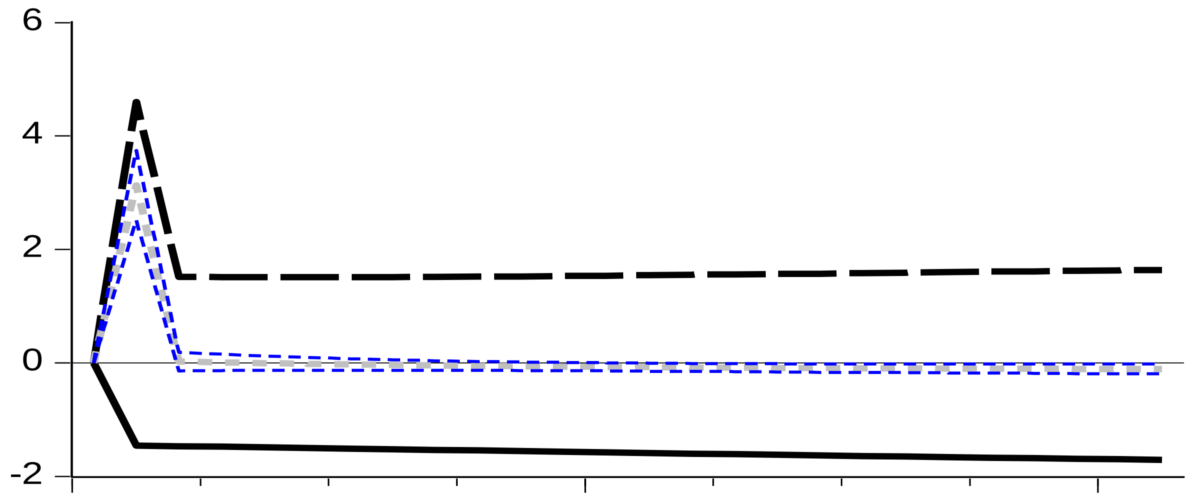

Figure 5. Electric Prices-Technology Price Index Dynamic Multiplier

3. Conclusion

Even if the importance of energy in developed economies has been declining, energy consumption is still vital for all world economies. In Turkey, which is one of the emerging economies, the electrical energy requirement shows a parallel increase with economic growth. This paper studies the effect of electricity price on the stock market closing prices and sub-sectors of the stock market in Turkey from 2006 June to 2018 February by using a non-linear ARDL model.

The empirical analyses reveal that an asymmetrical relationship between *Electricity Prices* and each of *BIST*, *Service*, *Financial*, *Industry,* and *Technology* sectors price indexes exist for both short and long-runs. In other words, increases or decreases in electricity prices will effect the formation of prices in *BIST* and its sub-sectors differently. Furthermore, dynamic multiplier graphs clearly show that the effect of a negative shock on electricity prices dominates a positive one in the short- run. As opposite, in the long run, the effect of positive price shocks dominates negative price shocks.

Electric energy consumption in Turkey is concentrated on the service sector, which covers a very large area in the national economy, and the constantly developing industry sector. Therefore, as a result of the analysis, the fact that the changes in electricity prices have an effect on the Service price index and the Industrial price index both in the short and long term is a reflection of this situation. Changes in electricity prices do not have a long-term effect on the technology price index, thus this can be explained by the structure of the Technology sector. Because this sector is in a position that provides significant gains in energy efficiency and therefore affects energy prices rather than being affected by energy prices.

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The Digital Divide's Causes and Socioeconomic Implications with A Special Emphasis on COVID-19 Era

Semra BOĞA*, Öncel ALDANMAZ**

Abstract

The digital divide, exclusion of people from having access or the literacy to use digital technologies, is a term introduced by the emergence of personal computers and the world-wide-web. Although the technology and internet access rates have risen sharply and the term had started fading away from literature since its introduction in 1995, COVID-19 shifting the world online had played a significant role in the interruption of many students' education, loss of jobs, and closing of organizations without a digital presence and/or reliable internet connection. The pandemic's impacts have raised the question, "is the digital divide still continuing in today's highly technological ecosystem?" This paper tries to answer this question and provides a brief history behind the digital divide, how and why it emerged, its social and economic impacts, how it shifted as years passed, possible solutions to close the gap, and what the future looks like in terms of global access to modern technologies. The findings of the study are expected to shed light on the" digitalization policies of the governments to secure digital equality and inclusion in societies.

