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# Contents

## 2022, Vol.4, Issue.3

JOMAES

# Insecurity: A Cause And a Product of Conflict, Towards the Need for Independent Indigenous CSOs and Economic Hardship

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## Abstract

This paper explores the human security and economic hardship in the North-East after more than a decade long conflict with the insurgents. The paper unravelled that communities and towns do not have to flee even though successes were made largely as most villages and homes. It also discovered that people are still suffering from the consequences of the conflict economically and socially. If the inequities that gave rise to it are left unaddressed, there is the likelihood of a relapse into conflict. Therefore, it is recommended that the government should improve its work to provide security for the people. The formation of independent indigenous civil society organisations is paramount to checkmate the activities of the government. The approach employed PLS-SEM and tested two hypotheses for clear prediction and assumption as met. The CSOs can become important actors in reducing violence and facilitating the conditions necessary for building sustainable peace. However, such indigenous CSOs must shift focus and strengthen their abilities to mobilise expertise and resources from their domestic constituencies and reduce the excessive dependency on foreign donors. They must also reject any international support that resembles negative external imposition.

## Keywords
Insecurity, Conflict, Northeast, CSOs, Economic hardship

## 1. INTRODUCTION

The choice of the above topic is borne out of the fact that the Northeast and indeed Yobe state are flashpoints of Boko Haram insurgency, which gave rise to conflicts and violent extremism. It is, therefore, believed that in a society that pays scant attention to the safety of its people, society is at risk of being forgotten by history. For this reason, one would commence by stressing that in conflict situations, security is the most critical issue and no other considerations come close to it in importance. It is equally believed that a discussion on governance and post-conflict in the Northeast cannot - should not - take place without a clear focus on pre-conflict prevention in our society. So, as individuals and groups, we need to focus on insecurity. Addressing the issue frankly will be critical for our governments to improve their work towards enhancing human security. Besides, if

there can be no security in a state of conflict, then the conflict can be best avoided by enhancing human security to prevent conflict (Collins, 2000).

As rightly observed by the former United Nations Secretary-General late Kofi Anan, 'there can be no security without development, no development without security, and none of the above without human rights' (Anan, 2012). This goes to show that in a state of insecurity - when most men have been mysteriously killed and have still been killed, school children have been butchered, when there are still men and child soldiers who were forcefully conscripted to serve as guerrilla fighters, when girls and women have been forcibly abducted and married to the extremist fighters, internally displaced persons (IDPs), women widowed by the insurgency, escapees with 'unwanted babies or pregnancies', refugees and their families, and sporadic killings and gunshots. One cannot but say that talk of anything else is a luxury. Thus, even on a narrow understanding of security – halting the fighting and doing more to effectively protect those caught up in it is critical (Pouligny, 2005).

## 1.1. Causes of Conflict

In the same vein, the roots of insecurity must be addressed in any attempt to build a viable future and retain peace. For instance, if pervasive poverty and intolerance are widespread, corruption becomes the norm in the society; absence of justice is glaring; if the state monopoly of the legitimate use of force is undermined by unscrupulous elements; the prevalence of divisive ideology; if unaccountable and poorly managed police threaten the population; the military or intelligence units; if the proliferation and misuse of small arms are not curbed; if the rule of law disappears; the rule of force is supreme; if victims remain unassisted; extremists repentant are not properly reintegrated and deradicalised, the perpetrators of violence not prosecuted, then peace will remain elusive, and the relapse into conflict becomes all the more likely (Peter and Reily, 1998). For these reasons, the government must, as a matter of necessity, prioritise and act on essential elements that would enhance security not only in the Northeast but the entire country in general. As Pouligny (2005) further puts it, these essential elements that would enhance peace include, among others, security-related issues such as security sector reform, dialogue and reintegration, countering violent extremism, promoting support for gender and social inclusion, promoting religious tolerance, and demobilisation (Ibrahim, 2018).

Similarly, even the establishment of the North-East Development Commission may seem to stand out as a watershed commitment by the federal government. However, how this responsibility would be exercised will go a long way to answering many of our collective concerns regarding human security in the Northeast. But let's be clear: will the commission's establishment provide much assistance for those caught in the fighting. After all, when borrowing from the words of John Pepper Clark, causalities' are not only those who are dead or wounded; we are all casualties. Impliedly, the question that readily comes to mind is how will the government respond to protect the population and future generations from those massive and illegal attacks on physical security that so often accompany conflict?

It is on record that there exist carefully articulated standards as the legal duties of the state and the federal government David (2002), which addresses every aspect of security, e.g. rights to necessities of life as food, clothing and shelter; right to live; right to physical integrity, to education, to health, to justice, rights to political participation, not to be discriminated against, not to be tortured etc. As Amartya Sen (1999) puts it, all these are individuals' entitlements and not merely an aspiration.

These entitlements foster human development and provide a sense of direction for individuals to secure a life they have reason to value (Berge, and Collins, 2000). The denial will have very real significance for the security of those who are subject to the denial. That's why they need independent indigenous CSOs comes, as they will play a watchdog role which serves as a check on the power of the government by providing feedback on its performances and a partnership role together with the government on policy implementation.

H1      Civil Society Organisation has positive effect on Conflict and Economic   hardship

H2      Cultural organization has positive effect on conflict and Economic          hardship

## 2. METHODOLOGY

The desktop analysis and structural equation modeling were used in the study for better outcome. Out of 250 questionnaires sent, only 200 were returned, and approximately 80per cent were considered a good response. However, 30 per cent of the responses were from universities in North-East, 40 per cent from Civil society and 30% from the cultural organisation. Most of the respondents in this study were attached to a group, institution or organisation. Structural equation modelling was used to analyse the proposed hypotheses. In particular, the partial least squares technique (PLS-SEM), a variance-based structural equation modelling technique, was applied.

## 3. RESULT

**Need For Independent Indigenous Civil Society Organisations in the Northeast**:

It is important to point out that the insecurity in the Northeast and economic downfall of system that tremendously affected the presence of many CSOs, otherwise referred to as NGOs. They have been active in addressing some of the social and economic problems in society (David, 2002). However, their effectiveness in bringing about real change has been questioned due to varying factors, including increasing public distrust and uncertainty about their relevance and legitimacy. In addition, most of those presently on the ground are often seen as implementers of foreign policy agendas, and everything they do revolves around project timelines (Cox, 2008). Against this backdrop, the formation of independent indigenous CSOs with clear mandates that are responsive to the circumstances on the ground is necessary. Such CSOs, by their very nature, must be independent of direct government control and management. Their presence and initiatives will play essential roles in bringing about sustained transitions.  Understanding the Concept of CSOs: Undoubtedly, Paffenholz (2009) describes CSOs as an arena of human sociability. The possibility of hope and change resides; it creates an intellectual and political opening where different actors can criticise and practically address contemporary social problems. Moreover, most scholars John (2008), Edward (2004), Kaldor (2003), and David (2002) have all agreed that CSOs are complex and interconnected networks of individuals and groups drawn from rich histories of associational relationships and interactions.

These independent indigenous CSOs, if formed, can include a wide range of actors as trade unions, community-based organisations, faith-based associations, women and youth organisations, employees associations, cooperatives and self-help initiatives, cultural organisations, etc. Thus, they can also facilitate and advocate for policies and actions that represent their constituents' needs. Besides, they present a group of individual members who voluntarily form an association to promote the population's well-being in helping it resolve its problems, defend its rights (economic, social and political), its culture, and the environment (David, 2002).

**Table 1.** Perception of Model Measurement

| Constructs | Item | Loadings | AVE | CR | Alpha Cronbach |
|---|---|---|---|---|---|
| **Civil Society Organisations** | | | | | |
| | CSO 1 | 0.925 | 0.865 | 0.852 | 0.800 |
| | CSO 2 | 0.953 | | | |
| | CSO 3 | 0.798 | | | |
| | CSO 4 | 0.772 | | | |
| | CSO 5 | 0.876 | | | |
| **Cultural Organisation** | | | | | |
| | CO 1 | 0.865 | 0.807 | 0.814 | 0.819 |
| | CO 2 | 0.789 | | | |
| | CO 3 | 0.698 | | | |
| | CO 4 | 0.895 | | | |
| | CO 5 | 0.786 | | | |
| **Conflict** | | | | | |
| | CF 1 | 0.867 | 0.820 | 0.823 | 0.791 |
| | CF 2 | 0.951 | | | |
| | CF 3 | 0.765 | | | |
| | CF 4 | 0.711 | | | |
| | CF 5 | 0.806 | | | |

The above represent the factor loading, AVE, CR and Cronbach Alpha

The loadings were perfectly loaded, and items were also considered. The AVE indicates a good loading, as indicated by ( Kline 2007). The benchmark of the CR should be 0.7 and above, and all CR have met the predictions. The same with Cronbach Alpha, which moves in line with CR, and their benchmark was the same at 0.7.

**Table 2.** Hypotheses Testing

| H | Relationship B/W | B | SE | t-value | p | Decision |
|---|---|---|---|---|---|---|
| H1 | CSO -> Conflict | 0.225 | 0.067 | 3.358 | 0.000 | Supported |
| H2 | CO -> Conflict | 0322 | 0.079 | 4.076 | 0.000 | Supported |

As shown in Table 2, two proposed hypotheses were supported. Civil society organization was found to significantly influence conflict with $\beta = 0.225$, and p <.05); therefore, H1 was supported. At the same time, Cultural organization has ($\beta = 0.322$, p < .05), which was found to affect conflict significantly and therefore supported H2.

**Table 3.** Relationship Between The Variables

| Variable | (CSO) | (CO) | (CF) |
|---|---|---|---|
| Civil Society Organization | 0.000 | | |
| Cultural Organization | 0.894 | 0.000 | |
| Conflict | 0.671 | 0.782 | 0.000 |

The relationship between the variables are perfectively correlated which the Civil Society Organisation and Cultural Organisation are correlated with conflict at the level of 0.894, 0.671 and 0.782 respective.

## 4. CONCLUSION

In concluding the above treatise, one cannot but say that the complex nature of insecurity gave rise to conflict in the Northeast and economic hardship. Likewise, the inability of the government to provide human security feeds violence and violent extremism, which did not remain confined within the region. As a result, the area in particular and the country, in general, is going through a period that is crucial to its future. So, the contribution of all stakeholders, including CSOs, needed to overcome the situation has been explored. It is hoped that they can play an important supportive role in the policy formulation process if formed. But these cannot be achieved without a deep formation of independent indigenous civil society(s) capable of monitoring the government's actions and providing feedback for assessment.

## 5. RECOMMENDATIONS

It is recommended that let there be a system of government that is transparent and predictable in which the legal responsibilities and obligations are put in place. This requires not simply the establishment of commission and committees. It, however, requires: A sound system to ensure social, economic and political inclusion. It also requires an independent, effective, and professional judicial system, together with legal protections for personal safety and freedom. It requires the creation of a professional police force. It requires the government to eradicate poverty within the rural populace, make education accessible and qualitative to all irrespective of sex, and strive harder to provide qualitative manpower to drive the process of change, end gender inequities, and do more to strengthen democratic systems of governance. That is why it is important to establish independent indigenous CSOs that are responsive to the yearnings and aspirations of the ordinary people, who will pressure the government to live up to its expectation. Similarly, these independent indigenous CSOs must serve as watchdogs to checkmate the infiltration of NGOs with questionable missions and must also pressure the government to legislate on the infusion of some staggering issues that I referred to as 'neo-colonial agenda' alien to the culture and beliefs of our people, e.g. same-sex marriages. Also, such independent indigenous CSOs have to start working now. They must not wait until violence erupts, then they look forward to foreign donors to incorporate them as Adhoc staff or volunteers. We need collective commitment to make these things happen.

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# The Effect of Crypto Currency on Exchange Rate in Nigeria

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**Abstract**

In recent years, many changes in commercial activities have increased significantly. Electronic commerce continues to grow, but payment methods for services are growing, such as virtual currency. The acceptability and use of cryptocurrencies such as Bitcoin and other cryptocurrencies globally attracted the attention of economists and other financial experts in recent times. Nigeria is one of the most crypto-adopting countries globally. Still, the central bank recently issued a statement that appeared to be a ban on the usage of Bitcoin and other digital assets in the country. However, the scenario has changed as cryptocurrency grows and thrives in the country. Based on this, this study aims to examine the impact of Bitcoin on the exchange rate in Nigeria. The main independent variable is Bitcoin price volatility, specified as BTCE and controlled by the consumer price index and interest rate. The study used monthly time series data from January 2015 to December 2020 and analyzed using the Autoregressive Distributed lag model (ARDL). The result shows that Bitcoin price significantly affects the exchange rate in both the short and long run. A Higher Bitcoin price implies an appreciation of the domestic currency. Therefore, we recommend that the Nigerian government pay attention to the movement of cryptocurrency prices.

**Keywords**
Cryptocurrency, Exchange Rate, ARDL, Nigeria

## 1. INTRODUCTION

There have been several notable changes in commercial transactions in recent years. The growth of e-commerce and the form of payment for services and service providers also improved. There are different virtual currencies forms, including virtual currencies used in closed systems like cyberspace. These virtual currencies are generally not obtainable by legal tender and cannot be exchanged for legal tender (Dwi & Fazira, 2018). The second type is a virtual one-way currency, such as Amazon Coins or Facebook Credits and Microsoft Points which are no longer used today. This virtual currency can be purchased from legal tender but cannot be converted back into legal tender (Naheem, 2018). The last type is a two-way virtual currency. This virtual currency can be

obtained from legal tender and redeemed with legal tender. Cryptocurrency, such as Bitcoin, is the primary example of this currency because it is not issued by the central authority (Vandezande, 2017). In addition to Bitcoin, there are also other cryptocurrencies, such as Litecoin (LTC), Ethereal (ETH), Ripple (XRP), etc.

When it comes to crypto adoption, Nigeria is one of the world's leaders (BBC, 2021). However, on 5th February 2021, the Central Bank of Nigeria (CBN) released a statement that looked to be prohibiting the usage of bitcoin and other digital assets in the country. While many perceived this to be the end of the crypto business in Nigeria, the situation has changed, with cryptocurrency continuing to grow and thrive in the country. The restriction has had little to no impact on cryptocurrency use in Nigeria, as many people have adjusted to the current situation. Crypto traders have found new ways to buy Bitcoin in the country and continue their crypto trades (Premium Times, 2021).

Several studies examine the volatility of cryptocurrency in different parts of the world; for example, Karim, Abdul-Rahman, Yau, Hwang, and Kadri (2021) investigated the determinants and volatility of cryptocurrency and concluded that financial markets have a significant relationship with the crypto market and macroeconomic determinants are positively correlated with cryptocurrency. One important implication of this finding is that the short-run and long-run effect on the exchange rate due to cryptocurrency volatility was not taken into consideration. The Crypto market is currently highly speculative, volatile, and vulnerable to speculative bubbles that could affect domestic currency exchange rates (Katsiampa, 2017). The study (Dwi & Fazira, 2018) found that Bitcoin price volatility significantly affects the exchange rate in the long run and higher Bitcoin price volatility implies higher risk.

The major question is, what are the short-run and long-run impacts of cryptocurrency price volatility on exchange rates in Nigeria? This is the thrust of this paper; the study considered the short-run and long-run effects of cryptocurrency price volatility in Nigeria using Bitcoin price volatility, interest rate, and consumer price index as independent variables and exchange rate as a dependent variable. Autoregressive Distributed Lag Model (ARDL) is used to investigate the relationship. ARDL model is more robust and performs better for small sample size data, suitable for this research.

## 2. LITERATURE REVIEW

Bitcoin is decentralized digital money that was first introduced in January of 2009. It is based on Satoshi Nakamoto's concepts, which were laid out in a white paper by the mysterious and pseudonymous Satoshi Nakamoto (Bitcoin project, 2021). The identity of the individual or people behind the technology is still unknown. Bitcoin promises reduced transaction fees than existing online payment methods, and it is run by a decentralized authority, unlike government-issued currencies.

Bitcoin is based on a distributed structure spread through a peer-to-peer computer network. No central trust authority governs or maintains this system, and users are free to transact with other participants without fear of being watched or supervised (Wang et al., 2017). Because Bitcoin is so liquid, anyone can exchange it for any currency at any moment. On the other hand, the Bitcoin protocol does not impose any restrictions on transfers, even if the identity of its users is unknown. In comparison to other currencies maintained by banks, this enables foreign transactions a lot of freedom and speed (Dyhrberg, 2016).

Bitcoin can be obtained through "mining". Mining is done by special hardware with a certain amount of computing power, measured in hashes per second. Hash can be considered somewhat similar to the processing power of the CPU microchip, which is measured in hertz to determine how many individual calculations can be achieved per second. The aggregate Bitcoin network has a cumulative computing power additive for all mining operations employed worldwide. For every one GigaHash per second (1 GH / s = 109 hash) each miner puts online, the amount will be added to the overall network power. Mining is quite competitive because someone who mines with more computing power or with greater efficiency has a better chance of finding new Bitcoin than others (Hayes, 2017). In addition to mining, Bitcoin can also be obtained in exchange for domestic currency such as dollars, euros, yuan, etc.

Several studies investigate the determinant and volatility of cryptocurrencies. Studies such as (Janicki, 2019; Karim et al., 2021) claim that macroeconomic determinants are correlated with the volatility of cryptocurrencies, and financial markets have a significant relationship with the crypto market. Dyhrberg (2016) examines the capabilities of Bitcoin as a financial asset using GARCH models; the result shows that Bitcoin is useful in risk management and important for risk-averse investors. The volatility of Bitcoin and its role as a medium of exchange and store of value was also examined by (Baur & Dimpfl, 2021), who found that Bitcoin cannot function as a medium of exchange and has only limited use as a risk diversifier. Chang et al. (2021) examine the relationship between the Bitcoin exchange rate and other financial indexes in time series. The findings show that the Bitcoin exchange rate and google search volume index have a bi-directional relationship in both the short run and long run. The VIX is significantly related to the Bitcoin exchange rate in the long term cointegration. Therefore, this study analyzed the short-run and long-run impact of Bitcoin price volatility on the exchange rate in Nigeria, taking into account the interest rate and consumer price index as a proxy of inflation.

## 3. METHODOLOGY

This study uses autoregressive distributed lag (ARDL) to analyze the research problem. The Naira exchange rate to the US dollar is used as the dependent variable. The independent variables consist of the bitcoin price volatility of the BTCE, interest rate, and consumer price index as a proxy of inflation variables are in a natural logarithm. A sample of 72 observations consists of monthly data from January 2015 to December 2020 from the Central Bank of Nigeria, while Bitcoin price volatility data from www.eoddata.com. The model specification in this research is as follows:

$$ER_t = \beta o + \beta 1 VOLBTC_t + \beta 2 CPI_t + \beta 3 INTR + e_t \dots\dots\dots\dots\dots (1)$$

Where;

ER is the natural logarithm of the exchange rate

VOL_BTCE is the price volatility of BTCE bitcoin

CPI is the consumer price index, and

INTR is the interest rate.

Cointegration of the ARDL Bound test does not require all the integrated variables in the same order. It is developed based on the variables integrated in the order I (0) and I (1) or when all the variables are integrated in the order I (1). Abound test is done to find out the long-run relationship

based on theory. Without information about the long-run relationship of the variables in the model, therefore the model is presented below;

$$\Delta InEXR = \beta 0 + \sum_{i=0}^{p} \beta 1 \Delta InEXRt - 1 + \sum_{i=0}^{p} \beta 2 \Delta InVOLBTCt - 1 + \sum_{i=0}^{p} \beta 3 \Delta InCPIt - 1 + \sum_{i=0}^{p} \beta 4 \Delta InINTt - 1 + \lambda 1 InEXRt - 1 + \lambda 2 InVOLBTCt - 1 + \lambda 3 InCPIt - 1 + \lambda 4 InINTt - 1 + et \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (2)$$

The coefficients $\lambda 1$ to $\lambda 4$ show the long relationship between the variables, and the coefficients show a dynamic short-run relationship among the variables. The symbol "p" denotes the optimum lags in the model, ln is the logarithm operation, and $\Delta$ indicates the difference operator. In the Bound test, the combination of F-statistic whose unstandardized asymptotic distribution in the null hypothesis that there is no cointegration. According to equation 1:

$$H0 = \beta 1 = \beta 2 = \beta 3 = 0$$

$$H1 = \beta 1 \neq \beta 2 \neq \beta 3 \neq 0$$

In this step, F-statistic will be compared with the critical value tabulated by Narayan (2004) and Pesaran et al. (2001). If the F-statistic is higher than the upper critical, the null hypothesis (no cointegration) can be rejected, so the long-run relationship does exist. F-statistic that is smaller than a lower critical value implies that there is no cointegration since we cannot reject the null hypothesis. Meanwhile, F-statistic greater than the lower critical value but smaller than the upper critical value means the cointegration cannot be decided. For a model with all variables stationary at first order (I(1)), the decision is made based on the upper critical value. For a model whose variables are stationary in the level, the lower critical value must be a single consideration.