Keywords: *Digital divide, Digital exclusion, Internet access, Social inequality, Digital, COVID-19.*

Introduction

The world's digitalization process with the invention the world-wide-web and the development of technology in the last three decades have given rise to both variety and efficiency increases in information communication technologies (ICTs), which usually refer to "all devices, networking components, applications and systems that combined allow people and organizations to interact in the digital world" (Pratt, 2019). The utilization of these technologies has notable benefits for the economic development and advancement of various sectors which allows for the emergence of newer industries, products, and business models (Kouadri & Cherif, 2020; Cruz-Jesus et al., 2016). From an individual perspective, ICTs could improve lifestyle, health, knowledge, job prospects, and so on; from business and government perspectives, on the other hand, applications of these technologies are key for macro and micro-level strategic actions as ICTs have been observed to advance labor productivity, innovation, and economic growth (Kouadri & Cherif, 2020; Cruz-Jesus et al., 2016) (Maryville Online, 2020; Lai & Widmar, 2020). However, despite the significant benefits these technologies offer in social and economic employment, healthcare, and knowledge-gathering, only 1% of the rural

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and around 30% of the urban population had access to the required technology to go online in the 1990s (Sparks, 2014). This "digital exclusion" and the unequal diffusion of ICTs believed to be caused by factors such as the difference between education and income levels, digital illiteracy, geographical restrictions (rurality levels), and lack of interest have resulted in the emergence of the term the "digital divide" (Steele, 2019; Maryville Online, 2020; Cruz-Jesus et al., 2016). Defined as "the gap between individuals, households, businesses, and geographic areas at different socio-economic levels with respect to their opportunities to access information and communication technologies and the use of the Internet for a wide variety of activities" by OECD, the digital divide makes the already existing socioeconomic inequalities grow larger (Nieto, 2020). For instance, "college graduates are 10 times more likely to reap the daily benefits of computers and the internet than non-college graduates," "individuals with a $75,000 annual income are 20 times more likely to access the internet compared with individuals with a $30,000 annual income, and computer ownership and high-speed internet are 10 times more common for wealthy families than low-income families"; those with greater access can use the power of information acquired by the internet and computers to be more advantaged in job-search, healthcare, finance, etc. (Maryville Online, 2020). Aware of this, many governments and private organizations have implemented various solutions, sharing discarded computers, donating newer devices, making Wi-Fi connection more accessible etc., to "bridge" the digital divide (Steele, 2019). As the realization of ICTs starting to become an essential part of daily economic and social activities—along with the global initiatives aimed to foster access—rose, so has the internet access and usage rates: In 2019, for example, the rates in developed countries like the United States, Finland, Canada, and France were 79.88%, 94.36%, 91.00%, and 90.17% respectively, with developing countries like Turkey, Costa Rica, and Brazil having a comparable rate to their developed counterparts with 88.30%, 88.64%, and 71.40%, respectively again. (OECD) As a result of these increases in internet and technology access, the term "digital divide" has seen a drop in interest and attention from 2010 to 2020 (See Figure 1).