## 4. RESULT

The stationary test is essential for making sure the character of the data is relevant to be analyzed using ARDL. This study employs augmented Dickey-Fuller (ADF) for the unit root test. Before this test, the data is plotted to investigate the behaviour of the data. Figure 6 indicates that several variables in the model experience a trend. This is possible that some variables are not stationary at the level.
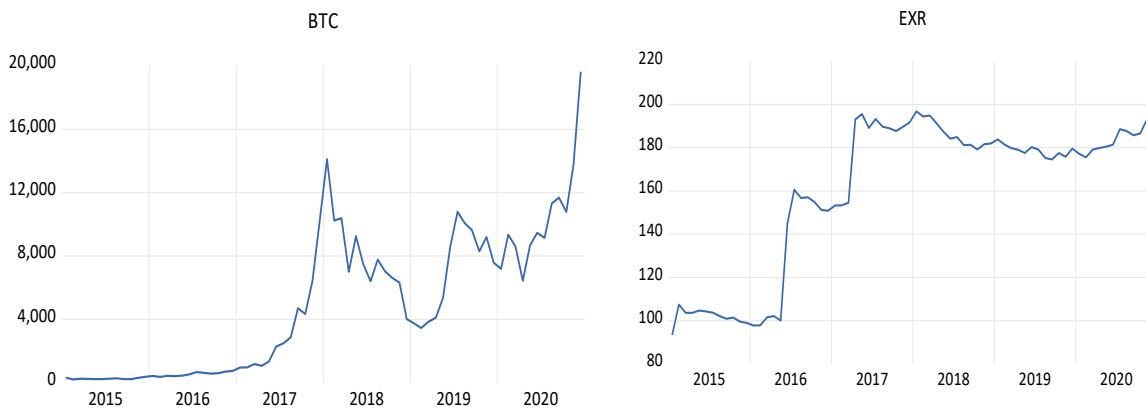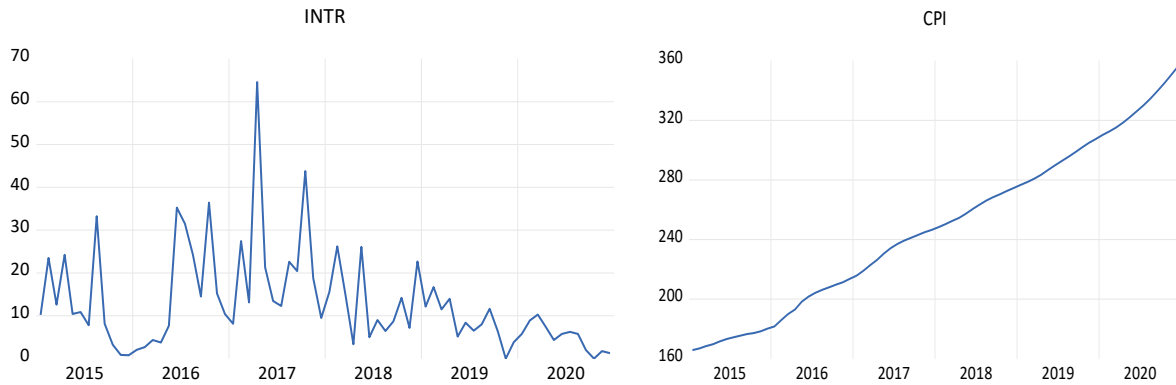
**Figure 1. Trend analysis**

From the diagrams, all the variables exhibit non-stationarity except interest rate. Furthermore, table 1 shows the unit root test using the augmented Dickey-Fuller method, which gives information on the stationarity of the variables. The exchange rate, the volatility of BTCE bitcoin price, and the consumer price index are stationary at first differencing while the interest rate is stationary at level.

**Table 1.** Unit Root Test

| Variables | | | | | Order of |
|---|---|---|---|---|---|
| | | | Constant | | |
| | Levels | p-value | 1st Difference | p-value | intergration |
| VOL_BTC | -0.50526 | 0.8833 | -7.826200 | 0.0000 | (1) |
| EXR | -1.76421 | 0.3951 | -7.717757 | 0.0000 | (1) |
| CPI | -0.12003 | 0.9424 | -4.954442 | 0.0001 | (1) |
| INTR | - | - | -2.72151 | 0.0760 | (0) |

**Cointegration Test**

After determining the stationarity level of each variable, the next step is to test whether there is a long-term relationship between variables in the equation using the bound test approach. In table 3, the F-statistic (F-statistic = 16.46966) is higher than the critical upper Bound (4.37) at 1% significance, meaning the null hypothesis of the absence of cointegration is rejected. There is a linear combination of variables in stationary and integrated models, indicating a long-term relationship between exchange rate and independent variable volatility BTCE, consumer price index, and interest rate.

**Table 2.** Bound Test

Dependent variable In exchange rate
F-statistics = 16.46966   K = 3

| Significant level | Lower Bound | Upper Bound | Decision |
|---|---|---|---|
| 1% | 2.37 | 3.2 | Exist relationship |
| 2.5% | 2.79 | 3.67 | Exit relationship |
| 5% | 3.15 | 4.08 | Exit relationship |
| 10% | 3.65 | 4.66 | Exit relationship |

Table 3 displays the long-term estimation for ARDL based on Akaike information criteria. BTC price volatility is negatively related to exchange rate in the long run, while consumer price index and interest rate are positively related to exchange rate in the long run, and all are statistically significant.

**Table 3**. Long Run Estimation

**ARDL Estimation. Dependent variable In exchange rate**

| Variables | Coefficient | Std. error | t-statistics | Prob. |
|-----------|-------------|-----------|--------------|-------|
| VOLBTC | -0.04724 | 0.010178 | 4.637911 | 0.000 |
| CPI | 0.812185 | 0.016249 | 49.98292 | 0.000 |
| INT | 0.102741 | 0.012843 | 8.00043 | 0.000 |

Note: significant level 5% [p-value 0.05]

After performing cointegration tests, the error correction model (ECM) is estimated to capture short-term dynamics. ECM regression result shows that the consumer price index has no impact on the exchange rate in the short run, while the interest rate significantly impacts the exchange rate in the short run. One-period long-term residual estimate with negative and significant coefficients at a significant level of 5%, ensuring that long-term equilibrium convergence can be achieved. The speed adjustment of the ECM model is -0.51183, which shows that about 51% of the deviation from long-run equilibrium is adjusted every year. It also shows that it will take more than a year to adjust to equilibrium once disequilibrium occurs.

**Table 4.** ECM Regression Result

| Variable | Coefficient | Std. error | t-statistics | Probability |
|----------|-------------|-----------|--------------|-------------|
| D(EXR(-1)) | 0.604250 | 0.194353 | 3.109027 | 0.0031 |
| D(CPI) | 0.065219 | 1.80004 | 0.036272 | 0.9712 |
| D(CPI(-1)) | -0.676293 | 2.45198 | -0.275814 | 0.7834 |
| D(INT) | 0.017446 | 0.006612 | 2.638416 | 0.0111 |
| CointEq(-1) | -0.51183 | 0.241198 | -0.26804 | 0.000 |

Stability tests are conducted using CUSUM and CUSUM of squares (CUSUMSQ) tests that reflect the stability of the estimated coefficients of the model while presenting a structural change in the correlation. The results are shown in figure 2 below. The result shows that the CUSUM and CUSUMSQ lie within the limits of the significance interval at the 5% threshold. Therefore, the coefficient appears stable.

**Figure 2. Stability Test**
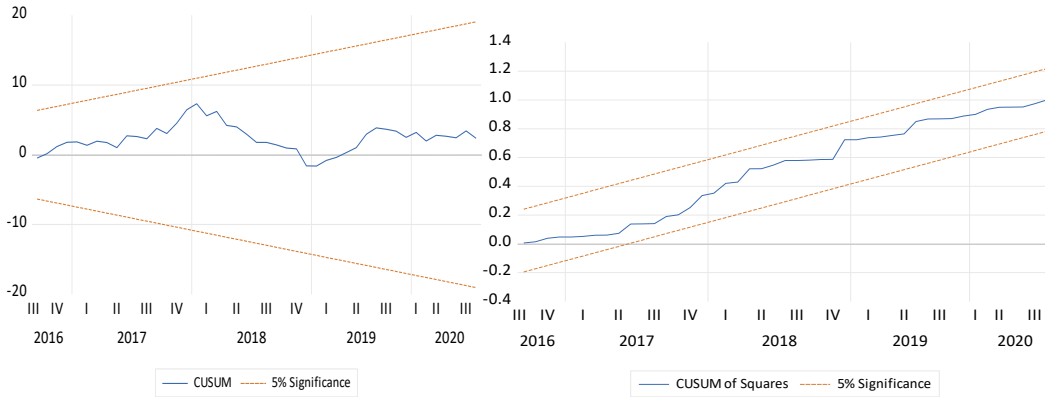


The other diagnostic tests are the issue of heteroscedasticity and serial correlation. Table 5 indicates that there is no issue of autocorrelation error and heteroscedasticity since the F-statistic is higher than the critical value so the insignificant P-value confirms this statement for both of the tests.

**Table 5.** Diagnostic Test

|  | F-statistics | p-value |
| --- | --- | --- |
| Serial correlation test | 1.443954 | Prob. F(2,43) 0.2472 |
| Heteroscedasticity test | 0.793406 | Prob.F(14,45) 0.6709 |

## 5. DISCUSSION

In the long term, Bitcoin price volatility has a significant negative effect on the exchange rate in Nigeria. When the Bitcoin price is low, people would be willing to buy and hold, which raises the exchange rate as local currency needs to be converted to US Dollar before buying Bitcoin in the crypto market. An increase in the demand for the Dollar leads to an increase in the exchange rate and, hence, the local currency's depreciation. On another hand, when the price of Bitcoin is high many people may be willing to sell, and the demand for the Dollar will be low which will cause an appreciation of the local currency. This corresponds to the theory that says when there is an increase in exports the exchange rate will appreciate. This is also in line with the findings of (Dwi & Fazira, 2018), that a decrease in price volatility of BTCE and current account leads to an increase in exchange rates while an increase in money supply increases the exchange rate.

However, some countries do not recognize bitcoin as a valid paying tool and for countries that permit bitcoin, not all producers/sellers accept bitcoin as a means of payment. Therefore, bitcoin is more often used as an investment tool. High price volatility gives high-risk consequences so that the higher the bitcoin volatility the higher the risk. In the long term, if bitcoin prices are more volatile it will cause people to be less reluctant to invest in bitcoins. Hence, people tend to switch bitcoin to the regular currency so that the domestic currency will be appreciated.

## 6. CONCLUSION

Nigeria is one of the world's leaders. However, on 5th February 2021, the Central Bank of Nigeria (CBN) released a statement that looked to be prohibiting the usage of bitcoin and other digital assets in the country. While many perceived this to be the end of the crypto business in Nigeria, the situation has changed, with cryptocurrency continuing to grow and thrive in the country. The restriction has had little to no impact on cryptocurrency use in Nigeria, as many people have adjusted to the current situation. From the results analyzed above, it can be concluded that the volatility of bitcoin prices in the long term has a significant negative effect on the exchange rate. The higher the volatility the higher risk. So that when the price volatility increases, people will switch to other investments besides bitcoin. The magnitude of the risk of investing in virtual money will tend to lead people to investments in regular currency so that the domestic currency will be appreciated. Therefore, we recommend that the Nigerian government pay attention to the movement of cryptocurrency prices.

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JOMAES

# The Effects of Organizational Climate on Organizational Identification and Job Satisfaction: The Hotel Sample

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**Abstract**

Job satisfaction and organizational identification perceptions of employees are essential in tourism. To create this perception not only management applications but also employees' personal differences, working environments, the relationship between employees and safety climate environment is needed. The purpose of this study is to determine how employees were affected by organizational climate and how their results affect organizational identification and job satisfaction perceptions. This study has been conducted by 300 employees who have been working at 4 and 5 star hotels. Data were collected through questionnaire by applying convenience sampling method. To test the hypothesis structural equation modeling was used. In this study, it has been observed that the job satisfaction is affected by organizational identification and organiational climate and that the organizational climate also affects organizational identification. According to these results, hypotesises of the research are supported. Theoretical contributions reveal that organizational climate affects organizational identification and job satisfaction. Like the results of similar studies in the literature, the results of this study will be beneficial for the hospitality industry.

**Keywords**
Hotel, Organizational Identification, Job Satisfaction, Organizational Climate, Safety Climate.

## 1- INTRODUCTION

Productivity is very important for businesses, so employee is the most important actor in productivity. The priority of organizations is to have and retain loyal, determined, talented, willing employees (Roos and Eeden, 2008: 54). These require employees who are satisfied with their work and the organizational climate in which they work and are ultimately motivated to maintain their relationship with their organization. Recently, organizational climate in employee productivity and how the employee percieve the organizational climate has become important. Therefore, it's decided to investigate organizational climate and what to do according to employees' opinions, if there isn't a positive climate.

Organizational climate, which is important in productivity also affects the perceptions of organizational identification and job satisfaction. Individual's level of commitment to the organization indicates the level of organizational identification of an individual. Organizational identification and job satisfaction are perceptions that are affected by the organizational climate.

These perceptions are even more important in hotels as they are labor intensive (Datta and Singh, 2018:40).

## 2- LITERATURE REVIEW

In addition to maintaining the professional activities of the hotel staff, it is important for the productivity of the staff to examine their relations with each other and with the management within the organization. In this study, the effect of organizational climate on job satisfaction and organizational identification was investigated and a literature review was conducted in order to reach the findings obtained from the studies of other researchers in the field and information on the subject.

### 2.1. Organizational Climate

Organizational climate is a concept that shapes the behavior of the employees. The definition obtained from a variety of organizational climate researches is as follows; how the employee perceive the business environment, whether they work in a secure environment or not, whether they are supported or not by the management, whether they are rewarded when necessary or not, perceptions that are formed according to psychological structures of the employee such as organizational unity and sincerity. The Employee want to work in a healthy environment. Healthy enviorenment, which is called courtesy, sincerity, reward, orientation activities forms the healthy organization climate (Tutar and Altınöz, 2010: 197; Madera et al., 2013: 29). In some cases, a negative organizational climate may occur in the workplace and the employee show negative behavior, most of the time management implements punishment, but it is more appropriate to consider to change conditions related to the security (Brondino et al, 2012: 1847). Increasingly, conflict is observed in various organizations, often manifested by the uneasiness of employees depending on the working environment. These can harm the mental health of the members of the organization and cause the organization to decline. In such cases, it can be considered that there is a problem in management activities. If a conflict is constantly seen in the workplace, it will result in loss and damage for the business as well (Apipalakul and Kummoon, 2017: 1217). "The International Labour Organization (ILO) stated in the 1950s that each employeed should receive health services and that it is a human right to work in a healthy and safe enviorenment and that this right is in the limits of the right to live and every country should abide this" (cited in Özkan and Emiroğlu, 2006: 45). Organizational climate dimensions such as autonomy and freedom, creates a positive effect on the knowledge and behavior of the employee (Shanker et al, 2017: 68). The safety climate generally has a significant impact on an individual's safety performance at work, the basis of which is individual subjective attitudes, personal well-being, and results related to safety. Personality traits are dominant structures in psychology and different perceptions are formed according to the Rsituation encountered. According to the Activation Theory, the effect of personality on job performance weakens when autonomy is low, and there is a stronger relationship between personality trait and wage satisfaction when organizational climate is perceived as high (Ji et al, 2019: 82).

### 2.2. Organizational Identification

The individual's self perception of being a a basic or a symbolic member of the group is defined as Social Identification. This definition has been developed for organizations, Ashforth and Mael (1989: 20) have defined the concept of organizational identification as "perception of being a unity in an organization of belonging to an organization". Organizational identification creates a positive

organizational climate, such as working harmoniously together and developing common institutional values. The concept of organizational identification has been known for a long time. Using social identity theory, researchers have argued that the cognitive connection between members and their organizations can profoundly affect the behavior of organizational members (Weng and Cheng, 2019: 3). Organizational identification is related to social relations, it is shaped and reinforced through active communicative behaviors of employees. This situation also shows that employees are motivated to participate actively in groups with which they define themselves strongly. The assumption in social identity theory is that people tend to evaluate themselves in terms of groups or organizations to which they belong. As a result of social identification processes, employees can develop a sense of psychological commitment when they are motivated. Employees with strong social identities share organizational success, workplace and organizational information on their personal social media accounts (Zoonen and Treem, 2019: 27). Organizational identification is a unifying force to maintain the relationship between the employee and the employer in organizations that are becoming increasingly complex due to globalization and technology. A strong perception of organizational identification in employees creates the desired positive behaviors in the organization. When the benefits provided to employees such as bonuses, job security, rewards and promotions decrease, negative perceptions against the company occur. As a result, employees begin to realize that employers are not fulfilling their obligations. Such employee perceptions, low employee performance and commitment, distrust, decreased organizational citizenship and organizational identification behavior and high turnover intention ocur. Decreased organizational identification perceptions of the employees can be increased by fulfilling the psychological contract of the employees by the management (Asadullah et al, 2017: 125). An individual's commitment degree of the organization membership indicated the level of the individual's level of organizational identification. Since the perceptions of the organizational identifications are different, the level of the employee's level of organizational identification are also different (Dutton, at al 1994: 244). Organizational Commitment and Organizational Identification are very close notions and they are confused with each other. While organizational commitment is a notion focused on the loyalty of employees to the organization, the eagerness to be a part of the organization and the behavior; organizational identification is a cognitive and a psychological process (Ketchand and Straws, 2001: 222 ).

In the psychology literature, it is stated that organizational identification is an internal thought to protect and improve the self-esteem of individuals on individual behavior (Abernethy et al, 2019: 2). Organizational identification, which represents a sense of belonging or unity to a group, an association, helps to meet important human needs such as the need for security and belonging, a strong sense of belonging. If employees feel a strong sense of organizational membership, they will tend to perceive their colleagues more positively, as a result, they will perform better group work by being more cooperative and supportive of each other. Employees with a perception of organizational identification should be more motivated to support in-group members in order to increase the overall success of their group. A strong sense of shared membership within the group and a shared social identity provides group members with a shared interpretation (Avanzi, et al, 2018: 155). Thus, the identification of employees with the workplace consists of cognitive and emotional dimensions. The cognitive dimension of organizational identification reflects the perception of providing a benefit by categorizing the employees themselves by determining the common characteristics and goals between the employee and the organization. The emotional dimension creates the perception of being proud of belonging to the organization in the employees,

it helps the development of organizational identification in the employees by presenting a positive image about the organization (Fallatah, et al, 2017: 174). Identity in working life is as important as the identity of the individual. Social identity researchers often when they examined the identities that emerged through organizational membership, they saw that there are different identities such as colleagues, supervisor, work group, profession, department and work unit in organizations. Each of these identifications creates the motivation for commitment to the group or organization. When this situation is taken into consideration, the effect of each identity on the other identity and the degree to which individuals combine various identities constitute the content of identification. Therefore, it is important to recognize and examine the differences because the identities found in organizations affect employee behavior (Matherne et al, 2017: 171). The more the employee identifies with the organization, the more he applies the qualities and characteristics of the organization, the happier he will be in himself and will be successful in his job. The connection between self and organization is important because through social identification the position of the organization is reflected in the self. According to the social identity approach, employees cooperate with the organization not only financially but also to feel good about themselves as human beings (Meleady and Crisp, 2017: 622). Owing to the regulatory role of corporate identity stemming from social identity theory, organizational identity refers to employees' perceptions of their identity in a particular organization. This perception is thought to be effective in the emergence of organizational identification. If the employees see themselves as a member of the company they work for and are proud of this situation, positive organizational identification can be mentioned. With a strong identification, the employees have a strong interest (Zhuang, et al, 2020: 3). Employees with a distinctive group identity tend to have a weaker reaction to stress during a stressful situation than participants with a clear personal identity. In his meta-analysis study, Riketta (2005: 360) showed that organizational identification was positively associated with helping colleagues. This research also showed that social support is effective between organizational identification and stress.

## 2.3. Job Satisfaction

Job satisfaction is described as, when the work life is evaluated, the pleasing or positive sentimental condition (Locke and Dunnette 1976, cited in Min et al 2018: 616,). Fisher (2001: 40), also defines the job satisfaction as "Pleasure or a positive feeling as a result of an employee's evalutation on their work or life". Job satisfaction is an important concept for every industry. In particular, the success of the labor-intensive tourism sector depends on customer satisfaction, which is affected by the quality of service provided by satisfied employees. The effect of job satisfaction in the service sector is not only a factor that affects the performance of employees, but also affects the performance of the business. It is especially effective in reaching the goal of the business (Romero et al, 2020: 2). In addition, as in other sectors, there is an intense competition in the accommodation sector, and in this case, meeting and satisfying the expectations of the employees are the necessary factors for success (Glaveli et al, 2019: 426). Hight and Park (2019: 234) found in their research that role ambiguity in the workplace has a negative effect on job satisfaction, and as a result, it reveals intention to leave. Job satisfaction is closely related to organizational climate like organizaional identification. A negative environment reduces the level of job satisfaction. Supportive management style can contribute to job satisfaction if management provides psychological empowerment of employees and helps to meet employee needs by acting consistently, competently, and autonomously (Hewagama, et al, 2019: 73 ). If the employee gets the job satisfaction they need from their job, they will have a positive atitude towards their job and the

work environment. Job satisfaction, the emplyee's reaction towards their work condition. Job satisfaction usually is affected by factors such as determining whether the expectations are met or not, wages, promotion oportunities, management style and colleagues. Employee satisfaction refers to a measure of their feelings towards the organization. They are more productive and more stable, especially when they are satisfied, and they display a positive view of the organization's goals. Job satisfaction can be evaluated from various perspectives. It can be evaluated to include the feelings of employees towards a job in terms of working conditions such as growth, wages, additional rights, supervision, colleagues and organizational environment (Appiah, 2019: 143). Wen et al. (2019: 127) stated in their study that emotional intelligence is effective in changing the attitudes and behaviors of employees in jobs involving emotional labor in influencing job satisfaction in the accommodation sector, and in this case, job stress can be reduced and job satisfaction can be increased. Even if employees are in a pessimistic mood or sometimes encounter difficult customers, they are expected to exhibit an enthusiastic and friendly attitude towards customers. According to the theory of conservation of resources, the sources that can be effective in the formation of job satisfaction are financial resources, personality traits of employees, conditions in business life, time and necessary information. In the academic literature, researchers from the fields of industrial-organizational psychology, organizational behavior and human resource management conduct various studies on the subject in order to analyze the antecedents and consequences of job satisfaction. Job satisfaction is an emotional state and a very important factor in an employee's life. For this reason, most of the academic research on this subject focuses on measuring and evaluating job satisfaction. Studies have shown that employee satisfaction in a business is affected by three basic relationships, employee-organization relationship, employee-manager relationship, and employee-colleague relationship. In fact, the employee-work and family life is also important for all these relationships to be balanced. Autonomy is important for most employees in job satisfaction, autonomy refers to the degree to which they can structure and control how and when they perform their work. Jobs with high levels of autonomy increase both job performance and satisfaction. In addition to being autonomous, working flexibly and working in a group, group belonging also provides job satisfaction (Alegre et al, 2016: 1390). Autonomy is closely related to job design, so it is an organizational behavior issue that also affects job satisfaction. Employee work in hospitality services is often characterized by significant human interaction, and employees are expected to provide superior service customized to meet a variety of customer needs. Although it is important how the job satisfaction of the employees in the hospitality sector is affected in order to realize this expectation, the researches in this field are less in the hospitality sector (Cheng, and O-Yang, 2018: 79). In general, job satisfaction can create a one-dimensional sense of satisfaction, various results of job satisfaction may occur in various occupations, job satisfaction may not develop depending on working hours, especially in the labor-intensive service sector (Madigan and Kim, 2021: 4). In addition, this negative perception has direct effects on burnout, confirming job satisfaction as an important predictor of burnout. Studies on this subject also show that there are relationships between job stress, social support and job satisfaction (Wu et al, 2021: 204). Many studies have shown that the support of colleagues and the environment, adequate work conditions improve the perception of positive job satisfaction in employees, and increase productivity and efficiency. Compared to employee motivation, job satisfaction is an evaluative judgment in a positive or negative sense, especially low wages, lack of organizational support, lack of career advancement and misjudgment by superiors, and complex communication environment with customers and colleagues are effective in the emergence of negative judgment (Silva et al, 2021: 2). Newly recruited employees may become dissatisfied when they are bored with their usual routine and face too

much uncertainty in their new job due to limited access to information. In order to prevent this, job satisfaction can increase by working longer and increasing the authority. This prediction is based on the theories of reducing the uncertainty of the job and the resilience of the job (Son and Ok, 2019: 73). Job satisfaction is a critical factor for attracting and retaining skilled workers. There is a very close relationship between employee satisfaction and customer satisfaction, this relationship directly affects corporate performance. This link is stronger in the hospitality industry, which requires high contact with customers. Employees with a low level of satisfaction also have low effort to be successful and therefore may offer lower service quality. Institutional service satisfaction has high performance returns through the profitability link (Stamolampros et al, 2019: 130). Studies have found that there is a relationship between increased workload and decreased job satisfaction. It was found that this relationship was not a significant predictor of job satisfaction by temporary employees, but it was a predictor for permanent employees (Inegbedion et al, 2020: 1).

## 3. METHODOLOGY

### 3.1. Research Model and Hypothesises

Research model has been formed based on literary scan and variables used during researches. Models and hypothesises which are formed according to the results of the literary scans and optimal to the aim of the research are shown below:
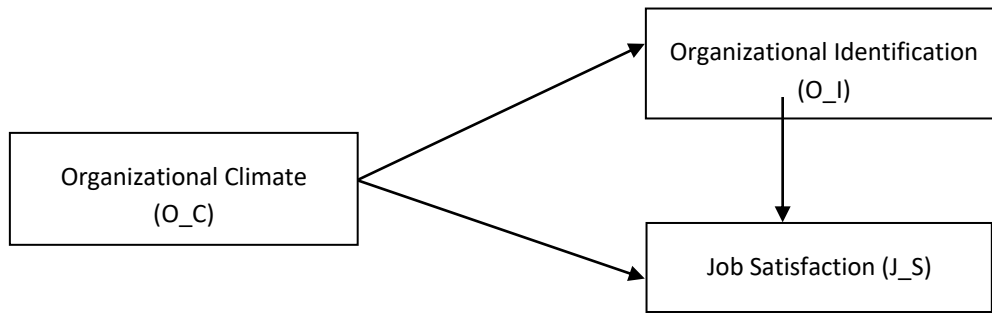


**Figure 1. Research Model**

**Hypothesis 1:** Organizational climate affects organizational idenification positively.

**Hypothesis 2:** Organizational climate affects job satisfaction positively.

**Hypothesis 3:** Organizational identification affects job satisfaction positively.

**Hypothesis 4:** Organizational climate affects job satisfaction through organizational identification.

### 3.2. Variables of Research

In order to measure organizational climate variable, a scale was developed by Türen et al. (2014: 176) and contains of 14 expressions. In order to measure organizational identification variable, a scale was developed by Mael and Ashforth (1992: 114) and contains of 6 expressions. In order to measure job satisfaction variable, a scale, which shows (Arnet, 1999; Judge et al. 2009) as references, was developed by Chen et al. (2009). It was translated to Turkish by Turunç and Çelik (2012: 65) and contains of 5 expressions.

### 3.3. SamplingProcess

As Altunışık et al. stated, in Sekaran's chart named as "Acceptable Sample Sizes for Specific Universes", it has been expressed that the largest population size of universe is 10 million, while the sample size required for this universe is 384. In this study the sample size is stated as 384.

In the studies in which each person involved in the universe doesn't have the equal chance to take part in the sample, it is better to use the sampling techniques not based on probability. Hence, it has been evaluated that convenience sampling is an appropriate sampling technique among the sampling techniques not based on probability (cited in Altunışık at al 2012: 137).

## 3.4. Data Collecting Method

As data collecting method on the research, survey method that contains closed ended and prepared beforehand questions has been used. The survey has two parts and 32 questions. In the first chapter, there are 7 questions orientes to demographical information such as gender, marital status, age, education, income, duration of work at the current workplace and duration of work in the sector. In the second chapter, there are 14 questions measure organizational climate, 6 questions measure organizational identification and 5 questions measure job satisfaction: 25 questions in total. Attendees were asked to agree or disagree to the statements using5-point Likert scales (1=Strongly Disagree, 2=Disagree, 3=Undecisive, 4= Agree, 5=Strongly Disagree).

## 3.5. Testing of the Scales Used for the Survey

In order to test the validity of the scales, confirmatory factor analysis has been performed by AMOS 22 program. Since compliance measurement values produced by the model created for the scale of the validity of the tests is not within acceptable limits therefore modifications suggested by the program have been made. As a result of modifications; 3 expressions were removed from the organizational climate scale, 1 expression from the organizational identification scale and also 1 expression from the job satisfaction scale so total 5 expressions were removed from the scales. Adaptive values have been produced by the measurement models are within the limits of acceptable so one factor that all variable structures were confirmed. In order to determine the reliability of the scale Cronbach alpha coefficients were calculated with SPSS 22 program. Coefficients was realized as 0.96 on the organizational climate scale; 0.79 on the organizational identification scale and 0.70 on the job satisfaction scale. This score shows that they are reliable quality scale.

## 4. FINDINGS

### 4.1. Demographic Features of the Attendee

%48 of the attendee are female (N=144); %52 of them are male (N=156). %61 is married (N=183); %39 is single (N=117). %23,7 is between 31-35 ages (N=71); %48,3 is graduated from high school (N=145), %70 hasbetween 1001-2000 TL income (N=210). %42,3 have been in the same workplace for between 0-3 years (N=127), %35 have been working in this sector for 11 years or more (N=105).

### 4.2. Structural Equation Modeling

Structural equation modeling formed in order to test the hypothesises of the research is shown on the Figure 2.
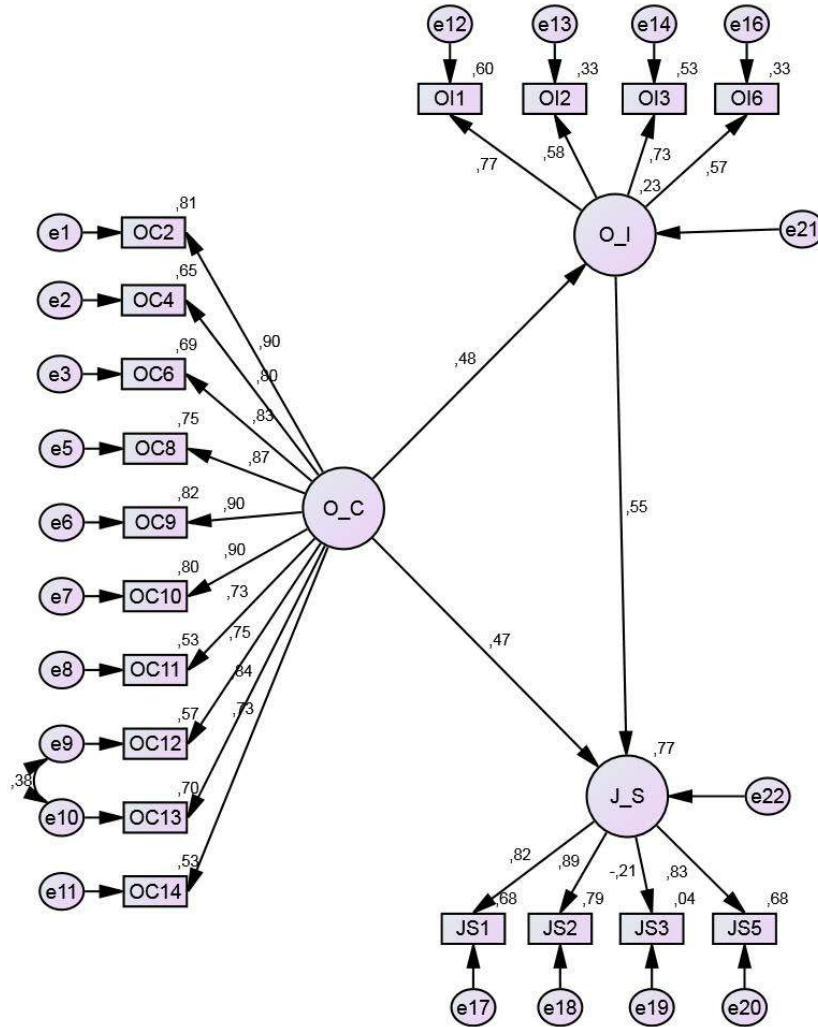
**Figure 2.** Structural Equation Modeling

Figure 2 shows adaptive values of the structural model is not in compliance with acceptable limits, the results of modification by suggested of the program 1 expression was removed from the organizational climate scale and 1 expression from the organizational identification scale. Modification results     adaptive value (X2: 501,981.940; DF: 131; X2 / df: 3,832; GF: 0.85; CFR: 0.94; RMSEA: 0.080) were observed to be within acceptable limits. Organizational climate affect organizational identification ($\beta$ = 0.48; p <0.05); organizational climate affect job satisfaction ($\beta$ = 0.47; p <0.05) and organizational identification affect job satisfaction ($\beta$ = 0.55; p <0.05). According to this results of the research 1, 2 and 3 hypothesis are supported. The total impact of organizational climate on job satisfaction,  $\beta$ = 0.73 was observed. The direct effect is $\beta$ = 47 of this effect, $\beta$ = 26 is realized indirectly. No. 4 hypothesis of the research are also supported according to the findings. When Squared multiple correlations (R2) values belonging to the model were analyzed, 23% of organizational identification with variable climate organization, 77% of job satisfaction with organizational climate and organizational identification were determined.

## 5. CONCLUSION

Scientific researches on increasing employee performance in the context of productivity in hotel businesses show that organizational climate is important in accommodation businesses with labor-intensive characteristics, as in other sectors. In this study, it's been observed that the job satisfaction is affected by organizational identification and organiational climate and that the organizational climate also affects organizational identification. According to these results, hypotesises of the research are supported. Results give essential hints on the hotel personnel's motivation for the hotel management. Creating a positive organizational climate in hotel is always an essential topic for employees' productivity and hotel success. The literature review is also similar to the results of this research. Appiah (2019: 146) stated that as a result of the literature review, the results of the researches were found to be highly likely to affect the job satisfaction of the organizational leaders who perform corporate social responsibility activities in the hotel industry. In their study, Subarto et al. (2021: 174) found that instructor job satisfaction can be explained by the work environment and organizational climate. Ciampa et al. (2021: 120) found in their study that when employees identify with their organization, individuals integrate their personal definitions with organizational membership and conceptualize it as a type of social identity, and thus organizational identity becomes a part of their self-concept. According to the results of the research conducted by According to the results of the research conducted by Korkmaz and Keleş (2021: 528), on hotel employees, they stated that the importance of the perceived organizational climate is emphasized due to the labor-intensive nature of the hotel industry. In the hotel where the research was conducted, it was concluded that working environments should be prepared in which managers give more voice to their subordinates, the power distance is at the lowest level, and the level of trust between the subordinates and superiors is high. The necessity of creating an organizational climate that will enable the employees to be happy in the working environment, especially in the tourism sector, where the working conditions are heavy and challenging, is clearly seen in the results of the studies in the literature. Same time for a positive organizational climate, job health and security should always be a top priority topic and it should be considered that the job satisfaction is affected by organizational identification and organiational climate and that the organizational climate also affects organizational identification.

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# Umrah Worship During The Pandemic Covid–19: Responses From Residents In Northern Malaysia

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**Abstract**

The Covid-19 pandemic that hit the world has affected many things including social and economic activities. For Muslims, among the main effects are the barriers to perform Umrah and Hajj where Saudi Arabia is among the countries that close their country's border gates from the influx of travellers. When most countries started to show decreasing number of covid-19 cases, this is where Saudi government reconsider to reopen its borders to welcome Umrah and hajj travellers. This study concentrates on Northern Malaysia namely the state of Kedah and Perlis. Quantitative research methodology was employed where 1093 responses gathered from both states from population of 2 million Muslims. Responses were very good and very positive. It is suggested for future studies to include the population for all over Malaysia or shall be extended to other places to evaluate interest among Muslims to perform Umrah once the situation has recovered.

**Keywords**
Umrah Worship, Residents, Pandemic, Covid-19, Northern Malaysia.

## 1. INTRODUCTION

Umrah worship besides Hajj is the duty of Muslims with once a lifetime of ability. The covid-19 pandemic that has hit the world since the end of 2019 has recorded millions of positive cases and recorded high number of death cases in many countries. Various measures were taken to stop the spread of the covid-19 including practising social distancing, travel and mobility bans, community lockdowns, stay at home campaigns, self- or mandatory-quarantine, curbs on crowding (Sigala, 2020).

The outbreak has led the Saudi government to impose visa and travel restrictions on umrah since late February 2020 to curb the spread of the outbreak. The Government of Saudi Arabia has also decided on a similar ruling on the implementation of the 1441H hajj season and only a small number of selected pilgrims are allowed to perform hajj (Majeed, 2020). However, in the vicinity of October 2021, the travel ban began to be relaxed. Government of Saudi Arabia has begun to loosen the conditions for the Congregation especially umrah to perform umrah.

According to Buang (2017), at least 136,000 Malaysians performed their umrah in 2011. Nevertheless, the number of Malaysian umrah pilgrims dropped sharply to 90,000 in 2012. This number decreased due to the expansion of facilities at Mecca's Grand Mosque and the number of umrah visas issued by Saudi Arabia that year were reduced. In comparison, the number of Malaysian Muslim pilgrims going umrah back increased to 230,000 in 2013.

In 2014, the number of umrah pilgrims increased to 250,000 and in 2015, to 290,000. In the first half of 2017, the number of umrah pilgrims was about 230,000 and increased to 274,066 congregations for the first half of 2019. In recent years, Malaysia's umrah tourism industry has seen an explosion involving 573 licensed tour operators and Umrah tourism agencies (Ministry of Tourism, Arts and Culture Malaysia, 2020). In Kedah alone, there are 63 agencies that manages umrah travel and in Perlis, there are 4 travel agencies involved.

## 2. LITERATURE REVIEW

Within almost 2 years of the Implementation of Movement Control Order (MCO) implemented in Malaysia, many Malaysians were affected. Some have lost their jobs, some have been affected and more problems arise. Among the sectors severely affected are tourism-related sectors and this includes travel agencies that manage umrah and hajj travel (Sigala, 2020).

The Malaysian government has announced the authorization of cross-state movement including abroad after Malaysia achieved a vaccination rate of 90 percent of the adult population (Vincej, 2022). This was response by the Malaysia's Health Minister Khairy Jamaluddin which clearly stated that, when opening the border, people need to adhere to the standard operating procedure (SOP) developed by Health Ministry.

This news is a very good news for umrah pilgrims from Malaysia who have been forced to postpone their journey (Adnan, 2021) for almost two years due to the Covid-19 pandemic that has hit the world. This decision was made by the Malaysian Government following to the increase in daily cases of Covid-19 in the Kingdom of Saudi Arabia, apart from the spread of Omicron variant in Malaysia among the umrah pilgrims.

For tourism industry to recover, t is suggested by Helble and Fink (2020), a wise decision by the government is through introducing a phased approach. It is true that in the early stage of pandemic, strict lockdowns were required which makes impossible for tourism to occur. However, slowly tourism sector can be re-open gradually according to the latest situation ( Sharma, Thomas, & Paul, 2021).

The latest information (on umrah requirements) is that the Saudi government required the third dose for Sinovac vaccine recipients. However, for recipients of Pfizer and AstraZeneca vaccines, it is not necessary for them (Halid, 2021). Recipient of sinovac vaccine can still perform the Umrah provided need to equip themselves with the third dose of vaccine (Halid, 2021). However, for this purpose, various precautions must be taken to ensure that the congregation's process of performing umrah  (Basahel, Alsabban,, & Yamin, 2021) runs smoothly and the safety of the congregation are also guaranteed.

### 2.1 Problem Statement

Currently, there is an increase in the price of umrah packages (Hassan, 2022) offered by travel agencies that have permission to bring umrah pilgrims. The increase in the price of umrah packages is due to the SOPs that have been set. The situation happens when only two congregations are allowed to be in one room. Secondly, the cost must be shared between the six congregations in the pre-pandemic period.

Some additional costs to be considered include hotel Value Added Tax (VAT) in Saudi Arabia, Covid-19 screening test for pilgrims before leaving for holy land and while in Saudi Arabia and before returning home. However, the number of pilgrims assigned in one trip is still the same as before which 30 to 40 pilgrims aged 12 years and above besides requirement for the complete dose of vaccination.

With introduction to the additional conditions, there is an increment of RM1,000 where the additional costs included of an increase of visa fee, cost of the self-testing kits, accommodation and transport. This makes the cost to perform the umrah saw an increment up to RM8,500 as compared to RM5,500 before the pandemic, as reported by chairman of Association of Umrah and Haj Travel Agents (Papuh) Datuk Seri Razali Mohd Sham (Halid, 2021). The Malaysian government, through the tourism, arts and culture ministry, has decided RM6.900 as a floor price for an umrah package of 12 days and 10 nights (Bernama, October 17, 2021). The initiative introduced by the government as a means of retaining and controlling the price hike for the Umrah packages.

Issues on Umrah worshippers is becoming a hot news since many potential clients are not clear with the travel guidelines provided by the government. Therefore, a lot of misunderstanding occurs and create unhealthy situation for the client as well to the government. From another point of view, background factors such as desire to achieve, accept responsibility, hard work and risk orientation (Tong & Anuar, 2018) of the tourism business becomes the key to successfully flourish the tourism industry in particularly umrah travel packages.

As for the Malaysian government, miscommunication occurs between Ministry of Foreign affairs and Ministry of health. Proper coordination between both is compulsory for Ministry to avoid any conflict arises. After all, it is understood managing crises during this pandemic era is difficult (Kaul, Shah, & El-Sherag, 2020) since this is the first time everybody experienced such situation. Kaul, et. Al (2020) highlighted that during the crisis, communication must be clear and consistent, nevertheless should be adaptive as well.

Chairman of National Recovery Council (MPN), Tan Sri Muhyiddin Yassin highlighted that the Malaysian government will announce the reopening the borders soon. Health Ministry is finalising the Standard Operating Procedures for the full reopening of the borders since the first lockdown on March 18, 2020. In the meantime, Cabinet will decide that the SOPs needed to be established before a date for the reopening can be announced. Furthermore, the longer the country's borders were closed, the worse it would be for the economy (Zainuddin, 2022).

From the above argument, it provided a strong justification to look into UMRAH WORSHIP among the Northern Malaysia Muslim population. Their responses on Umrah Ibadah DURING THE PANDEMIC COVID–19 will become a guideline for the government to look into the matter seriously. This doesn't reflect on the government policy alone but affects the tourism industry, umrah travel operator, agencies, as well as the airline industry.

## 2.2 Research Objectives

The main objective is to identify responses of the Muslims from the northern states of peninsular Malaysia which are the states of Kedah and Perlis to perform umrah during the pandemic period of Covid-19. It is important to assess the capabilities of prospective umrah pilgrims and the findings will help tourism industry players, government, airline industry and many other stakeholders.

In terms of umrah and hajj affordability, there are two types of capabilities that can be discussed. Capable is divided into two, namely affordability in terms of physical and mental health and financial health as well as having a vehicle to go to and from.

While in other aspects of ability, indirect ability and umrah or hajj can still be performed by hiring others to perform Hajj or Umrah for illness or death (Mustafa al-Bugha, 2013). It can be concluded that the ability can be translated in several aspects. Firstly, ability is described as ones' healthy body condition, thus not affecting the journey to and from performing umrah or hajj.