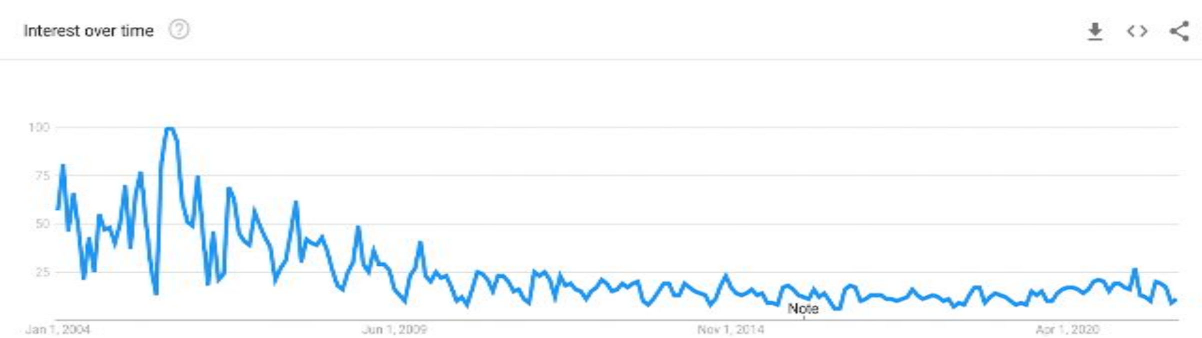

Figure 1 ("A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term.") (Google Trends)

However, although the term was initially mainly regarded as lack of physical access and ownership of computers, the OECD Secretariat claimed that "there is no single, clearly defined divide, but rather a series of gaps, brought about by a variety of factors, which often come together, many of which do not have their roots in technology" (Sparks, 2014). Therefore, despite the high internet and computer adoption rates, the digital divide still hasn't been solved thoroughly because of factors such as the differences between the quality of the internet, digital literacy, and online usage (Cruz-Jesus et al., 2016). The COVID-19's emergence, new social guidelines redefining everyday living, and making everyone heavily rely on the internet for work, school, healthcare, finance, and socialization was proof that the digital gap still exists in today's highly technological society. Although nearly 90% of respondents to a Pew Research Center survey cited the internet as important and 53% of them mentioned it as essential during the COVID-19 outbreak, learning gaps between students, differences in employment schemes, and exclusion from reliable health information and treatment occurred between those with affordable and reliable internet connections and those without, as 40% of the global population are still not active internet users in 2021 (Statista, 2021; Vogels et al., 2021). Even those who had access still had persistent problems regarding connection: the internet speeds were reduced worldwide during COVID-19, so connections with lower bandwidth aren't able to satisfy the multitasking needs of households (Lai & Widmar, 2020). In fact, internet speeds less than 25 Mbps "can only support one or two devices simultaneously and households with multiple users would require over 50 Mbps to stream high-quality content," but "15 million U.S. citizens still were below this benchmark when COVID-19 started" and only "51.6% of rural U.S. residents had 250/25 megabits per second (Mbps) internet access in 2018 compared to 94% urban residents" (Lai & Widmar, 2020). At times when the internet is more essential than ever, the penetration rates for broadband (high-speed internet connection) still not being close to the optimal limits of what users can do with the availability of the devices (Verizon; Ayanso et al., 2020). Thus, the digital divide is still among the crucial problems of the 21st-century.

The socioeconomic implications of the digital divide have been present in many areas of life. Still, education, work, healthcare, and economic growth are particularly affected by the gap between those who have access to technological devices and reliable and fast internet connections and those who don't, especially during the pandemic. This research examines the impact of the digital divide on these areas. A literature review is conducted, and based on the findings, the direction of the future of the digital divide and suggestions for future researchers, governments, and firms regarding digitalization campaigns and initiatives to promote digital inclusion on a global scale are given.

Education

Before the majority of schools switched to online learning due to the COVID-19 pandemic, the digital divide in education included schools' utilization of technological devices in teaching. While more affluent schools have provided the opportunity to integrate modern technology in their regular curriculum, poorer schools only use these technologies when only necessary, if they used them at all. Students of richer schools, for instance, are taught to conduct online research, statistical analyses, and video creation and editing. In fact, at some schools, every student is provided a MacBook and encouraged to learn basic skills that would be required in employment like Excel, Word, PowerPoint, iMovie, etc., in IT classes. However, schools on the other end of the spectrum mostly use technology to share slides of the existing material. It is not only the availability of the devices at schools, however. In developing countries that are slowly shifting their curriculum to a more digital one, teachers lack the skills to utilize technology efficiently. A survey by Samsung Electronics Africa demonstrated that 60% of teachers in Africa "feel they are ill-prepared to use and teach about technology to their students" (Steele, 2019).