Secondly, the ability is measured in terms of adequate financial resources to go to and from the family beyond the needs of oneself and the family. Thirdly, having the facility of good and last vehicles, involving peaceful travel to or from back, such as no war, riot or emergency (Ibrahim, 2009).

## 3. METHODOLOGY

Survey questionnaires were used as a strategy to collect the data. The survey questionnaires were distributed to all respondents. It was distributed to Muslim residents around the state of Kedah and Perlis to evaluate their response to perform Umrah. This is done soon after the Government of Saudi Arabia start to loosening the conditions for travelers to visit the two Holy Place of Muslims.

Population of the study were 2 million Muslims for both states, Kedah and Perlis. According to Krejcie and Morgan (1970), the sample needed are 384. Since the study is religiously related, it manages to catch the eye of the Muslims where a total of 1093 responses received. All the responses were complete responses and fit to be analyzed. This indicates how serious Muslims in both states responses to issues related to their religion. Sample which is more than 384 required responses increase the reliability of the responses. This improves the reliability of the data gathered.

## 4. RESULTS

The article below analyzed the data from the perspectives of demographic of respondents. Data is presented in the form a table. The demographic profile for respondents includes their age, household income, marital status, states where they are residing, experience performing Umrah/ Hajj before, barriers to travel abroad, and have they registered for Umrah during pandemic season.

## 4.1 Demography

Below are the table based on the data received.

**Table 1.** Respondents' Demography

| No. | Items | Percentage (%) | Total Respondents' |
|-----|-------|----------------|--------------------|
| | | **Age** | |
| 1 | 20-30 years old | 6.45% | 67 |
| 2 | 31-40 years old | 19.63% | 204 |
| 3 | 41-50 years old | 29.36% | 305 |
| 4 | more than 51 years old | 44.56% | 463 |
| | | **Household income** | |
| 1 | RM1,000-RM3000 | 24.35% | 253 |
| 2 | RM3,001-RM5,000 | 25.22% | 262 |
| 3 | RM5,001-RM10,000 | 33.30% | 346 |
| 4 | More than RM10,000 | 17.13% | 178 |
| | | **Marital status** | |
| 1 | Single | 7.41% | 77 |
| 2 | Married | 87.10% | 905 |
| 3 | Others (Widower/Single Mother/Divorced) | 5.49% | 57 |
| | | **State** | |
| 1 | Kedah | 88.45% | 919 |
| 2 | Perlis | 11.55% | 120 |

| | Experience performing umrah/haji worship | | |
|---|---|---|---|
| 1 | Have experienced performing Umrah/Haji Worship | 52.26% | 543 |
| 2 | Have not experienced performing Umrah/Haji Worship | 47.74% | 496 |
| | **I have no barriers to go abroad** | | |
| 1 | Yes | 88.35% | 918 |
| 2 | No | 4.04% | 42 |
| 3 | Not Sure | 7.60% | 79 |
| | **I signed up for Umrah Package but failed to get there due to Covid-19 pandemic** | | |
| 1 | Yes | 12.51% | 130 |
| 2 | No | 87.49% | 909 |

*Respondent's Age*

In total, 1039 respondents were involved in this study. In terms of age, the majority of the respondents were from those between the ages of 51 years and above where their total comprised 44.56% of the respondents and the second highest were those aged 41 to 50 years.

*Household Income*

In terms of household income, majority of the respondents with 33.30% had household income between RM5001 and RM10,000 and 25.22% of the respondents had household income between RM3,001 and RM5,000 and 17.13% of the respondents had household income in excess of RM10,000.

*Marital Status*

In terms of marital status, the majority of the respondents were married with 87.10 %, 5.49% consisted of single parents and the remaining 7.41% were unmarried.

*State*

From the total respondents involved, 88.45% were from Kedah and 11.55% were from Perlis.

*Experience Performing Umrah/Haji Worship*

Based on the respondents' feedback, 47.74% of the respondents had experience performing hajj or umrah while another 52.26% did not have experience of Hajj or Umrah.

*Barriers to Go Abroad*

In terms of overseas barriers, 88.35% of respondents stated that they have no barriers to going abroad, 4.04% have obstacles abroad and the remaining 7.06% are unsure whether or not they have obstacles to travel abroad.

*Registered for Umrah During the Covid-19 Pandemic*

A total of 12.51% of respondents stated that they had actually registered to perform umrah but failed to make it to the Holy Land due to the Covid-19 pandemic while the majority of respondents did not register to perform umrah during the Covid-19 pandemic.

## 5. DISCUSSION AND CONCLUSION

As a conclusion, even due to the pandemic covid-19 crisis, there are still a high demand for the Muslims in Northern Malaysia to perform Umrah ibadah. They showed great interest in performing umrah despite the increase in floor prices of umrah packages provided due to the increased cost of umrah management. Majority of the respondents still have the intention to perform umrah in the near future and have special savings for this purpose.

Muslims in the age category on 30 years old and above indicates more than 93.55% willing to perform Umrah Ibadah. Findings of the study showed that 75.65% of Muslims who intend to perform Umrah has household income of RM3000 and more. Financial stability aspects are vital in performing such ibadah.

Interestingly, it was reported that 87% of potential umrah worshippers are married couple. This signifies that performing ibadah with spouse and families have more family bonding which in return strengthen the family ties. 88.45% respondents were from the state of Kedah whereas the balance came from the state of Perlis. It happens because the State of Kedah has a higher population of Muslims as compared to the state of Perlis.

Inexperience potential of Umrah worshippers interested to perform it with 52.26% while remaining of them wants to continue returning performing Umrah. They are willing to invest to visit the Holy land due to passion in doing the ibadah. 11.1% respondents mentioned about their travel restrictions. The rest are confident with their condition to perform the Umrah ibadah.

87.49 % of respondents mentioned that they have not registered yet with Umrah Travel Agency due to the uncertainty that is happening right now. They are in the category where the moment the travel restriction being uplifted by both governments, they will surely register.

In a nutshell, for whatever situation that happens, strong interest still exists among Northern Malaysia Muslims to perform umrah and Hajj. It is their hope that the pandemic covid-19 to be over and they are willing to sacrifice to adhere to any Standard Operating Procedure provided by the authorities. Their main goal is only one, to be able to perform Umrah Ibadah and Hajj.

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**JOMAES**

# Systematic Review and Meta-Analysis of Efficiency in Maritime Industry

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**Abstract**

The purpose of this paper is to complement and extend previous literature reviews on technical efficiency (TE) in Maritime Industry, analysing the effects of different methodologies and study-specific characteristics on Mean Technical Efficiency (MTE). The researchers independently conducted a systematic review of more than 171 full text papers from four key electronic databases and the results from meta-regression analysis of 35 published papers in maritime industry worldwide are discussed. The variation in the mean indexes in the literature can be explained by the methodology of estimations (parametric, non-parametric), the data collecting scheme and sample size. This study makes two important contributions: first, it updates and compares previous works on frontier estimation efficiency in maritime industry; and second, it has brought in 'sector' as another dimension for analysis.

**Keywords**
Maritime Industry; Meta-Analysis; Operational Efficiency; Frontier Models.

## 1. INTRODUCTION

The role of maritime industry is a crucial in global trade and economic activities. The United Nations Conference on Development and Trade (UNCTAD) statistics has indicated a rapidly increasing trend in the annual demand and supply for all types of cargoes transported (Asariotis et al., 2015). Around 80% of world merchandise depends on seaborne transportation. For the year 2014, in the most developing economies and also in the economies in transition, the gross domestic product has expanded at slower rates between 4.5% and 0.9%, respectively (Asariotis et al., 2015).

There have been perennial concerns concerning the expansion of the world 's seaborne trade and derived profits and the argument have centered around actions for improving efficiency. Several studies have highlighted that scope exists for maritime industry to boost profits and performance ( Gutiérrez, Lozano, & Furió, 2014; Chang & Liao, 2012; Kim, Lee, Bae, & Park, 2011; Odeck, 2008; Managi, 2007).  In such light, understanding the factors affecting efficiency is imperative to improve performance and efficiency. Effectiveness was defined by Farrell (1957) in 2 ways: first, the ability of firms to create the maximum feasible output with a given bundle of inputs (output oriented); or even second, the ability of firms to make use of minimum inputs to produce a given level of outputs (input oriented).

Corrective actions based on efficiency measurements as also identifying the potential sources of inefficiency can result in substantial resource savings. These resource savings have important implications for both policy formulation and shipping management. Therefore, a firm may be considered to be technically efficient if it is able to achieve maximum output from its set of inputs (Talas, et al., 2013), or perhaps minimise its consumption of inputs to produce a given level of output (Kuwahara et al., 2013).

Different methodologies and tactics to measure TE have produced a wide range of results. Timmer (1971) used linear programming techniques to estimate the efficiency frontier and generated both probabilistic and deterministic frontiers. Nevertheless, both the methods have been compared with the ordinary least squares (OLS) technique. But the outcome from OLS technique application appears to have a management bias and lacks identifiable statistical properties (Greene, 1980).

Management bias occurs when efficiency correlates to the efficiency factors. When such a condition persists, the estimation becomes useless and can only be used to justify the hypotheses. Many authors have discussed the advantages and limitations of different methodological approaches ( Coelli, Rao, O'Donnell & Battes, 2005; Banker, Charnes & Cooper, 1984; Charnes, Cooper, & Rhodes, 1978; Schmidt, 1976).

Many alternate techniques may be proposed to evaluate comparative efficiencies such as the least squares econometric production model and total factor productivity index etc. It is to be observed that these models fundamentally presume that all firms are technically efficient, and are applied to defined scenarios and not widely used.

To choose an effective tool for such measurements, efficiency can be defined as the relative overall performance of a set of firms that make use of a variety of identical inputs to produce a variety of identical outputs (Afzal & Lawrey, 2012). This is also referred to as economic efficiency or technical efficiency and the price (TE) of the industry, as interpreted by Farrell (1957). In this context, TE measures the shortfall of the output (Danquah, Barimah, & Ohemeng, 2013) with an approach towards the industrial frontier (Deng, Wong, Wooi, & Xiong, 2011).

Within this scope of this context, this paper complements and extends the previous literature reviews on efficiency in maritime industry. This was achieved by compiling all the newly published empirical evidences and analysing the effects of different methodologies. In order to achieve this goal, a meta-regression analysis of 35 published papers in maritime industry has been applied. This study makes two important contributions to the literature, firstly it has updated and compared the previous works on frontier estimation of efficiencies in maritime industry and secondly it has added two maritime industry related dimensions to the known differentials of efficiency measurements (viz., economic development and size).

## 2. LITERATURE REVIEW

The preliminary works comparing the productivity levels amongst different nations commenced in the mid-20th century (Broadberry & Fremdling, 1990). During that period, productivity was measured as the ratio of output to the variety of workers. For instance, Rostas (1943) measured productivity as the ratio of physical output per value and per person.

Farrell (1957) provided a new definition for productive efficiency, as the connection between the set and the output pair of inputs. Furthermore, Farrell interpreted that technical efficiency reflects the quality of the inputs, while the price efficiency is actually the manifestation of the firm 's adaptability to the price factor.

Similarly, Farrell and Fieldhouse (1962) validated the findings of Farrell (1957) in a study of productivity and efficiency measurements in situations where there are several outputs and many inputs. They recommended two techniques to measure productivity when such a condition is experienced and the condition persists. One set of results measured each output over the set of inputs while the other measured the set of outputs over each input.

Schmidt (1976) studied the appropriateness of the parametric frontier estimation techniques of OLS and maximum likelihood estimation (MLE). Schmidt (1976) argued that OLS is the

appropriate method for testing a hypothesis concerning the constant returns to scale. But for estimating the frontier only, OLS may not appropriate. Likewise, where the regularity conditions (independent of a parameter) are uncertain, application of MLE could be only on a case-by-case basis.

Charnes, Rhodes and Cooper (1978) developed a model to estimate the efficiency of firms with common outputs and inputs. This model employs OLS and will be appropriate for aggregated time series only, but the new model is adaptable while measuring multiple firms at one point of time. The latest development referred to as CCR (constant returns to scale model) measures the effectiveness of the ratio of weighted outputs over weighted inputs. This particular design is primarily used to assess the programme/product and the management of a firm (Banker et al., 1984). Later, Banker et al. (1984) developed another model to measure technical and price inefficiency, known as the BCC model. Based on these initial ideas, data envelopment analysis (DEA) and stochastic frontier analysis (SFA) analysis methods have been designed and used to estimate the relative efficiency amongst firms (Coelli et al., 2005).

## 2.1 Data Envelopment Analysis

Data envelopment analysis (DEA) is a very useful support tool (Leal Jr., Garcia, & D'Agosto, 2012; Liang, Jiang, & Lai, 2008) for measuring reputation (Brønn & Brønn, 2005) and determining the position of an enterprise (Talas et al., 2013) by benchmarking amongst the companies or amongst the decision-making units (DMUs) (Das & Patel, 2014). DEA helps managers to understand performance as a full, or perhaps the performance of individual units (Borenstein, Becker, & Prado, 2004). Additionally, DEA is able to form a part of a systematic evaluation (Lang & Golden, 1989) for multi-criteria vendor evaluations (Gregoriou, 2006), judiciously approached performance assessment (Gerard & Roderick, 2003) and resource efficiency measurement (Boles, Donthu, & Lohtia, 1995).

In a powerful environment, DEA is easily modified to deal with the changing needs of the management (Golany & Storbeck, 1999) by ascertaining the inputs and outputs for programme improvement and decision making (Banker, Charnes, Cooper, & Schinnar, 1981). DEA has proved to be a useful methodology (Helmig & Lapsley, 2001) utilising a strong analytical technique (Santos, Amado, & Santos, 2012). In summary, it may be argued that DEA is a powerful, efficient and comprehensive mechanism to determine the most effective and probably the least efficient DMUs (Husain, Abdullah, & Kuman, 2000; Min & Joo, 2006).

## 2.2 Stochastic Frontier Analysis

Similar to DEA, stochastic frontier analysis (SFA) is another tool used to measure efficiency (Baten, Kamil, & Haque, 2010). SFA measures the differences between the inefficiency of units as well as the frontier through the residuals (Barros, 2005) by isolating the purely random error term, which reflects the efficiency (Taktak & Triki, 2012). SFA is actually useful on extremely rare occasions where the situation, such as the theoretical restrictions for cost frontier/production, can't be easily tested due to the difficulty in estimation, affected by noise due to uncontrollable and unpredictable factors (Martín, Román, & Voltes-Dorta, 2009). Since SFA uses MLE, the final estimators will include desirable statistical properties like unbiasedness, efficiency, and consistency in small samples (Radam, Yacob, & Muslim, 2010).

## 2.3 Hypothesis Formulation

Previous studies have shown that the DEA and SFA models do not yield similar results, and always differed slightly (Rowena, 2001). Hence, there is some debate in the literature on the preference of models. Sav (2012) explains that the DEA model provides greater efficiencies

compared to SFA, while Radam et al., (2010) argue that the SFA model provides some statistical inference in the functional form of the frontier relative to the DEA model.

Based on such arguments, the following hypotheses are put forward:

H1. Efficiency varies according to the method of estimation (parametric, non-parametric).
H2. Efficiency varies according to the data collection scheme (panel vs cross-sectional).
H3. Efficiency varies according to the geolocation of the sample.

## 3. METHODOLOGY

This research was conducted on systematic approach. Figure 1 shows the selection of studies included in the systematic review.

Database identified
• Emerald, SpringerLink, Scieince Direct, ProQuest.

Research phrases identified
• Efficiency of maritime industry; Efficiency of shipping industry; Data envelopment analysis; Stochastic frontier analysis

Search area set
• Title, abstract and keyword only

Articles selected
• Total 171 articles downloaded

Exclusion
• Duplicated articles, non-maritime industry related articles and articles reviewed by Odeck and Brathen (2012)

Final sample
• Total 35 articles reviewed

**Figure 1**: Search Strategy and Article Review Process.

First, the database was selected, which included the large majority of scientific journals of interest from sources such as Emerald, SpringerLink, Science Direct, and ProQuest. Second, the keywords for search were identified and inserted at appropriate search phrases such as 'Efficiency of maritime industry', 'Efficiency of shipping industry', 'Data envelopment analysis', 'Stochastic frontier analysis' and so forth. The search phrases were restricted to the title, abstract and keywords, which resulted in a collection of 171 papers.

The following criteria were used for exclusion of papers from the final full text review: duplicated papers; non-maritime industry related papers; papers already anaysed by Odeck and Brathen (2012) and inadequate information in relation to the methodology etc. A manual review of the abstracts (of the chosen 171 papers) was undertaken while applying the exclusion criteria. The filtering process resulted in 35 papers, which were included for a full text review.

A regression analysis was applied to the distributions from this carefully selected sample of 35 papers. This was exclusive of the data from Odeck and Brathen's (2012) studies. As explained in earlier second section, the hypotheses of this study are based on the assumption that the variation in the efficiencies reported in the literature can be explained by the attributes considered in the selected studies. This includes the estimation techniques, data collection methods and sample sizes.

Three regression models were estimated. Model I included the estimation technique and data collection method. Model II introduced two dummies to account for the effect of sector on efficiency. Model III included a variable to capture the potential sample size effects.

Model I

$$\text{EFF} = f\,(\text{SFA, DEA, CS, P}) \tag{1}$$

where EFF is the mean efficiency, as reported in the studies; SFA included a dummy variable equal to 1 if the model is a stochastic frontier analysis and 0, otherwise; DEA included a dummy variable equal to 1 if the estimation was performed using data envelopment analysis and 0, otherwise; CS included a dummy variable equal to 1 if the data is cross-sectional and 0, otherwise; P is a dummy variable equal to 1 if a panel data is used and 0, otherwise; and SZ is the number of observations included in the study.

Model II

$$\text{Eff} = f\,(\text{SFA, DEA, CS, P, PORT, SHIP})$$

Where PORT is a dummy variable equal to 1 for studies at ports/terminals and 0, otherwise; SHIP is a dummy variable equal to 1 if the conducted studies were for shipping sector and 0, otherwise. All other variables are as defined in (1) above.

Model III

$$\text{Eff} = f\,(\text{SFA, DEA, CS, P, PORT, SHIP, INT, AME, EUR, ASI, OCE})$$

Where INT is a dummy variable equal to 1 for international studies and 0, otherwise; AME is a dummy variable equal to 1 if the studies have been conducted in America and 0, otherwise; EUR is a dummy variable equal to 1 for studies conducted in Europe and 0, otherwise; ASI is a dummy variable equal to 1 if the studies have been conducted in Asia and 0, otherwise; OCE is a dummy variable equal to 1 for studies conducted in Oceania and 0, otherwise. All other variables are as defined in (1) above.

The models were estimated using the least square dummy variable (LSDM) analysis, given that the efficiency scores are within 0 and 1. LSDM is easy to estimate and interpret (Ali, Er, Ahmad, Lyndon, & Ahmad, 2013). At the same time, LSDM is also capable of providing control to omitted variables between cases (Venkadasalam, 2014).

## 4. RESULTS

A list of all the new papers included in this review is shown in Table 1 including the authors' names, year of publication, country, sample size, sector of search and mean efficiency values. Amongst the tabulated 35 papers, DEA methods have been applied in 29 cases and SFA methods in 6 cases.

While employing data collecting schemes, 14 studies have used panel data and remaining 21 studies have used cross-sectional data. Notably, most of the studies are related to the shipping sector, with 17 studies conducted on ports and 18 being on shipping. It may be inferred from

these observations that the recent research in maritime field are more inclined towards shipping, non-parametric methods and cross-sectional data sampling.

**Table 1.** List of New Papers Included In This Review

| No | References | Country | Sector | No. of observation | Mean efficiency |
|---|---|---|---|---|---|
| 1 | Schøyen & Odeck, 2013 | Europe | Port | 168 (P) | 0.82 (DEA) |
| 2 | Navarro-Chávez & Zamora-Torres, 2014 | International | Port | 32 (CS) | 0.455(DEA) |
| 3 | Díaz-Hernández, Martínez-Budría, & Salazar-González, 2014 | Spain | Port | 216 (P) | 0.985 (DEA) |
| 4 | Odeck, 2008 | Norway | Shipping | 246 (P) | 0.797 (SFA) |
| 5 | Kompas & Che, 2005 | Australia | Shipping | 131 (P) | 0.917 (SFA) |
| 6 | Kim et al., 2011 | Korea | Shipping | 17 (CS) | 0.587 (SFA) |
| 7 | Gutiérrez et al., 2014 | International | Shipping | 18 (CS) | 0.865 (DEA) |
| 8 | Haralambides & Gujar, 2012 | India | Port | 16 (CS) | 0.957 (DEA) |
| 9 | Bergantino & Musso, 2011 | Southern European | Port | 108 (P) | 0.837 (DEA) |
| 10 | Low, 2010 | East Asian | Port | 23 (CS) | 0.782 (DEA) |
| 11 | García-Alonso & Martín-Bofarull, 2007 | Spain | Port | 22 (P) | 0.902 (DEA) |
| 12 | Chang & Liao, 2012 | International | Shipping | 64 (P) | 0.522 (DEA) |
| 13 | Koster, Balk, & Nus, 2009 | International | Port | 38 (CS) | 0.728 (DEA) |
| 14 | Førsund, 1992 | Norway | Shipping | 138 (CS) | 0.971 (DEA) |
| 15 | Kirkley, Squires, & Strand, 1995 | Mid Atlantic | Shipping | 10 (CS) | 0.672 (SFA) |
| 16 | Sharma & Leung, 1998 | Hawaii | Shipping | 91 (CS) | 0.86 (SFA) |
| 17 | Pascoe et al., 2013 | Torres Strait | Shipping | 47 (P) | 0.56 (DEA) |
| 18 | Pinello, Liontakis, Sintori, Tzouramani, & Polymeros, 2016 | Greece | Shipping | 283 (CS) | 0.54 (DEA) |
| 19 | Pérez, Trujillo, & González, 2016 | Caribbean | Port | 378 (P) | 0.843 (SFA) |
| 20 | Pjevčević, Vladisavljević, Vukadinović, & Teodorović, 2011 | Serbia | Port | 12 (CS) | 0.953 (DEA) |
| 21 | Jiang & Li, 2009 | Northeast Asia | Port | 12 (CS) | 0.778 (DEA) |
| 22 | Almawsheki & Shah, 2015 | Middle eastern | Port | 19 (CS) | 0.669 (DEA) |
| 23 | Bang, Kang, Martin, & Woo, 2012 | International | Shipping | 14 (CS) | 0.751 (DEA) |
| 24 | Birgun & Akten, 2005 | Sea of Marmara and the Mediterranean | Port | 10 (CS) | 0.582 (DEA) |
| 25 | Dias, Azevedo, Ferreira, & Palma, 2009 | Iberia | Port | 10 (CS) | 0.84 (DEA) |
| 26 | Huang, Chao, & Chang, 2017 | International | Shipping | 204 (P) | 0.799 (DEA) |
| 27 | Itoh, 2002 | Japan | Port | 80 (P) | 0.702 (DEA) |
| 28 | Kang & Kim, 2017 | International | Shipping | 350 (P) | 0.269 (DEA) |
| 29 | Kutin, Nguyen, & Vallée, 2017 | ASEAN | Port | 141 (CS) | 0.816 (DEA) |
| 30 | Hilmola, 2013 | Baltic sea | Shipping | 12 (CS) | 0.915 (DEA) |
| 31 | Omrani & Keshavarz, 2015 | Iran | Shipping | 36 (P) | 0.800 (DEA) |
| 32 | Panayides & Lambertides, 2011 | International | Shipping | 18 (CS) | 0.824 (DEA) |
| 33 | Pantouvakis, Vlachos, & Zervopoulos, 2017 | Greek | Shipping | 397 (CS) | 0.528 (DEA) |
| 34 | Park & Lee, 2015 | Korea | Shipping | 70 (P) | 0.440 (DEA) |
| 35 | Zheng & Park, 2016 | Korea and China | Port | 30 (CS) | 0.816 (DEA) |

Notes: P: Panel studies; CS: Cross-sectional Studies; SFA: Stochastic Frontier Analysis; DEA: Data Envelopment Analysis.

Table 2 presents a quantitative survey of the 35 studies. With respect to the type of data used, the majority of studies (60%) used cross-sectional data whereas 40% used panel data. Of the 60% that used cross-sectional data, 51.43% were from DEA applications while only 8.57% were from SFA studies. The same trend is also observed for studies that were either port or shipping sector related, where 51.43% were shipping related and the rest 48.57% were port related. Of these, specifically 45.71% were from port studies with DEA, while only 2.86% were from port studies with SFA.

The regions where the studies were conducted are of interest as they may influence efficiency scores. The studies considered were from the following regions: International, America, Europe, Asia and Oceania. From Table 2 it may be seen that the studies under the group Europe have the highest representation at 34.28% followed by Asia (28.57%), International (22.86%), America (8.57%) and Oceania (5.72%).

**Table 2**: Quantitative Survey of The Literature.

|  | SFA | DEA | Total |
|---|---|---|---|
| No of studies | 6 | 29 | 35 |
|  |  |  |  |
| Cross sectional | 8.57% | 51.43% | 60% |
| Panel | 8.57% | 31.43% | 40% |
|  |  |  |  |
| Port | 2.86% | 45.71% | 48.57% |
| Shipping | 14.29% | 37.14% | 51.43% |
|  |  |  |  |
| International | 0% | 22.86% | 22.86% |
| America | 8.57% | 0% | 8.57% |
| Europe | 2.86% | 31.42% | 34.28% |
| Asia | 2.86% | 25.71% | 28.57% |
| Oceania | 2.86% | 2.86% | 5.72% |

It is of interest to provide an overview of how the different part of the studies differ with respect to the MTE scores and these analytical scores are projected in Table 3. Considering the total samples, panel data has the higher MTE scores than the cross-sectional data, whereas port studies have higher MTE than the shipping studies. Further, for cross sectional data analysis, the DEA has a higher count of MTE than its SFA counterpart; while for the panel studies, the DEA depicts higher scores than the SFA. Regarding the sector of study, port shows higher MTE than shipping. These are nonetheless, observations of the group level averages. The statistical analysis to validate the significance of these findings follows.

**Table 3**: Average MTE Scores By Different Study Characteristics.

|  | SFA | DEA | Total |
|---|---|---|---|
| Overall | 0.788 | 0.730 | 0.759 |
|  |  |  |  |
| Cross sectional | 0.706 | 0.765 | 0.736 |
| Panel | 0.87 | 0.694 | 0.782 |
|  |  |  |  |
| Port | 0.843 | 0.784 | 0.807 |
| Shipping | 0.733 | 0.676 | 0.705 |
|  |  |  |  |
| International | N/A | 0.652 | 0.652 |

| | | | |
|---|---|---|---|
| America | 0.792 | N/A | 0.792 |
| Europe | 0.797 | 0.957 | 0.877 |
| Asia | 0.587 | 0.751 | 0.735 |
| Oceania | 0.917 | 0.56 | 0.739 |

Table 4 presents the results of regression analysis for all 3 models. Model 2 is very significant at the 1% level. The parameter estimate for the DEA is actually positive and statistically significant. The end result suggests that the reported MTE scores appear to be much better on non-parametric techniques and data methods. MTE scores on non-parametric techniques are approximately 28% higher compared to the parametric techniques.

The parameter estimates of the panel is also positive and statistically significant. In this data set, 60% of the observations are cross sectional data. The results indicate that the MTE scores are approximately 30% higher on panel analysis. Studies focusing non-ports appear to produce higher MTE scores than studies that were conducted on ports. This is significant at the 1% significance level.

**Table 4**: Regression Results

| | Model 1** | Model 2*** | Model 3* |
|---|---|---|---|
| Constant | 0.619* | 0.636* | 0.189 |
| DEA | 0.286** | 0.282** | 0.446*** |
| PANEL | 0.310** | 0.307** | -0.043 |
| PORT | | - 0.037*** | -0.548 |
| International | | | 0.324 |
| America | | | 0.271 |
| Europe | | | 0.035 |
| Asia | | | -0.163 |
| Oceania | | | 0.629 |
| | | | |
| R sq | 0.195 | 0.198 | 0.587 |
| Adj. R sq | 0.145 | 0.120 | 0.460 |

Note: Table 4 includes 315 observations from the 35 selected groups.

***significance at 1% confidence level

** significance at 5% confidence level

* significance at 10% confidence level

## 5. CONCLUSION

By analysing the effects of various techniques in the MTE, this document supplemented and extended the review of earlier work on TE in the marine industry. Meta-regression models that included the methodological characteristics of geographic location and studies were used to explain the MTE estimations given in 35 published articles. This study added to the existing literature in two ways: first, it updated and contrasted earlier work on border estimation of TE in the maritime business; and second, it introduced a dimension of the maritime industry, sector (port and shipping), to the known TE measurement differentials.

A metaregression model was used to analyse and test several topics found in the literature on efficiency. The econometric results reveal that when the estimate is made from non-parametric boundaries rather than parametric models, the TE level is actually larger. The DEA's coefficients were positive, indicating that the DEA creates more MTE than the SFA. Furthermore, when research employed the panel's dataset, the parameter for panel data reveals a higher MTE. These findings can be used to guide the selection of appropriate methodologies for measuring and modelling MTE.

This study provides evidence to support the H1 (efficiency varies according to the technique of estimation) and H2 (efficiency varies according to the data collection scheme). Only H3 (efficiency varies according to the geolocation of the sample) is not confirmed in this specific study. Analysing the level of TE by geographical location shows non-significant in all locations. This study recommends further studies on the H3. In future, the analysis is only able to focus on top 3 locations.

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# Entrepreneurial Intention in Tourism post Covid 19: An Exploratory Study

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**Abstract**

Entrepreneurship is a key element for any country that wants to be competitive in a global knowledge-based market. It is a complex concept that requires a deep and critical study from various perspectives and supported by the trinomial of sustainability. Higher Education Institutions can play a decisive role in developing the entrepreneurial intentions of their students, the future leaders of tomorrow. Covid-19 changed the world and Tourism was one of the sectors where the impact was greater, also because it is a highly technological sector, among other reasons. The present study is an exploratory and descriptive study of a quantitative nature. It was carried out, in April 2021, and it aims to study the entrepreneurial intention of the 1st year students of the master's degree in Tourism Management of the Polytechnic Institute of Cávado and Ave, based in Portugal.

## 1. INTRODUCTION

Entrepreneurship is an important component for every nation who wants to compete in a global market founded on knowledge (Kabir. 2019; Penco, Ivaldi, Bruzzi & Musso, 2020), creativity (Belitski & Desai, 2016) and innovation (Schumpeter, 2000; Pradhan, Arvin, Nair and Bennett, 2020). It is a multifaceted concept with no sole meaning, and it has been developing over time (Hisrich, Peters & Shepherd, 2017). Today entrepreneurship begins to be associated with people with more education and often with professional careers already stabilized and successful and not only with people with needs or difficulties to earn living (Marvel, Davis & Sproul, 2016; Figueiredo & Paiva, 2019).

In this context, technological entrepreneurship emerges, which has as its main advantage scalability and a huge potential for return if the business is successful (Azoulay, Jones, Kim & Miranda, 2020). The tourism sector is a highly technological sector that has experienced huge conversions with Covid-19 (Sigala, 2020). Today decision-making resulting from complex relationships is easier to take, since the internet and Information and Communication Technologies allow the use in real time of "big social data" and content generated by users themselves (Cuomo et al., 2021). The offer is evolving, and technology is contributing to create more and more highly customized immersive experiences (Stankov & Gretzel, 2020).

This article focuses its research on the study of the entrepreneurial intention of 1st year students of the master's degree in Tourism Management of the Polytechnic Institute of Cávado and Ave (IPCA), Portugal, and is composed of three sections. It begins with a brief presentation of a literature review, followed by the used research methodology. It analyses and comments on the obtained results and, finally, presents the conclusions and suggests future developments.

## 2. CONCEPTUAL FRAMEWORK

Intention seems to be a direct precursor to the implementation of a behaviour (Ajzen & Fishbein, 1997) and reports to an individual's notice, knowledges and activities concerning a particular purpose, piece, or goal (Bird & Jelinek, 1988). Intentions have a positive correlation with the behaviour occurring (Ajzen & Fishbein, 1977) and have been evidenced to be the best predictors of individual behaviour when the behaviour is rare, difficult to observe, or contains random time lags (Krueger & Brazeal, 1994).

Entrepreneurial intention can be shaped by individual domains (e.g., motivation, personality, and prior experience) and contextual variables (e.g., social context and economy) (Bird, 1988). It can be impacted by psychological characteristics along with developed skills and abilities (Zhao, Seibert & Hills, 2005). Analysis of entrepreneurial intention can serve to predict an individual's behaviour towards setting up their own business (Shirokova, Osiyevskyy & Bogatyreva, 2016), although, as Davidsson (1995) suggests, intention may never reflect reality. Entrepreneurial intentions may predict, albeit imperfectly, an individual's choice to start a business (Davidsson, 1995), since entrepreneurial intention does not always trigger entrepreneurial action (Wilson & Martin, 2015).

In the literature review, it is possible to find several studies on entrepreneurial intention, from those focusing on personality traits or characteristics of individuals (Brockhaus, 1980; 1982), to behavioural and situational factors (Gartner, 1985) or to models of intention (Shapero & Sokol, 1982; Boyd & Vozikis, 1994), which focus on attitudes, antecedents, education, gender, and entrepreneurial models (Liñán & Fayolle, 2015). Figure 1 shows some convergence between the most used frameworks to evaluate intention, entrepreneurial intention, behaviour and entrepreneurial behaviour.

**Figure 1** – From Intention to Intention Entrepreneurial Behaviour (own elaboration)
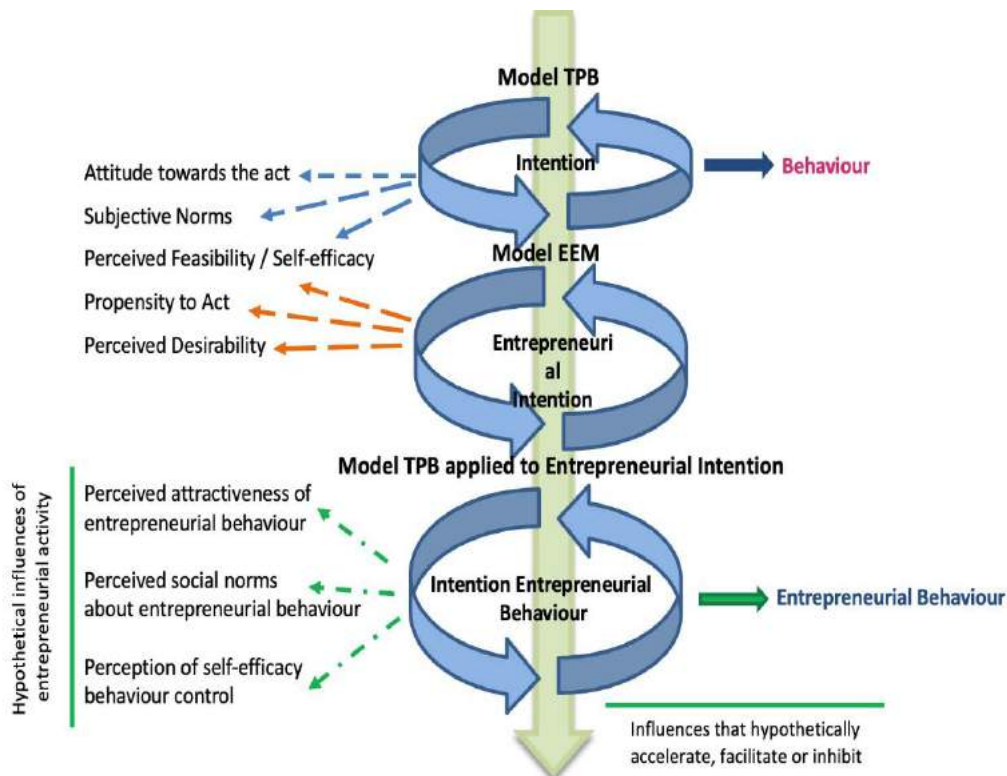
The most widely used theoretical framework in the study of entrepreneurial intention is the Theory of Planned Behaviour (TPB) (Ajzen, 1985), which argues that the strength of intention is the immediate antecedent of behaviour. Entrepreneurial intentions can become true entrepreneurial behaviours (Kautonen, Van Gelderen, & Fink, 2015) and there are several studies showing the significance and strength of the Theory of Planned Behaviour (Schlaegel & Koenig, 2014).

The Theory of Entrepreneurial Intention received more attention when Ajzen's Theory of Planned Behaviour (1991) was brought together with Shapero's (1984) Entrepreneurial Event Model (EEM). However, it is with Krueger and Carsud (1993) that these themes converge and apply Theory to Entrepreneurial Intention studies. Since then, research in this area has developed worldwide, but in a disorganized manner (Lages, Rodrigues and Sousa Filho, 2020). These theoretical models accept that entrepreneurial intention is the trigger of entrepreneurial action (Liñán & Fayolle, 2015), although intention does not always instigate an action (Townsend, Busenitz & Arthurs, 2010) due to various reasons, including constraints and changing individual preferences (Gollwitzer & Sheeran, 2006).

## 3 - METHODOLOGY

The phenomenon under study in this article is defined as the study of the entrepreneurial intention of 1st year students of the master's degree in Tourism Management of the Polytechnic Institute of Cávado and Ave (IPCA), based in Portugal. In this context and under the perspective of the postivist paradigm, the observation of this phenomenon aims at collecting data to analyse, according to the students' perception and experience, if the Covid-19 pandemic are really promoting the development of their entrepreneurial intention. This analysis also seeks to identify their perception about digital skills and their self-efficacy.

To performance these objectives, quantitative research of descriptive nature is adopted, using the questionnaire for data collection (Grégoire, Lachance & Taylor, 2015). The supposition is that entrepreneurs and leaders act on building the future they believe in, developing and creating opportunities according to their beliefs and visions (Karp, 2006). Based on emotions and perceptions about the reality that underlies the situations they have experienced, their subjective choices for entrepreneurial value creation, and their ability to understand the potential effects of those choices (Karp, 2006; Grégoire, Lachance & Taylor, 2015).

The population comprises all the master's tourism students of IPCA, with a total of 50 students. The instrument for data collection was designed by adapting scales validated in the empirical and conceptual literature. For this purpose, a questionnaire was prepared with 3 main areas namely socio-demographic data, students' perceptions, and reaction to Covid-19. It was used a Likert scale from 1 to 5, representing from less to maximum levels. The questionnaire was sent by google form during April 2021. The sample represents 81.8% of the population. The participants' responses were treated by means of descriptive statistics, based on the frequencies of responses, with the aim of profiling and discussing the most salient features of the entrepreneurial attitude of the respondents. allows concluding that Covid-19 is an opportunity to develop the entrepreneurial intention.

## 4 - RESULTS

### 4.1 Sociodemographic Characterization

The respondents are mostly female (88.9%), aged between 20 and 25 years (72.2%), single (83.3%) and with a minority of part-time employees (22.2%), as shown in figure 2.

**Figure 2** – Sociodemographic Characteristics of The Sample
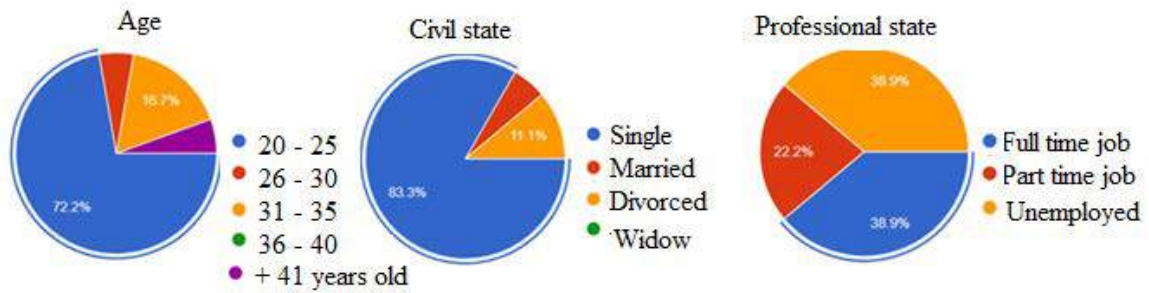


## 4.2 Entrepreneurial Intention

An attempt was made to understand the probability of students setting up their own full or part-time business in less than one year or, alternatively, within 5 years (figure 3). Most students believe that it is likely or very likely that they will have their own business within 5 years, either part-time (61%) or full-time (56%).

**Figure 3**. Intention to Start A Business
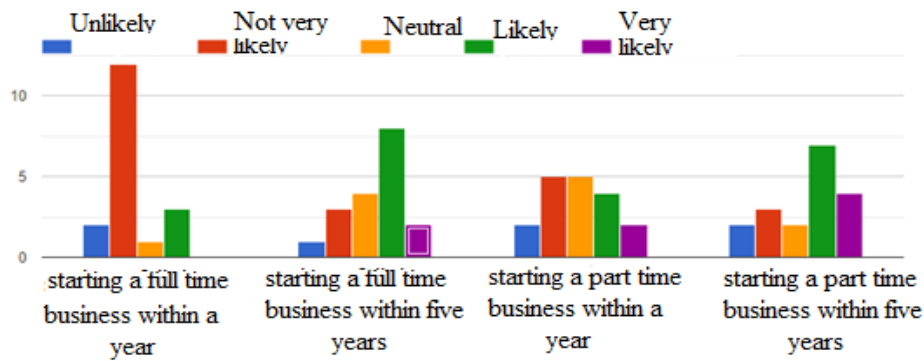


None of the students said it was unlikely to go and work in an established private company and 50% said it was likely. About founding a company, creating, and running their own business, 44% of the students were likely and 16.7% were very likely (figure 4).

**Figure 4**. Future Job Sector Activity
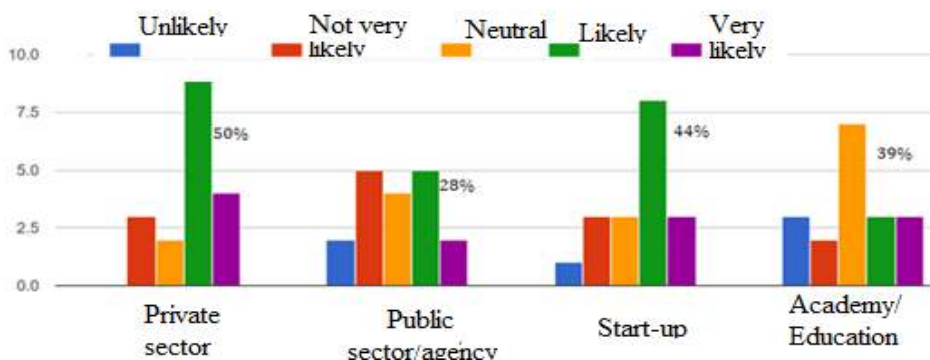


In terms of context and bearing in mind the relationship with the subjective Norms, students find themselves in an environment that is conducive to being an entrepreneur, both in terms of family (78%), friends (83%) and people close to them (83%). The only exception is one student who sees it as undesirable for his family to become an entrepreneur (figure 5).