After COVID-19, when nearly 95% of schools have been closed due to the outbreak, schools had to manage technology to keep educating their students. Ones that didn't use an online submission and announcement programs like Google Classroom or Blackboard searched for ways to integrate them into their education system and teach the programs to teachers who haven't used them previously. Still, the issue wasn't one-sided: students were required to access reliable internet connection and devices that supported the tools schools used for e-learning. However, as was the case before the pandemic, mainly due to the existent contrasts between income levels of households, students from less-affluent families struggled more in the transition from face-to-face to online learning. According to a Pew Research Center survey, "Overall, roughly one-in-five parents with homebound school children say it is very or somewhat likely their children will not be able to complete their schoolwork because they do not have access to a computer at home (21%) or have to use public Wi-Fi to finish their schoolwork because there is not a reliable internet connection at home (22%). And about three-in-ten parents (29%) report that it is at least somewhat likely their children will have to do their schoolwork on a cellphone." (Vogels et al., 2021). These issues were even frequent for those with lower incomes: The same survey by Pew found that "some 43% of lower-income parents with children whose schools shut down say it is very or somewhat likely their children will have to do schoolwork on their cellphones; 40% report the same likelihood of their child having to use public Wi-Fi to finish schoolwork because there is not a reliable internet connection at home, and about one-third (36%) say it is at least somewhat likely their children will not be able to complete schoolwork because they do not have access to a computer at home. At the same time, rural and urban parents whose children's schools have closed are more likely than their suburban counterparts to think that it is at least somewhat likely their children will struggle with their schoolwork because of a lack of digital resources at home" (Vogels et al., 2021) (See Figure 2).

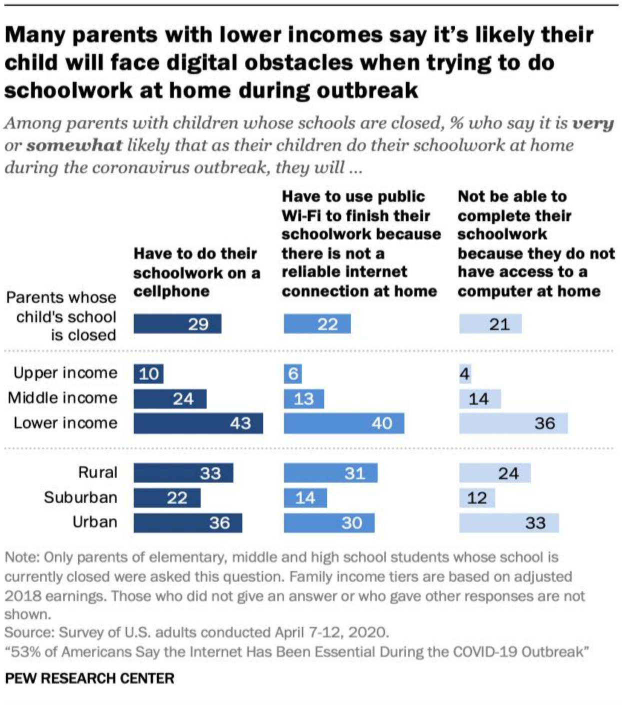

Figure 2 (Vogels et al., 2021)

Besides schoolwork, ICTs help students in learning new topics and skills. Today, platforms like Udemy, Coursera, and edX offer free online courses that provide students with enormous opportunities to enhance their skill set and learn what is of interest to them. Reddit, YouTube, and Netflix, although most see them as sources of entertainment, are home for knowledge with documentaries, written content, and other types of educational information. Likewise, Khan Academy is a completely free online platform that assists students' learning process throughout the school years. What's more, college applications are conducted entirely online, so students who don't have access to ICTs are precluded from extensive opportunities to be active and productive participants of the digital society. To prevent this, bridge the digital divide in education, and foster access to education to all students in this digital ecosystem, nationwide projects are necessary. For instance, One Laptop Per Child aims to fund every public school to reduce the lack of access to education with laptops and the Federal Communications Commission's (FCC) E-Rate helps schools to afford broadband connections (Steele, 2019). During the pandemic, "some school districts have also placed school buses on rotating schedules to provide temporary Wi-Fi hotspots" and "internet access has also been made publicly available to families with students in other places such as libraries, fire departments" (Lai & Widmar, 2020). However, the location of these buses or public spaces could present problems for households that live in more rural areas, where the digital divide is explicitly more common (Riddlesden & Singleton, 2014). Therefore, instead of temporary solutions like providing common areas, initiatives that aim to permanently solve this issue by providing broadband infrastructure and newer devices could effectively bridge the digital divide in education.