**Figure 5**. Entrepreneurship in the Face of Subjective Standards
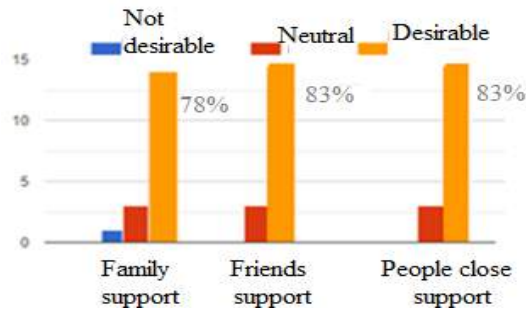


Regarding the confidence that they will succeed in their own business, most respondents (60%) agree (44%) or completely agree (16%). They do not believe it is the easiest way (33%), but it would certainly be the best way to take advantage of education (55%) (figure 6).

**Figure 6**. Confidence in Success, Ease and Opportunity
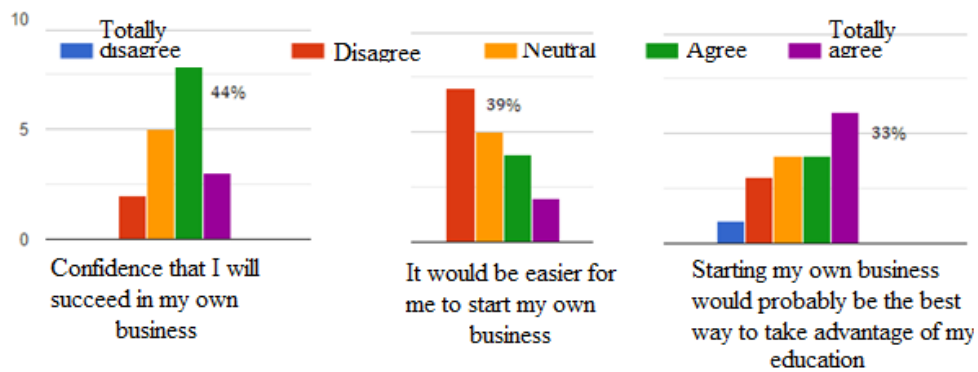


Respondents believe they have the skills and abilities required to succeed as entrepreneurs (55%), when they get what they want it is because they have worked for it (88%), their lives being fundamentally determined by their actions (82%), but with the notion that they cannot control very well what will happen in their lives (78%) (figure 7).

**Figure 7** – Confidence in Skills, Perseverance, Attitude and Uncertainty
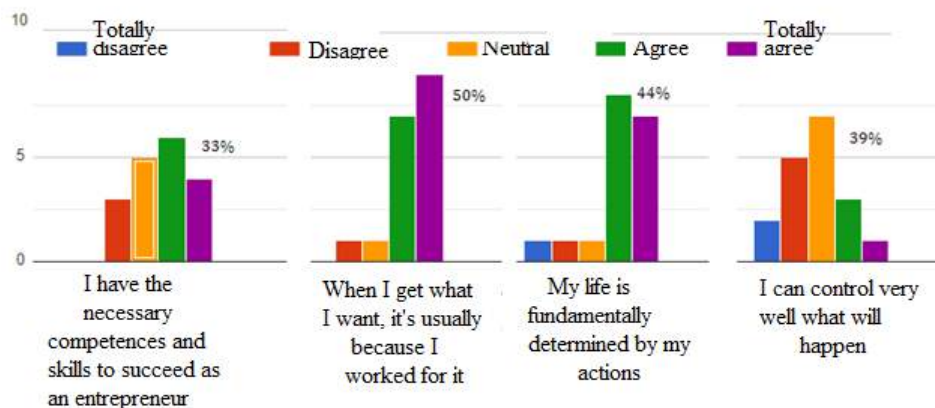


Respondents seek new technologies, processes, techniques and/or product/service ideas (66%). They can generate creative ideas (55%) (figure 8).

**Figure 8** – Proactivity and Creativity
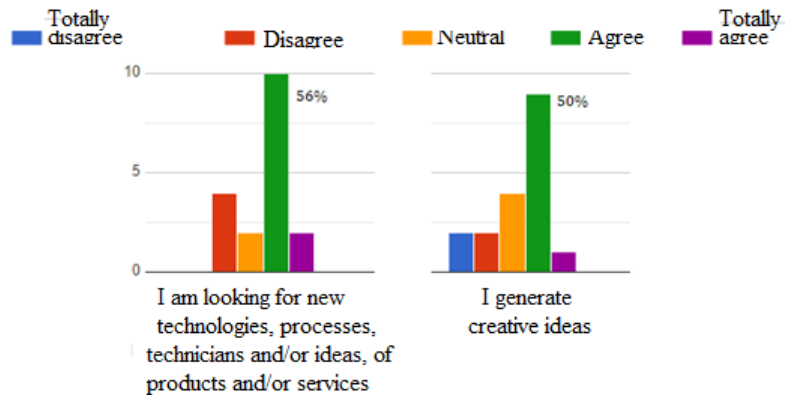


Promoting and championing ideas is a common feature of most respondents (49%), although only 38% seek and secure the necessary funds to implement ideas (38%). However, 50% of respondents can develop adequate plans and timelines for implementing new ideas (figure 9).

**Figure 9**. Proactivity and Creativity
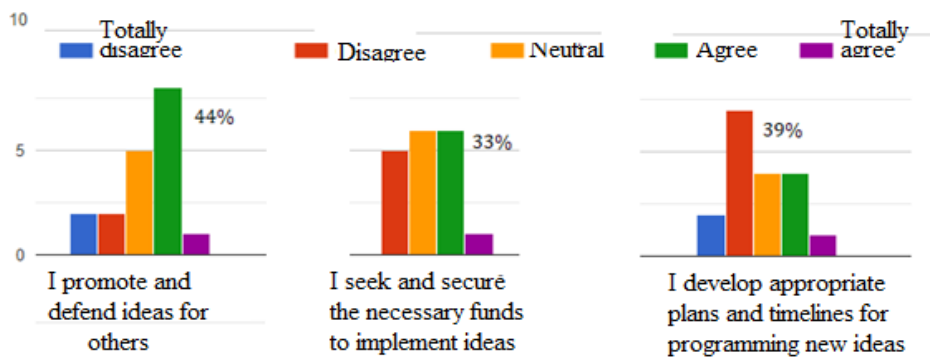


None of the students consider themselves to be totally or not at all innovative, with the class split between not innovative (44.4%) and innovative (39%). Only 5% have access to capital to start a business and 60% consider that they do not have access. They believe they have good social networks that can be used if they decide to start a business (55%) as well as access to supportive information to help them start a business (50%) (figure 10).

**Figure 10**. Innovative, Access To Capital, Social Networks and Access to Information
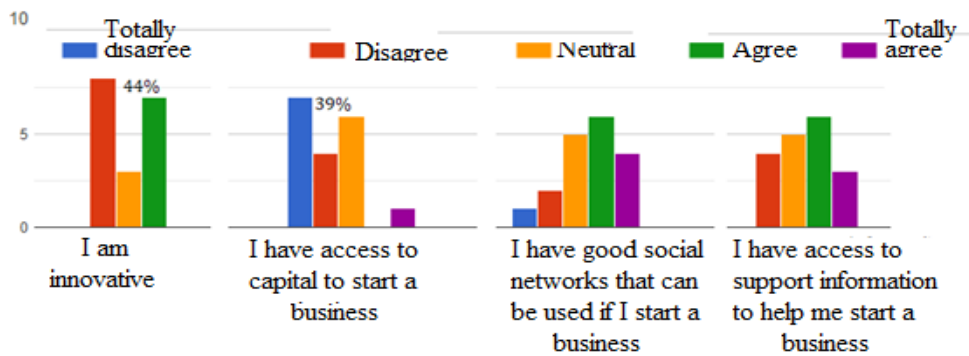
## 4.3. Reaction to Covid-19

For respondents, starting a business is worthwhile (89%), not daunting (78%) and a reward (78%) (figure 11).

**Figure 11**. Feelings About Starting A Business
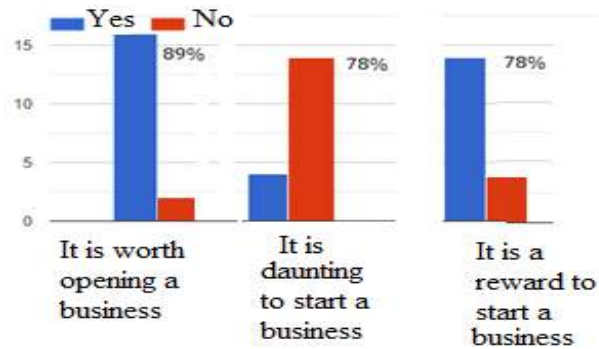


Before the Covid-19 pandemic most of them (61.1%) had already thought about starting a business. With the pandemic, they felt that there might be more opportunities to create businesses (64.3%) and, except for one respondent, all feel that these opportunities apply to them (Figure 12).

**Figure 12** .nCovid-19 Opportunity To Start A New Business
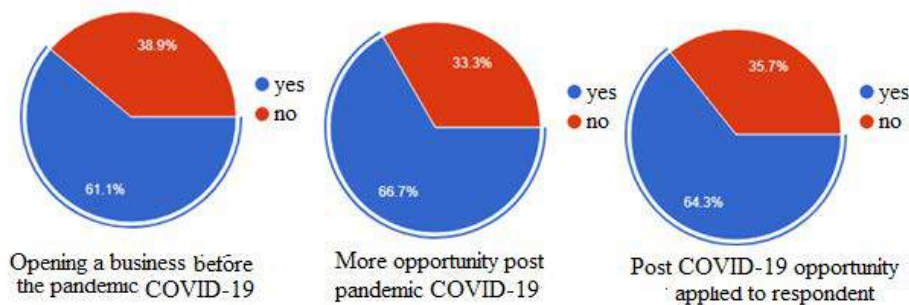


Asked the open-ended question of what possible reasons they believed Covid-19 had increased their entrepreneurial intention, the answers focused mainly on digital development and the skills they had to develop to adapt to the constraints imposed by confinement. The possibility of having been in training also allowed them to critically reflect on the world, the precariousness of employment, and the need to proactively build their future.

## 5. DISCUSSION AND CONCLUSION

### 5.1 Discussion of Results

Most respondents believe it is possible to open their own business in the next 5 years, either on a full time or part time basis. There are respondents who prefer to go self-employed in the short term but can also see themselves working in established private companies. However, there is not a great appetite to work in the public sector or in the Academy (university or research centre).

These are students who live in a context where entrepreneurship is seen as desirable by all around them, except for one student whose family does not share this status. They are confident, positive and see success as a very real possibility, although very dependent on their self-efficacy,

perseverance, and attitudes. They are positive, like to explore and learn about new technologies and processes. They are creative, innovative and enjoy challenges, although these characteristics need to be developed further. This development could, for example, be worked on in the context of the Master's curriculum itself.

They see entrepreneurship as a reward, an experience worth having and the best way to get a return on investment in education. Able to generate creative ideas, they can communicate and showcase their ideas, seek funding, and use their networks to support their needs. They are autonomous, like to make decisions and act on the opportunities that come their way. Possibly it is these characteristics that mean they do not see themselves working in the civil service or in Academia.

Regarding the increased opportunities to create a business in post Covid-19, probably the positive response is very much related to the tourism industry and the area of studies and content that the respondents are attending.

## 5.2 Conclusion

The present study aimed to study whether Covid-19 enhanced the entrepreneurial intention of 1st year master's degree students in Tourism Management at IPCA, considering their activity sector, the development of digital skills and their self-efficacy.

The study allows concluding that students have a very positive view on the creation of a business in their area of activity. This possibility is a result of their characteristics, their environment, and their sense of self-efficacy. Covid-19 accelerated the digital development, and the Tourism sector was one of the activity sectors where this trend had more impact, opening possibilities and breaking paradigms. Also in personal terms, Covid-19 triggered the need to view the virtual as an extension of the real, which allows, in an innovative way, to generate ideas and seize windows of opportunity.

As limitations of the study are pointed out the fact that data analysis is only descriptive, and the small size of the population, and the results cannot be generalized. However, they are quite significant to work on *curricula* and skills to be developed in the set and context of the respondents. For future studies it is suggested to extend the research to other Schools and Courses, as well as to try to understand the wide range of reasons why the respondents are so positive about the possibility of creating a business

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**JOMAES**

# Linear Economy versus Circular Economy: New raw material

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**Abstract**

The fashion industry plays a key role in the road to sustainability and around financial system. Indeed, the fashion industry is a sector with a strong impact on the environment; it requires a very long and complicated supply chain linked to the high use of water and resources, the use of chemical substances, the contamination of water and air, the production of waste and, finally, the generation of microplastics. Textile and textile waste has become a huge international concern. Against this context, the objective of this paper is to evaluate existing measures of the European Union (EU) that have an impact on the development of sustainable practices and the transition to a round financial system in the style industry, with a specific emphasis on the need for clothing in the EU (for paintings and pleasure). However, what we put on places a huge strain on the atmosphere. In the past 15 years, growing prosperity and the churn of rapid manner have contributed to the doubling of the development of world clothing. It is grown at a faster fee than Gross Domestic Product (GDP), and on the identical time, use of clothes is diminishing, with lots much less than one percent of the fifty-three million tons of fibers produced every 12 months, 1/2 of one million tones turning into recycled returned into production. Most style finally ends up in a landfill and maximum of it, an extraordinary waste of money, within 12 months of being made. Therefore, the Ellen MacArthur Foundation (EMAF) is organizing an international alliance to show the linear discard put on style financial system right into a round one. Big manufacturers such Burberry, Gap, H&M, and Nike, have come on board to paintings to expand a round financial system that levels out dangerous substances and maintains garments in use. Revised waste legislative framework followed inside the 2015 Circular Economy Action Plan.

**Keywords**
Fashion industry, Circular economy, linear economy, Gross Domestic Product (GDP).

## 1. INTRODUCTION

Evoked by the economic revolution and, therefore, the starting of mass production, the businesses and therefore the client have stuck to a linear business model useful creation, with associate degree ending lifecycle that expires with disposal of the product. Relating to the style industry, the roots lie within the quick manikin (Takalo et al., Khaksar et al., 2010; Abdul-Halim et al., 2021; Taherinia et al., 2021; Vesal et al., 2013; Hakkak et al., 2016 McKinsey, 2016). Shorter lead times for production allow corporations to introduce a lot of assortments per year, so the trends are simply short-lived. Quick fashion retailers refresh their assortment weakly to encourage their clients to shop for perpetually new garments (McKinsey, 2016). Apparel corporations have sharply cut prices and efficient them provide chains so as to satisfy the expectations of the low price, the exigent consumer. According to a McKinsey report in 2016, a hundred billion clothes are made each year (McKinsey, 2016). Nowadays buyers buy five times as many clothes as they did in 1980, or 68 items each year, and the typical garment is worn seven times (The Wallstreet Journal, 2019). The fashion business is becoming the second largest polluting industry, answerable for 10% of world carbon emissions, behind the fossil oil trade

(New royal family Times, 2019; Forbes, 2016). Only in 2015, the fashion garment sector utilized 79 billion blockish water meters, a figure that is predicted to rise by 50% by 2030. (Rifinery29, 2019). Not surprisingly, the business generated 2. 5 billion in international yearly sales until the Corona Epidemic hit in 2020. (McKinsey, 2020). Among alternative things, % of garbage, usually recycled and even harmful, is explained by the up-to-date consumption trend (Kos, 2016). More than sixteen million loads of textile waste were generated in 2014, in keeping with the Environmental Agency (EPA). Of these, solely 2. 62 million tons are recycled, 3. 14 million tons were combusted for energy recovery, and 10. 46 million tons were sent to lowland sites (the balance smb, 2019).

The highest level has gained additional management than ever in recent years, impelled by conscious supporters together with such David Attenborough and Greta Thunberg. They boost awareness concerning the present conditions facing the planet to improve the perspective of consumers who use their wallets to drive society to a greener future (Gheitarani et al., 2022a; Sepahvand et al., 2022; Vafaei-Zadeh et al., 2022; CSO, 2020; Sadeghi et al., 2013; Nawaser, 2015; Hakkak et al., 2014 Jahanashahi et al., 2020; Shamsaddini et al., 2015). In addition, sales for the world fashion, fashion, and luxury business can decrease by twenty-seven to thirty % in 2020 compared to the previous year keep with the McKinsey report Corona update 2020. Lost profits and lockdown stores were evoked either by Corona Pandemic, a tributary to overfilled warehouses loaded with unsold seasonal stock. Corporations that withstand this crisis can have undertaken swift and daring action to strengthen their core business, finding new markets and competitive opportunities in a dramatically reworked world industry (McKinsey, 2020). The tragic events could have caused the business to reach the 'tip of the iceberg', focusing on additional property and developing technology to realize a greener future. As a result, a shift from a linear to a circular economy is required to maintain goods durable and within a reprocessing cycle, as well as to combat the growing trash heap. Within the framework of the fashion business, we will address the transition to a circular economy. We'll start with an overview of the linear and circular economies, after which we'll go further into the waste problem caused by the current linear system, as well as how garbage will be used in the circular economy and how information is becoming more important in the circular system. Finally, we look at several brands who are currently using roundness in their operations and may be considered forward thinkers in the industry.



Figure 1. A General Process of Recycling.

## 2. LITERATURE REVIEW

## 2.1 Linear Economy and circular economy in comparison

The first, indirect frugality, has been used since industrialization, while the ultimate is more recent, although the original proposition on it dates to the 1960s. Due to this scheme, which is analogous to a flat line, the direct frugality can be planted under the name 'open cycle.' The main problem that arises with this product approach is the illogical operation of the available offers. During the process of the product, coffers are generally not enforced in the final product. Besides the severe damage to the biosphere, the downfall of the direct frugality is mortal exploitation as well. This system emphasizes the products themselves, and the outgrowth of such an equation is mass product and consumption. Circular Economy Indirect frugality comes as volition to the system of direct frugality. The indirect frugality is concentrated on the operation of products as coffers. The system used for the indirect frugality is the 3R principle of reducing, exercising, and reclaiming. An indirect frugality can be also planted under the name of 'unrestricted system of the product. The business model of the direct frugality is also concentrated on products, whilst the business model of the indirect frugality concentrates on service (Pearce et al., 1990).

### 2.1.1 Linear Economy

The billions of tons of garbage that annually end up in the environment lead to obvious, but insufficiently understood, consequences. The main reason for what is happening is a linear economy: mining, production, distribution, consumption, waste. Despite the benefits of a circular economy, the linear economic model still dominates. CEPS (Centre for European Policy Studies) explain this fact by the complexity of the concept of "circular economy" and the lack of description of the importance of circular economy for different industries. For example, how can it be used in the fashion industry? All stakeholders, including business representatives and politicians, need a better understanding of how this approach is applicable to different players and industry sectors. As a result, manufacturers were encouraged to follow business models that focused on extensive material use and economized on human labor.

While the linear economy has been exceptionally successful in creating material wealth in industrial nations up to the 20th century, vulnerabilities have been seen in the new millennium, and the eventual collapse is predicted in the coming years. The Ellen MacArthur Foundations (2013) reports, based on data by performance profile, that commodity prices reached a tipping point in 1999, and unpredictable upward strength was generated from previously decreasing manufacturing costs. Incremental prices and high volatility can be attributed to the increased demand that pushed output to a point in the cost curve where the production cost rises dramatically and to the depletion of easy-to-access extraction sites, which puts mining at risk of taking technical risks bringing new sites online. This pattern has been combined with growing competition, which has stopped businesses from ultimately exerting a profit squeeze on arms and pushing the value from passing the price rises on to their consumers. Finally, finally making a profit and streamlining their guns and adding value bypassing the price increases on their consumers. This mentality is primarily based on the extraction of resources, the manufacturing of products and offerings, and the disposal of post-patron waste.

However, this method is coming below the growing strain due to its environmental and financial disadvantages (Gheitarani et al., 2022b; Gogheri et al., 2013; Gharleghi et al., 2018; Hashemzadeh et al., 2011). These days, environmental issues have emerged as a worldwide issue. For example, withinside the remaining decades, the hassle of ingesting water scarcity is relevant. There are nonetheless issues of pollutants in the atmosphere, soil, and water via

diverse commercial wastes and emissions. And there are nonetheless a number of the style industries that contribute to the destruction of vegetation and fauna. A boom withinside the quantity of labor and the quantity of merchandise produced ends in the immoderate intake of natural resources, in addition to a boom in dangerous emissions into the environment. Great environmental harm is a result of deforestation and the processing of uncooked wood materials. As a result of this, now no longer handiest a huge quantity of waste is generated; however, a huge quantity of vegetation is destroyed. In turn, this leads to a lower in oxygen manufacturing and a boom in the quantity of carbon dioxide withinside the atmosphere. Many species of animals and birds that lived withinside the forest additionally died.

The absence of timber contributes to weather extrude, temperature adjustments emerge as sharp, humidity adjustments, and soils extrude. All this ends in the truth that the territory turns into flawed for human life, and they emerge as environmental refugees. At present, the environmental issues of the enterprise have reached a worldwide nature. The improvement of diverse sectors of the economic system ends in environmental pollutants and the depletion of natural resources. If the scenario now no longer extrudes within the foreseeable future, all this will cause a worldwide catastrophe. As it became stated earlier, we cannot forget it Sharm on account of atmosphere offerings. This financial version additionally jeopardizes the delivery of materials. This uncertainty is a result of fluctuating uncooked fabric prices, scarce materials, geopolitical dependence on different materials, and growing demand.

These issues are solved in a circular economic system. The dangers are defined below. Natural resources are squeezed between, on the one hand, rising and less stable prices in the resource markets and then on the other, increasing demand for materials and high competition in developing economies. This has a knock-on impact on the cost and availability of the goods needed by the installer. In addition, these elements, including indium and ch44romium, are only accessible to a very small degree. For their production methods, various industries use needed nutrients heavily. These raw materials are used by the metal industry, the computer, and electronics industry, the electronic equipment industry, as well as the auto and automotive industries. These sectors make up a significant proportion of the economy in the Netherlands (CBS, 2019). Goods have become increasingly powerful. Water shortage, but an oil trading oil surplus to buy grain. As a result, these raw materials are, as they were, linked to each other. In addition, the production process of many goods depends on water and fuels. As a result of this interdependence, the scarcity of one raw material will have a widespread effect on the prices and availability of many more goods during the 20th century, worldwide material consumption increased eight times. By 2050, global resource use is expected to have tripled. As a result, the world faces an unprecedented number of environmental challenges. In addition, there is a growing challenge that many resources are or will become scarce. Product lifespan is still decreasing because there is a process of positive feedback: consumers want new products faster and therefore use their "old" products shorter. This, in turn, means that less quality is needed in a product's lifecycle, which in turn leads to consumers wanting new products even faster (Circle Economy, 2018). In the 1950s, there was a marked shift away from the "waste not, want not" approach to life, replaced instead by a feverish post-war consumption boom where status came to be defined by the number of products consumed instead of the quality of products produced. Today is the perfect opportunity to reflect on this shift since recycling is a key enabler of the circular economy. Prices have risen or have become more volatile in the last decade. Therefore, more and more companies.

## 2.1.2. Circular Economy

The circular economy is an alternative economic system in which the linear flow of materials and other resources (Make use dispose of) is replaced with a circular system. The circular economy aims to minimize waste through the product's entire life cycle by designing durable and recyclable products, applying more sustainable and resource-efficient production practices, lengthening the life of products by repair, reuse, and recycling, and thus minimizing the use of virgin materials. The system is found in restorative and regenerative production and consumption. The circular economy aims to keep materials and resources in the system for as long as possible without disposing of them. (EMF, 2020). The circular economy is a comprehensive way of organizing the business and takes into consideration the whole life cycle of a product and all actors included in it, designers, manufacturers, suppliers, executives, retailers, and even consumers. (Niinimäki, 2018; Moezzi et al., 2012; Khaksar et al., 2011; Hakkak et al., 2013; Eizi etal., 2013; Jahanashahi et al., 2011 ). In the Figure below, the main flows of materials in the circular economy in the fashion industry case are visualized.
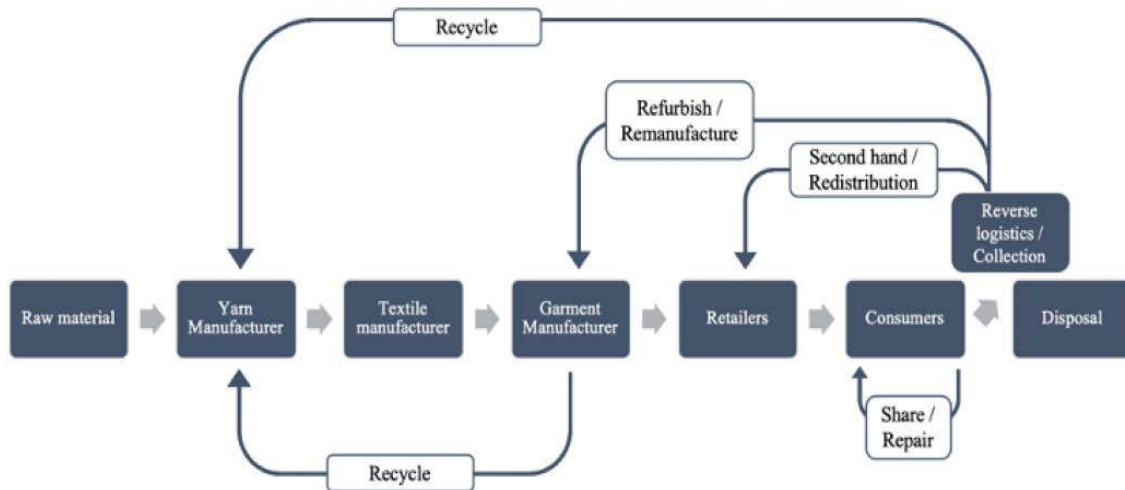


**Figure 2.** The Circular Economy Processes.

The linear supply chain, which starts from raw materials and ends in disposal, is designed in a new way, where products are collected after they would normally become waste and "reversed" back on the supply chain and used again either by recycling, remanufacturing, or redistributing. Beginning from the design, products should be designed for longevity and circularity. This means that designers should favor environment-friendly, renewable, and recycled materials and sustainable manufacturing practices. Most importantly, the use after the garment is not consumable anymore should be taken into consideration already in the design. Can the material be recycled into a new garment or used in another way, or will it be inevitable to dispose of? A circular economy calls for a cross-industrial collaboration as materials can easily find a new purpose in another industry. As an example, t-shirts can be made out of water bottles.

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long as possible without disposing of them. (EMF, 2020). The circular economy is a comprehensive way of organizing the business and takes into consideration the whole life cycle of a product and all actors included in it; designers. Besides the materials circling in the supply chain by reusing waste and products, the circular economy can also be applied to our consumption. Collaborative consumption, meaning the shared use of a good or a service, could work as a great way toward a more sustainable fashion industry. What makes collaborative consumption environmentally friendly, is that it enables to lengthen the consumable lifetime of a product which can slow down the production flow (Zamani et al., 2017). The clothing can be used for its whole value by renting or sharing clothing as it rarely sits in the closet unused. According to EMF (2017) increasing the average number of times clothes are worn is the most direct method to capture value and design out of waste and pollution in the fashion industry, which is exactly what collaborative consumption does. A great side effect of rental services is that they also encourage brands to design for durability, as they will make more profit the more times the garment can be rented (EMF, 2017).

When it comes to the circular economy, it is important to consider that waste and materials are not the only points of focus. Though easily associated with reusing waste, the circular economy is more about reducing waste. Reusing waste is surely a step towards a circular economy but in the ideal scenario, all products would be designed and optimized for disassembly and reuse and there would be no waste to be recycled. In the ideal circular economy scenario, the supply chain would be fully a closed loop, and everything; raw materials, products, and even the manufacturing equipment would circulate constantly and be never disposed of. (WEF, 2020). Now, complete circulation on a large scale is only a theoretical possibility, but a partial adaptation of the circular economy is used in many fields and is becoming a long-term strategy of many companies (Ungerman & Dedkova, 2020).

The circular economy is currently gaining momentum and being talked about a lot; however, it is not a new invention. According to EMF (2020), the circular economy started gaining attention in the 1970s within a small group of academics and businesses. In a circular economy, a lot can be learned from nature. As we know, there is no waste in nature and all materials flow through endless closed loops which is exactly what a circular economy aims for. Biomimicry/Mimicking nature can greatly help us in the change towards a more circular economy. Seth Galewyrick in his TED talk (Link: https://www. youtube. com/watch?v=Fidi8Js0Qjs ) from last April, explains how following the example of nature is so valuable in the future, for suppliers, executives, retailers, and even consumers. (Niinimäki, 2018). In the Figure below, the main flows of materials in the circular economy in the fashion industry case are visualized.

The linear supply chain, which starts from raw materials and ends in disposal is designed in a new way, where products are collected after they would normally become waste and "reversed" back on the supply chain and used again either by recycling, remanufacturing, or redistributing. Beginning from the design, products should be designed for longevity and circularity. This means that designers should favor environment-friendly, renewable, and recycled materials and sustainable manufacturing practices. Most importantly, the use after the garment is not consumable anymore should be taken into consideration already in the design. Can the material be recycled into a new garment or used in another way, or will it be inevitable to dispose of? The circular economy calls for a cross-industrial collaboration as materials can easily find a new purpose in another industry. As an example, t-shirts can be made from water bottles. Switch towards the circular economy. Following nature's example can be used in the innovations of new materials, processes, and systems by learning from ones already existing in nature.

## 2.2 What Makes A Circular Economy More Sustainable Than A Linear Economy?

As said before, the financial system can allow to slow down the extraction of uncooked substances and manufacturing because the already existing substances are reused, which means there's no want for brand spanking new virgin substances. To be capable of now no longer want to extract such a lot of uncooked substances is honestly sustainable. The round financial system also ambitions to apply renewable power and other sustainable manufacturing practices, making it an extra sustainable approach than a linear financial system. The discount of waste, which is feasible around the financial system, can combat the contemporary waste hassle created through the happening linear system, presently inflicting plenty of bad environmental impacts. From around the financial system to paintings on a big scale, the delivery chain might want to be very obvious to manipulate the cloth flows efficiently. This should also assist with the happening social sustainability troubles of the style industry, which means the negative running situations in garb production, as presently, they may be honestly hard to clear up due to the complexity of the chain and the opaqueness. Last, however, now no longer least, a Circular financial system performed properly can be economically more sustainable than a linear financial system. Currently, we aren't the usage of our sources for his or her complete cost, nor are we the usage of the overall cost of the garb we use. According to Fletcher (2008), on the common simplest 30% of our cloth dresser is in lively use, which means we're retaining a big unused resource disused. In addition, 15- 30 percent of the textiles produced are wasted already withinside the production element as a manufacturing waste (Niinimäki et al. 2020). A great part of those unused sources come to be in landfills, whilst the valuable substances should nevertheless be used and financially benefited from, and the garments are probably shared or recycled in place of disposed of in landfills. What comes to the bad facets of the round financial system is that it would create extra want for transportation because the garments and substances are moved around and recycled, which would possibly triumph over the nice impact it has on the environment if the transportation is performed in unsustainable manners.

## 2.3. Waste And Data As New Raw Material

As mentioned before, the current fashion system operates in an almost completely linear way, which means that large quantities of non-renewable resources are used, causing a massive waste problem, especially since the 2000er when the Fast Fashion Industry expanded tremendously, led by brands like Zara and H&M (Greenpeace, 2017). Since then, clothing sales have almost doubled between 2002 and 2015, from 1 trillion us dollars to 1. 8 trillion us dollars (McKinsey, 2014). Before the Corona Pandemics in 2020, industry experts expected a further increase of the industry to 2. 1 trillion us dollars by 2025. Clothing production doubled in the years from 2000 to 2014 and in 2014, over 100 billion new items of clothing were produced. Today's textile trends became the garbage of tomorrow, as 85 percent of all textiles go to the dump each year (Business Insider, 2019). Fast fashion brands are producing new trends in ever shorter intervals, and the average frequency of wearing a garment has decreased by 36 percent compared to 15 years ago (Euromonitor, 2016).

There is hardly any real recycling. It is not about recovering fibers to make new clothes. The materials are mostly shredded and processed into cleaning rags or insulation and fillers, which means just a temporary extension of life, as in the end, these rags become garbage. So-called fiber-to-fiber recycling, the conversion of old materials into usable yarns or fabrics for new clothing, hardly ever takes place (Ellen McArthur Foundation, 2017). A major problem is identifying the fibers, and even when fabrics are recognized, the many fiber mixes, the composition of different fabrics, buttons, zippers, and so on prevent an economically profitable separation (Gothenburg University, 2015). The mechanical separation of fibers, especially cotton

and wool, is a technically established process but at the expense of quality. Larger amounts of new fibers have to be mixed in for usable yarns. The recycling of synthetic fibers is much more limited, and only a few companies offer chemical recycling of synthetic materials. However, none of the methods now developed is economically viable (The Guardian, 2015).

In contrast to new technologies, the biggest issue is the high cost of recycled fibers. In addition, the apparel industry weighted down deadstock fabrics and unsold inventory, which accounts for 10 percent of global carbon emissions. Because of society's greater consciousness, brands are under greater pressure to reduce their environmental effects and understand the need to pursue more sustainable alternatives in the supply chain. It is not only cloth waste that is manufactured but also vast volumes of other resources that have a detrimental effect on humans and the environment. The textile industry relies largely on non-renewable energy. A total of 98 million tons per year, including oil for the manufacture of synthetic fabrics, cotton fertilizers, and chemicals for the processing, dyeing, and finishing of fibers and textiles, requires approximately 93 billion cubic meters of water to be used annually (Ellen McArthur Foundation, 2017).

## 2.4. Waste As Raw Material

Waste can be eliminated within a circular fashion economy (Ellen McArthur Foundation, 2017), and it aims to minimize waste to a minimum by retaining the products as long as humanly possible in the use and output cycle. During the supply chain, materials are collected and reused whenever possible and converted into new fabrics and garments with the aid of various recycling technologies. The beneficial effect on the atmosphere is relatively high with the use of recycled fabrics, which was shown by a pilot project with a denim maker that saved 53 percent of energy due to the use of recycled fibers, while water savings amounted to 99 percent and chemical savings were 88 percent (CBI, 2020). And not only will the money be spared, but economic benefits are often left untapped by the linear system. Clothing underuse is a huge chance to capture profit, as buyers waste billions of dollars in value by disposing of wearable clothing (Ellen McArthur Foundation, 2019)

While textile recycling focuses on the recovery of Up-cycling of waste materials for reuse, remanufacturing or reprocessing is a method of recycling in which the waste material is turned into a higher-value, improved quality commodity. From an ecological, social, and economic perspective, both textile recycling and up-cycling are potentially advantageous alternatives. They reduce landfill space requirements, the use of new fibers, energy, and water consumption, help prevent pollution and reduce the demand for dyes (CBI, 2020). The prevention of waste starts already within the design process, and it is a collaborative effort across the value chain. An innovative business model must be matched with a forward-thinking designer and professionals with the tools to design for circularity. By considering the whole usage and lifecycle of a product, clothes can be designed according to unlock the full value of clothing, rather than seeing it as garbage. Thoughtful design matched with innovative business models could change the whole value chain and the possibilities of reusing the materials again and again.

### 2.4.1. Data As Raw Material

But waste is not just an essential resource for the circular economy, but also data used during additive manufacturing (AM) and should be implemented into the circular economy with the aid of machine learning (AI) and could help the industry adapt to sustainable processes. By adding upon layer content, AM describes the technology behind creating 3D objects. AM covers a range of developments, including 3D printing, Rapid Prototyping (RP), Direct Digital

Manufacturing (DDM), layered development, and additive manufacturing (Additive Manufacturing, 2020).

*2.4.1.1. Artificial Intelligence*

Artificial Intelligence is a software model of the processes of human intelligence which works with computer models and frameworks. Consequently, this does not mean granting computers knowledge or consciousness in the same way as a human is intellectual and aware, but what distinguishes them from software conventions is that they can benefit from the experience and not only programming. In terms of the Fashion industry, can help solve problems by executing duties based on information from videos, images, audio, numeric, text, and many more that involve pattern recognition, prediction, optimization, and suggestion generation. (Ellen McArthur Foundation, 2017).

AI will improve and allow a creative circular economy across the fashion industry. It will help promote the generation of different technologies and materials that are ideal for a circular economy, allowing prototyping and research to be quicker and better. Products will also be more user-centered (Medium, 2019). AI will use real-time and historical data from goods and customers in the operating circular business model, thereby improving product distribution and asset usage through price and market prediction, maintenance, and smart inventory management (Medium, 2019).

Traditionally, retailers depend on data from the previous year that was unsafe to adapt to evolving Patterns to focus their estimation of current year revenue. Predictive mistakes should be minimized by 50 percent (Forbes, 2019) to avoid overproduction and large volumes of leftovers.



**Figure 3. The Simulation of Human Intelligence Processes By Machines.**

Finally, enhancing the systems for sorting and disassembling items, remanufactured parts, and recycled materials, would optimize facilities (Medium, 2019). According to Forbes, in any aspect of the fashion world, AI technologies have brought quality, from either the design phase and manufacturing processes to the sales and marketing of finished products.

*2.4.1.2 3D printing*

Further, 3D printing technology is also getting to be used with the assistance of AI (Medium, 2018). 3D printing and AM, are becoming a lot and more necessary and are commonly

mentioned within the context of digitalization or trade 4. 0. ab initio employed in the development of prototypes; AM contains a heap of potential, particularly within the areas of textile products similarly as textile production processes. This could have an impact on the efficiency of production and helps with the discrimination and functionalization of products (Südwesttextil, 2016). products are often individually custom-made or technical applications can be created and therefore satisfy modern or technical specifications.



**Figure 4. 3D Printing Technology.**

Currently, additionally, several items of analysis on how fabric-like structures are often 3D printed exist however, the assembly of textile surfaces is still terribly limited. Also attention-grabbing during this context is the printing of accessories reminiscent of buttons and zippers, which could significantly shorten delivery times. Men can demand-driven production and "short time to market" for textile innovations. Successfully implemented, some textile-manufacturing process steps, such as cutting, could be saved. And, the quality of the products could be better controlled, and manufacturers could, case, immediately intervene. A tailor-made product generation can also avoid a significant amount of material residues and waste (Südwesttextil, 2016) but also lower $CO_2$ emissions. 3D printing could be a method for reusing plastic material and giving it back to the economy in a new form (Print, 2019). In the last 8 years Nature Works, a material manufacturer jointly owned by Cargill and PTT international Chemical has been collaborating with the Ellen full general Foundation, supporting to fostering of the vision of property, and the circular economy for plastics (Bioplastics News, 2020). Nature Work developed the fabric referred to as Ingo PLA, created by the chemical process of plant sugars that may be either reused or may be composted. This can be a sustainable chemical compound meaning in step with Nature Work that it's made up of renewable plant matter instead of unrenewable rock oil (Bioplastics News, 2020). This production methodology may result in a smaller carbon footprint and require less non-renewable energy to manufacture than petroleum-based plastics (NatureWorks, 2020).

*2.4.1.3. Virtual World*

As social media is playing an important role nowadays, self-identification also gains more value in the virtual world. The user has the urge for newness, accompanied by the guilty feeling of the negative environmental footprint of purchasing physical garments (Spott, 2019). Thus, companies like the Norwegian Carlings invent digital fashion lines to offer their clients stylish photos for their social media accounts. That gives new potential not just to consumers, but also to the industry. The new fusion within the gaming market makes it possible to see avatars being dressed fashionably. Just recently introduced by the berlin-based fashion organization

Reference Festival, the Nintendo Game Animal Crossing takes its fashion potential one a step further with a virtual fashion show of Animal Crossing Avatars dressed up in current season looks inspired by Loewe, Prada, and GmbH. Such digital innovations show a smart way of saving an incredible amount of money and resources by not purchasing new clothes and still looking sharp in the digital world (Vogue, 2020).



**Figure 5. Virtual Worlds**

Furthermore, corporations are getting down to work on and with technologies, making Avatars in 3D to style prototypes for the assembly to save massive production steps and cut back on waste and emissions (lecture 2020). In conclusion, to implement waste and information as new raw material, the industry, and also the policy ought to encourage cooperative consumption and longer use by supporting leasing or sharing platforms, however, conjointly to take-back and resale, second-hand stores and by revaluing repair and maintenance. Also, the availability chain inside an organization desire to be utterly revised and customers ought to be educated. There are plenty of potentials, particularly within usage technologies, that desire to be researched and developed to develop innovative ideas.

## 2.5. Forward-Thinking Brands And Manufacturers Within The Industry

The transition towards a circular economy in the fashion industry is indispensable, as previously argued, and the burden on the fashion industry is growing. With about 60 to 75 million people working in the apparel, clothing, and footwear sector worldwide in 2014, the fashion industry has several obligations (ILO, 2015), and cotton processing alone accounts for almost 7 percent of all jobs in some low-income countries. (EllenMcArthur Foundation, 2017).

As there are not only environmental and social but also economic advantages, the problem is already faced by many enterprises (Bazgosha et al., 2013; Hakkak et al., 2022; Afshar Jahan Shahi et al., 2018; Asadollahi et al., 2011; Bazgosha et al., 2012). The move to a circular structure would unlock economic prospects worth about $560 billion. (Ellen McArthur Foundation, 2017). Furthermore, there's AN increasing focus from governments and the garment industry to use roundness in the textile industry in Europe. The ECU Commission has introduced a Circular Economic Package to a transition to higher usage of resources for European businesses (European Commission, 2017) so conjointly the countries are currently.

starting to implement rules and restrictions to accelerate the processes. Different strategies are often utilized by the business to implement a circular economy, like reuse, resell, remanufacture, and recycle (Kumar & Malegeant, 2006), however in step with analysis the

larger environmental profit exists through utilize of a product instead of recycling it (Sciencedirect, 2018). so, corporations ought to address the "end-of-life" of clothes inside their business models, which is a necessary phase for utilizing waste (Mistrafuturefashion, 2017).

While speaking concerning the circular economy and the different models, it's necessary to differentiate between "short-life fashion" and "long-life fashion". Reusing, reselling, upcycling, and remanufacturing makes sense on clothes with durability, quality production, and long usages. Instead, merchandise that are made with quality through quick production systems typically don't have enough price to be repaired or resold, thus this merchandise ought to be taken back to recycle (Mistrafuturefashion, 2017). As mentioned in our former chapter "waste as new raw material", the methods, innovations, and technology are thus far still limited, and utilize on its own isn't sufficient to scale back simply textile waste and doesn't address the difficulty of resource scarceness for giant fashion companies. Textile-to-textile usage is a thanks to address each problem with resource scarceness and textile waste in landfills. Major fashion companies, like Adidas, Levies, Patagonia, H&M and PVH are already dedicated to rising their processes and material selections towards a greener future. so, they're cooperating during a kind of alternative ways with forward-thinking and innovative makers or start-ups however conjointly invest by themself in new innovations and ideas to become a lot of property and satisfy the new shopper requirements. As analysis shows, eighty-eight of customers wish fashion brands to assist them to be a lot environmentally friendly (Forbes, 2020).