Employment

In the digital economy of today, businesses understand that they'll be wiped out by their technology-utilizing counterparts if they don't have a digital presence (Zadravec-Powell, 2017). Especially during COVID-19, this need showed its importance. As a simple example, restaurants that weren't on food-delivery apps witnessed a considerable decrease in their orders. In contrast, the ones that efficiently used these platforms and escalated their digital presence through digital marketing campaigns could stay in business even in the most extraordinary times. Besides company perspectives, though, the benefits of utilizing ICTs are especially notable for individuals seeking jobs (Chetty et al., 2018). As most companies seek to build a robust digital presence and build newer business models centered around digitalization, they mainly search for employees with strong digital literacy. In fact, "according to the U.S Department of labor, 77% of all U.S. jobs will require an individual to have computer skills by 2020" and "baseline digital skills alone pay a 17 percent premium over non-digital roles" (Steele, 2019; Mracek, 2018). Additionally, the job search has also gone online. LinkedIn, for instance, is now one of the most preferred business networking and job search platforms, both for employees and employers. Hence, ICTs could have remarkable benefits in the employment sector.

Healthcare

Access to technology became an essential aspect of healthcare as more people have relied on telemedicine during the pandemic, and having the required skills and devices is now among the factors that determine health. In the past years, online patient portals have become crucial for chronic disease management, calculating risk for particular diseases, and medicine and allergy tracking. After COVID-19, vaccine tracking, as well as getting reliable information about the virus were added to the prevalent use cases of these patient portals. Since information on COVID-19 could often be framed in hard-to-understand medical language, ones who couldn't efficiently use technology due to financial reasons or digital illiteracy couldn't efficiently make use of the reliable sources on the internet to obtain information about the virus, resulting in them deviating from the official safety guidelines to prevent the spread of the disease. What's more, in some countries, registration for COVID-19 vaccination is only made from online platforms, so ones who don't have access or don't know how to register by themselves have to call hospitals to get their registrations done, a lengthy and unconventional process that some might not want to put themselves in. This could result in more not getting the vaccine and thus creating a barrier to again limit the spread of the disease. Promoting digital literacy and internet and device access in order to mitigate the harms of the digital divide in healthcare could include hospitals partnering with community organizations to develop "education and skills-building programs," "government subsidies for broadband subscribership and data charge subsidies for mobile health applications" that helps reduce cost barriers, and more (Eruchalu et al., 2021).

Economic Growth

The utilization of ICTs has been noted for its major contribution to nations' overall economic development. From a supply-side perspective, they are effective in raising labor productivity and innovation, creating new business models and supply chain management, and allowing for greater access to input and output markets, creating spillover benefits in management models in many industries (Kouadri & Cherif, 2020). On the other hand, the usage of ICTs initiates a reduction in the transactional costs of customers on the demand side (Kouadri & Cherif, 2020). Furthermore, telecommunications and internet connection support the infrastructure of the digital economy such as digital marketing and online shopping (Steele, 2019). On a macro scale, a study by Deloitte revealed that "a 10 percentage-point increase of broadband penetration in 2016 would have resulted in more than 806,000 additional jobs in 2019, or an average annual increase of 269,000 jobs," "a 10 percentage-point increase in broadband access in 2014, would have resulted in more than 875,000 additional U.S. jobs and $186 billion more in economic output in 2019," and "adding 10 Mbps to average download speeds in 2016 would have resulted in 139,400 additional jobs in 2019 or about 46,500 additional jobs per year" (Deloitte, 2021). Another study demonstrates that the mobile technology and service industry made up for 5% of national GDPs amount for $191 billion and supported the creation of 1 million jobs in developing countries (Kouadri & Cherif, 2020). Thus, it can be concluded that societies who fail to integrate ICTs in their economy will fall short of significant growth potentials, as increased broadband penetration, availability, and speed all lead to noteworthy increases in economic growth, human development, and wealth creation (Kouadri & Cherif, 2020).

Suggestions & Further Research

Research on the digital divide was significantly larger during the time period from 1990 to 2010, but as demonstrated, it has reasonably fallen out of the literature due to the development of technology and greater internet access. However, COVID-19's emergence forced students, employees, and patients to go online to continue their activities and proved that the digital divide still exists in our highly technological ecosystem. It's no doubt that ICTs are now intertwined with daily lives and are especially important in healthcare, education, employment, and economic growth. Therefore, it is highly recommended for future researchers to examine the impacts of the digital divide during and after COVID-19 in order to guide policymakers through digitalization policies.

Conclusion

Although internet access and computer usage rates have risen, the digital divide has still manages to persist in today's constantly developing ecosystem. Today, the quality of internet connection and digital illiteracy define the digital divide more than solely lack of physical access. Its impacts, especially during the pandemic, have been observed mainly in the areas of education, employment, healthcare, and economic growth, as students who couldn't satisfy reliable and fast internet connections were cut short of their curriculum, employees who lacked the required computer program and software skills were laid off, patients who couldn't access online patient portals struggled more in getting reliable information on COVID-19 and registering for vaccination, and countries whose investment in ICT infrastructure were below the optimal saw inefficiencies in the workforce, innovation, and job-creation, ultimately resulting in slowly developing societies. As ICTs and digital literacy become so important for every citizen, largely in transition to the digital economy, the question of whether reliable and fast internet connections should be public goods instead of private goods arises. Still, as this question will eventually find an answer, a "call to action" is required for getting every member of this global digital society to be active contributors.

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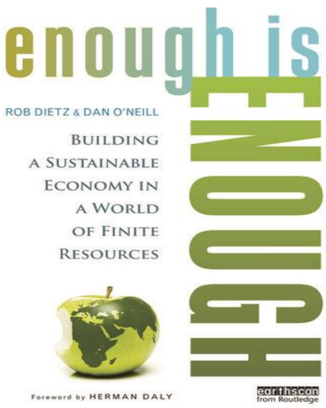
BOOK REVIEW-1

Cengizhan GÜLER*



Enough is Enough: Building A Sustainable Economy in a World of Finite Resources

Author: Rob DIETZ & Daniel O'NEILL

Published January 4, 2013 by Routledge,

256 Pages.

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"Only a crisis - actual or perceived - produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes politically inevitable."

The above quote taken from the book named Capitalism and Freedom belongs to the famous economist Milton Friedman. Those who think for a sustainable economy develop the foundation, like Friedman said, for the time when the current economic theory would be unusable as a policy tool. It is obvious that we do not experience a break that requires real change, but it should not be too difficult to predict that we are approaching this break.

Today, the necessity of establishing a sustainable economic system is considered as an indisputable fact. So where should this system get its foundations? In this context, the book named Enough is Enough, offers an effective road map for how an economic system that develops within ecological limits can be. The basic basis of the book in question comes from the acceptance that the economy, which is a much more vital reality, is a sub-system of ecology, despite the understanding that economies exist for growth. However, economies are simply too big for the broader social and ecological systems that contain them. The idea of the ultimate goal to better living standards for only humans causes the end of ecological sustainability. To accomplish this idea humanity, it needs bigger and bigger economies, but the pieces of evidence show that the pursuit of a bigger

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economy is undermining the life-support systems of the planet and failing to make us better off—a grave situation, to be sure.

When these realities are accepted, according to the author, we should say enough to many things that contain unemployment, debt, population, consumption, inequality, profit-oriented business, and so on. In this context, there are three basic requirements of the economic system to be formed on the axis of the integration of ENOUGH perspective to economic activity. The first is to realize that our resources are limited, the second is to prefer policies based on a balance between economic growth and environmental integrity instead of policies based on growth-oriented physical wealth, and the third is to act following these preferences.

In that the book, it is stated that the concepts that are vital for economic theory should be re-thought. The author emphasizes the need to re-think and change indicators such as the GDP, which shows the state of current economies and excludes many important impacts. For a strong example, in this context, the Genuine Progress Indicator (GPI) contrary to GDP adds to the value of positive actions that take place outside of the market, such as volunteer labor and work in the home. At the same time, GPI subtract undesirable expenditures on crime, pollution, and family breakdown, as well as the costs of environmental damage and the depletion of natural resources. When the GPI is taken as a basis, a comparison made between 1950-2000 reveals the fact that the GPI continues horizontally while the GDP increases.

The economic system proposed in the book, as a result of various analyzes and observations in the literature, is called the Steady-State Economy. This economic system is a system in which a balance is established between economic growth and ecological integrity.

Steady-State Economy can be summarized in four points:

a. Sustainable Scale: The economy should only grow if economic growth is beneficial.

b. Equitable Distribution of Income: More material consumption due to status competition created by income inequality should be reduced.

c. Efficient Allocation of Resources: Establishing a balance between the community, the market, and the state instead of the allocation offered by the free market.

d. A High-Quality Life for All Citizens.

In this system, factors such as consumption, birth rates, and production can be fixed so that they do not exceed ecological limits. According to this system, economic activity that will be continued within ecological limits will be formed on a sustainable basis.

Merve Tosun, "Book Review-2: Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2020: Improvements to Auction Theory and Inventions of New Auction Formats", **Journal of Sustainable Economics and Management Studies**, Vol. 2, Issue 1, June 2021, pp. 67-68.

BOOK REVIEW-2

Merve TOSUN*

Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2020: Improvements to Auction Theory and Inventions of New Auction Formats

Paul R. MILGROM and Robert B. WILSON

The act of selling the goods to the highest bidder and buying services or goods from the lowest bidder has existed since the very beginning of human history. There are auction minutes even in the historian Herodotus's writings that qualify as documents. Coming to today, the concept of auction is more important for individuals, companies, and governments than in the past. For the sale of precious jewelry, antiques, government bonds, products such as oil and minerals, and even for the sale of advertisements of search engines, auctions are used.

Observations show that there is a two-way positive effect between the increase in auction use and the increase in the field of auction theory. The theory deals with how the auction parties move in the auction market and explores the characteristics of this market. Auction theory first found its place in the economic literature with the studies of economist William Vickrey in 1961, using Game Theory. The two prominent names in recent years are Paul R. Milgrom and Robert B. Wilson, who were awarded the 2020 Nobel Prize in Economics for their contribution to this field.

The most striking contribution of Paul R. Milgrom and Robert B. Wilson, as well as many of their contributions to the field of auction theory, have been their inventing many new auction formats by identifying and analyzing multiple related objects and their salient common problems. The best known is "Simultaneous Multiple Round Auction". They designed this method in 1994 for the radio spectrum auction of the US Federal

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Communications Commission. This format is the most efficient method of selling spectrum even today. The SMRA format allows bidders to bid on any number of objects in multiple rounds, meaning that different objects related to each other are negotiated at the same time. This versatile feature reduces the winner's curse.

Other formats designed by Milgrom and Wilson include Stock Auctions (Wilson, 1979), Combinatorial Clock Auctions (Ausubel et al., 2006), and Incentive Auctions (Milgrom et al., 2012). For nearly half a century, Milgrom and Wilson have carried out deepening research into how auction markets work, enabling trained analysts to design new auctions, and the choice of many industries thanks to the variety and functionality of the auction formats they create. They brought theory and practice together by overcoming the problem of producing practical solutions that most economists lacked. These two valuable scientists, who contributed significantly to the real sector by carrying out studies that combine auction practices with theories, were deemed worthy of sharing the Nobel Prize in Economics in 2020.

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