**Figure 6. The Biological Cycle For Formulas And Bottles.**

Also, new certificates are created or gaining a lot of importance, not only for the consumer but also for the companies. many alternative certificates are globally used, that can facilitate fashion firms to manage and examine processes at intervals their price chain and are auxiliary for a circular business model and a good industry. The Cradle to Cradle Certified™, introduced in 2010, may be a globally recognized live of safer, a lot of property merchandise created for the circular economy. it absolutely was established by William McDonough and Dr. archangel Braungart and helps brands rework their price chain and create merchandise with a positive impact on individuals and the environment. merchandise is evaluated for environmental and social performance supported 5 important property categories: material health, material reuse, renewable energy and carbon management, water stewardship, and social fairness (C2C Certified, 2020).

| QUALITY CATEGORY | BASIC | BRONZE | SILVER | GOLD | PLATINUM |
|---|---|---|---|---|---|
| MATERIAL HEALTH | | | | ✔ | |
| MATERIAL REUTILIZATION | | | ✔ | | |
| RENEWABLE ENERGY & CARBON MANAGEMENT | | ✔ | | | |
| WATER STEWARDSHIP | | | ✔ | | |
| SOCIAL FAIRNESS | | | | ✔ | |
| OVERALL CERTIFICATION LEVEL | | ✔ | | | |

**Figure 7. Cradle To Cradle Certified Product Scorecard.**

The honest wear Foundation focuses on sensible changes for garment workers, supports the U. N. Declaration on Human Rights. Oeko-Tex gives info concerning ototoxic chemicals, and Bluesign normally indicates that a textile has the tiniest ecological footprint doable (Eluxe, 2019). Brands try to improve processes or entire price chains to create a lot of sustainability. For example, Levi's tries to use ninety-six % less water in its production due to denim being ill-famed for requiring giant amounts of water to create jeans. As such, it is committed to property throughout the planning and producing process, as well as performing on one hundred pc property cotton and utilization previous jeans for house-insulation (Forbes, 2020).

Another exemplar is that the complete Patagonia who tries, next to its honest trade practices and closely monitored supply chain, to provide durable clothes, with the likelihood to repair them. They also advise customers to shop for used products rather than new ones (Forbes, 2020). PVH invests in technologies to optimize their price chain, making less waste (e. g. Avatars for Prototypes) and to supply their customers transparency inside their products within the future (QR code tags) (Lecture, 2020). And additionally, Adidas develops items, like shoes and hoodies, out of 100% reclaimable material, which is currently tested on elite customers (Adidas, 2019).



**Figure 8. 100% Recyclable Material Shoes.**

Adidas' goal is to exchange virgin polyester with recycled polyester by 2024 and is already exploitation forty recycled polyester in their current collections (Adidas, 2019). because the field gains additional importance, several start-ups, and material suppliers are performing on new technologies to make use easier and worthy. after are some innovative firms named, who developed new use techniques and fabrics: Evrnu, a textile innovations company based in 2014,

is making a regenerative system by exploitation NuCycl™ technologies to increase the life cycle of today's single-use textiles (Evrnu, 2020). it's changing pre- and post-consumer materials pleased from landfills and incinerators into new fibers and creates a regenerative provider of high-quality, bio-based fibers (Ellen McArthur Foundation, 2013). The technology permits the complete business use of cotton clothes nevertheless (Textile Exchange, 2020) and is going to use identical technology for polyester fibers in the predicted future (Apparel News, 2019). Evrnu is currently operating with companies resembling Levi's, Adidas, and Target who are licensing their technology and is in varied stages of early analysis and development with many alternative technologies designed to interrupt down garment waste (Ellen McArthur Foundation, 2013).

The British company Worn Again, based in 2016, invented a technology that's the primitive person that allows the roundness of PET and plastic raw materials and replaces the employment of virgin resources (Kering, 2016). For this they separate, cleanse and extract polyester and cellulose (from cotton) from non-reusable textiles and polyester bottles and packaging to provide twin PET and polysaccharide outputs, to introduce long-run sustainable resources back to production provide chains (Worn Again, 2019). Currently, the corporate is functioning closely with firms like H&M, Kering, and Puma. Sodra, a Swedish-based company is resolution one in all the foremost obstacles to textile recycling, by inventing a way that's able to separate poly-cotton blends. The pure cotton fibers are then additional to our wood-derived textile pulp, which might then be wont to build new textiles (Cision, 2019). the corporate was based in 2016 uses forest-related solutions and innovations to seek out textile alternatives and develop solutions for a good vary of areas as for example, additionally substitution oil-based chemicals with bio-based chemicals and identify new material ideas (Sodra, 2016). The long-run goal of Soda is to utilize each variety of textile product (Tieto evry, 2019). Algiknit, a US-based company, is manufacturing textile fibers extruded from kelp, a spread of seaweed. The extrusion method turns the biopolymer mixture into kelp-based thread that may be unwoven, or 3D written to attenuate waste. the ultimate wear is perishable and may be unreal with natural pigments in an exceedingly closed-loop cycle. There are even more companies developing and using new technologies, inventing apps or new innovative fabrics created out of Pineapple, Oranges or apples, ocean waste or reducing microplastic. As we said the demand for sustainable products is increasing, thus finally also the investments in technologies are increasing (Luxiders, 2019).
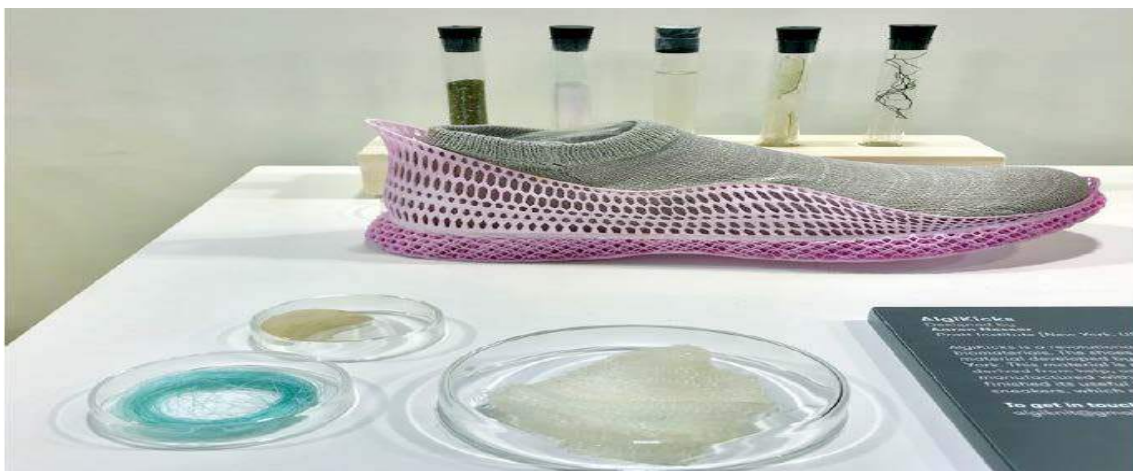


**Figure 9. 100% Recyclable Material Shoes.**

## 3. DISCUSSION AND CONCLUSION

Circle and protruded approaches, containing the dependence of the frugality on material and energy inputs, adding the adaptability of the profitable system, the preservation of the terrain, supplying the growing demands of the ever more populated earth, and adding the operational capability and cost-effectiveness of the product. Moreover, the indirect frugality is compatible with the essential interests of the pots, as it's aligned with the competitive and the strategic fabrics and it's able to enrich the contract between the consumers and the directors. The extra desire and pleasant supplied through new income and carrier fashions in a brand-new textile economic system might beautify the advantage skilled customers. A new textile economic system might offer blessings to an extraordinary variety of customers. In a brand-new fabric economic system, secure and healthy clothing inputs into textile manufacturing might now no longer go away. People uncover materials dangerous to their fitness and might lessen fitness dangers for every person carrying garments. With its low rates of utilization and low levels of recycling, the currently wasteful, linear system has numerous negative environmental and societal impacts. These, and other commonly used materials, all have various negative impacts on people and the environment, leaving room for significant innovation in materials. The new textile economy is renewable and resilient and will phase out the use of non-renewable resources. Alternative Non-renewable resources using recycled raw materials. The reduction of system throughput by maximizing garment utilization contributed significantly to the reduction of resource consumption. increase. However, you will probably always use the new you need. Such inputs are required, there are recycled materials, and more and more should be obtained from them. Renewable resources are produced in a renewable way. They also switch to a more efficient and efficient production process.

Less waste and less resource usage (e.g., B). Reducing water usage due to fossil fuels, chemicals, and water scarcity. The region is energy efficient and uses renewable energy. Helps further reduce the demand for non-renewable energy. Resource consumption. In addition to being essential for long-term functional systems, achieving this goal will allow the industry to reduce the risks associated with resource price fluctuations and supply security, and add value through direct cost savings. You can attach it. Four major actions have been identified to support more effective use of resources and a shift to renewable inputs.

Find a source of renewable raw material that requires resource input. Remove the barriers to deploying more! How to make large-scale active textiles. An innovative process that consumes fewer resources. After evaluating both models, and according to the given fact that the fashion industry is the second biggest polluting industry globally, the need to shift to a full circular economy in fashion is long overdue. It is not just within the companies' responsibility but also a duty of the states and countries to provide support and determine regulations. The consumer has the responsibility to educate themself and demand more sustainable products and support the change towards a zero-waste model. The industry and the economic policy should encourage collaborative consumption and longer use by supporting leasing or sharing platforms and taking-back and resale, secondhand stores, and revaluing repair and maintenance. Also, the supply chain within a company needs to be completely revised. In 2018, the EU implemented a new strategy on plastic and introduced a new circular economy package that should ensure the separate collection of textiles in all Member States by latest 2025 and it is expected that there will be more stringent regulations over the years to limit the environmental footprint of fashion.

To implement waste and data as new raw material and exploit the full capacity of our resources, the textile industry and the states need to invest in innovative re- and up cycle

models and new technologies to make the processes even more efficient. Taking fashion into the virtual world will probably fill a (niche) market and will have a positive effect but cannot replace the production of physical garments. Thus, Artificial Intelligence and 3D technologies are already steps into the right direction and will accompany the industry by accomplishing their goals. Corona virus, besides the mental health issues Gong et al., 2021; Chen et al., 2021; Zhang et al., 2020) has forced companies even more to consider a change within their business model. Not just because the consumer is getting more informed and is expecting more transparency but also because of the huge amount of stock, leftovers, and overproduction due to the fast-changing trends and short product life cycles, companies are facing big issues by selling off their products. As mentioned before, there is a lot for us to learn by mimicking nature, as nature works as an ideal example of a circular economy. Besides offering business opportunities, circular economy is most of all a philosophy and a system that creates a healthy and functional relationship between nature and human society.

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# Determinants of Alcohol Addiction among Consumers in Enugu, Nigeria

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## Abstract

In spite of several alcohol-related harms, consumption pattern towards alcohol addiction in Nigeria is on the increase. This study attempts to identify the determinants of addictive alcohol consumption among consumers in Nigeria. Using a causal research design, 250 alcohol consumers were purposively sampled. Data were collected using a structured questionnaire and analysed using the multiple regression analysis in SPSSWIN version 22. The findings reveal that there is a combined effect of the latent variables- peer group, price, socio-cultural environment and government intervention on consumers' alcohol addiction (R=0.673, $R^2$=0.452 and p= 0.008). In conclusion, peer group influence, price of alcoholic beverages, socio-cultural environment and level of government involvement in alcohol regulation have a direct and significant influence on alcohol addiction. Theoretical and policy recommendations were made; as well as practical implications.

**Keywords**
Alcohol, Addictive Consumption, Consumer Attitude, Beverage Drink, Drug Gateway Theory

## 1. INTRODUCTION

Alcohol Consumption in the world over is as old as mankind. Consumption patterns however vary from country to country and even amongst ethnic groups (Benneth, Campillo, Chandrashekar & Gureje, 1998). In the traditional African society, alcohol is mostly consumed during festivities, and often used for entertainments by adult males. It is also used to celebrate and commemorate significant life milestones such as births, deaths, marriages, graduations, promotions etc (Roche, Bywood, Freeman, Pidd, Borlagdan and Trifonoff, 2009). To a reasonable extent, women, youths and children are made to abstain from alcohol consumption in most African societies (Odejide, 2006).

In Nigeria, alcohol consumption predates the colonial era. Locally brewed alcoholic beverages are usually produced and consumed almost immediately with little or no quantity left for sale. The entry and habitation of the Europeans and colonial masters into Nigeria largely popularised the consumption of alcoholic beverages locally from western countries as alcohol became readily available to men and women of all ages on a commercial basis (Dumbili, 2013). Recently, it has been observed that there is a shift in the pattern of consumption, drinking

frequency, quantity consumed per event and the reasons for such consumption thereby leading to an unusually high level of addiction and misuse of the product.

Beside the environmental factors, other alcohol-related harms from addictive consumption could be seen from three dimensional levels of drinking, namely: the volume consumed, the pattern of drinking, and the quality of alcohol consumed (Rehm, Room, Graham, Monteiro, Gmel & Sempos, 2003; Rehm, Kanteres & Lachenmeier, 2010; WHO, 2010). Three obvious consequences of excessive alcohol intake are observed; toxic effects on the organs and tissues of the body resulting to damage and failure of the organ to function optimally; intoxication of the consumer leading to loss of physical coordination and consciousness; and alcohol dependence, whereby the drinker's self-control over his or her drinking behavior is impaired (Babor, Caetano, Casswell, Edwards, Giesbrecht & Grahamet, 2003; WHO, 2007).

The harmful effects of alcohol consumption lead to top five risk factors for disease, disability and death, throughout the world (WHO, 2011; Lim, Vos, Flaxman, Danaei, Shibuya, & Adair-Rohani, 2012). Furthermore, it is a causal factor for more than 200 diseases and injury-related conditions (WHO, 1992. Researchers argue that addictive consumption of alcohol can also cause serious social and economic consequences for both individuals and the society at large other than the consumer alone (Anderson, Chisholm, & Fuhr, 2009; Sacks, Roeber, Bouchery, Gonzales, Chaloupka, & Brewer, 2013). It is believed to be responsible for 3.2% of all deaths annually and 5% of deaths in people between the ages of 5 and 29 years across the globe (WHO, 2007). Excessive consumption of alcohol has further not been without more negative consequences like road accidents, sexual assault/unplanned sexual activity and physical injuries (Baer, Kivlahan and Marlatt, 1995; Weschler, Dowdall, Davenport and Castillo, 1995). High rate of drinking can therefore lead to lost productivity, accidents, disability, early death, crime, neglect of family responsibilities, and personality deterioration (Cook and More, 2000).

The tendency to behave in a particular way is as a result of the attitude held by the individual towards the attitude object. To influence a person's behavior, a change in the person's attitude towards the behavior is often required; and attitudinal change can be achieved through persuasion and social influence (Wendy, 2000). Hence, this study seeks to identify the predictors to this new attitude towards binge drinking among Nigerian youths.

## 2. LITERATURE REVIEW

### 2.1. Consumers' Attitude

Hawkins, Best and Coney, (2004) gave a broad definition of attitude as 'an enduring organisation of motivational, emotional, perceptual and cognitive processes with respect to some aspect of our environment'. More specifically, 'attitude refers to knowledge and positive or negative feelings about an object or activity' (Pride and Ferrell, 1991). It is also seen as the 'overall evaluation that expresses how much we like or dislike an object, issue, person or action' (Solomon, 2004). Attitude serve four functions: *the utilitarian function*, which is founded on the principle of reward and punishment, that is the utility derivable from the behavior of individuals forming positive attitude towards rewarding behaviors and negative attitude against behaviors with negative consequences; *value-expressive function*, when attitudes are formed not based on the product benefit but to express the individual's self-concept, values and lifestyle; *ego-defensive function*, relates to attitudes formed as a means of protecting the individual's self-image and ego from external threats and internal feelings/shortcomings; *knowledge function*, based on individuals need to know and organise beliefs, if a consumer thinks positive about a brand, it helps reaffirm his opinion, and makes decision making simpler

and faster (Grewal, Mehta & Kardes 2000; Katz, 1960). A certain attitude can fulfil several functions; however, only one shall be dominant at all times (Voicu, 2013).

Attitude formation is a function of three components or dimensions (Hawkins, et al., 2004). This tri-component model includes the cognitive, affective and conative components. The cognitive component comprises the consumer knowledge and belief about the product which could be from personal experience, as well as marketers' communication. The affective component refers to the feelings and emotional content in the individual towards the product. This arouses the like and dislikes towards a product. The conative or behavioral component emanates from the other two components; it is the expressive component which shows the readiness of an individual to act on his/her belief and feelings, otherwise called action tendency of an attitude. All the three components of attitude are relevant, but they might vary in the degree of importance according to the motivation regard to an attitude object. A clear examination of these components will reveal the interdependence amongst them.

## 2.2. Addictive Behavior

The term addiction refers to a brain disorder which features a compulsive engagement in 'rewarding' stimuli, despite adverse consequences (Volkow, Koob, McLellan 2016; Taylor, Lewis & Olive, 2013). O'Guinn and Faber (1989) attempts a definition of compulsive consumption as 'a response to an uncontrollable drive or desire to obtain, use, or experience a feeling, substance, or activity that leads an individual to repetitively engage in a behavior that will ultimately cause harm to the individual and/or others.' As Faruk and Wolfgang (2001) opine 'a good is addictive if its consumption leads to more compulsive consumption of the same good in the future'. They, therefore, defined addiction as the widening of the gap between an individual's choice and what would have been his choice prior to exposure to the addictive stimuli. Nestler (2013) opines that there are two properties that characterise an addictive behavior; they are reinforcing (increases the likelihood of the person to seek exposure to them) and rewarding (they are perceived as positive and desirable behaviors). Addiction occurs through genetic transfers and also epigenetic mechanisms; it is a result of high exposure to an addictive stimulus such as gambling, cocaine, morphine etc (Olsen, 2011; Ruffle, 2014). Becker and Murphy (1988) view the consumption of addictive good as an investment that increases the return of future consumption of that good.

### 2.2.1.   *Peer Group and Socio-Cultural Environment Influences on Consumption of Alcoholic Beverages*

Research has shown that individuals who are always in the company of those who drink are most likely to start drinking (Reifman, Barnes, Dintcheff, Farell & Uhteg, 1998). This assertion is supported by Manski (1993) who said that individuals involved in excessive alcohol intake are likely to have friends who drink alcohol as well. Bosari and Carey (2001) opine that there are three basic determinants of peer influence on student drinking: "overt offers of alcohol, modelling and social norms".  An individual's peer group serves as a model of influence and facilitates his exposure to alcohol consumption and addiction. This is more for individuals with higher social approval needs (Caudill and Kong, 2001) and who can be classified as social drinkers. The desire to associate with the specific relevant others can have an overriding influence on attitudes towards alcohol consumption with the attractiveness of the group providing a more powerful motivation (Rose, Bearden & Manning, 2001). Beyond the need for social acceptance and approval by the peer group are instances of coercion experienced by some individuals to avoid derision from the social group (Marcoux and Shope, 1997; Park, Ashton, Tammie, & Moon, 1998).

Hirschamn (1992) states the perception with which a society conceptualises a behavior, event or experience inevitably affects the social responses to those experience or behavioral patterns. Berridge and Edwards (1981) reports that in the eighteenth and nineteenth centuries, drugs such as opiates, cannabis and cocaine were not viewed as a social problem but alcohol consumption was seen as a sign of lack of morals (Musto, 1973). Awoyinka (2012) observes the prevalence of alcohol in all cultures of the world and its mood modifying features. The cultural norms and values that define what, where, when and how we drink, and who we drink with, are mediated between people over time thus leading to the constant change of ideas on drinking and drinking practices (Roche et al., 2009). Similarly, the society, institutions, and cultural beliefs have been suggested as having roles to play in addictive alcohol consumption. Factors such as societal drinking behaviors, extent of parental supervision and monitoring of children, and family conflict have roles to play in the level of alcohol consumption and subsequent addiction of off springs (Turner, Larimer & Sarason, 2000; Bray, Getz & Baer, 2000; Caldwell and Darling, 1999). Hence, we hypothesized as follows:

**Hypothesis one:** *Peer group pressure influences alcohol addiction.*

**Hypothesis two**: *The socio-cultural environment has significant impact on alcohol addiction.*

### 2.2.2. *Price of Alcoholic Beverages and Alcoholic Consumption*

Anderson and Baumberg (2006) opine that the addictive nature of alcohol implies that the short-term price elasticity of alcoholic beverages is smaller in absolute value than the long-term price elasticity indicating that change in consumption is usually smaller than the price changes. Brunn, Kettil and Edwards, (1975) observed that the price elasticity of alcohol is asymmetric in the sense that a decrease in price by a certain amount will lead to a higher increase in consumption than the effect of a price increase of the same amount. Studies have found that increase in prices of alcoholic beverages disproportionately reduce alcohol consumption by young people, and also have a greater impact (in terms of alcohol intake) on more frequent and heavier drinkers than on less frequent and lighter drinkers (Anderson & Baumberg, 2006). The increase in alcohol prices has also been found to reduce binge drinking to the point of intoxication (Osterberg, 2001). Price variation affects the drinking habit and frequency in all types of beverages and across all population of drinkers; light and heavy drinkers alike (Wagenaar, Salois & Komro, 2009).

The economic theory of demand posits that consumption and price are inversely related; meaning that the higher the price, the lower the quantity demanded and consumed of a product. Beside policies for reducing alcohol consumption and its related harm, governments may have also ignored increasing the price of alcoholic products through raised taxes on alcoholic beverages; even when that is done, the intent may still be for raising revenues rather than discouraging consumption (Chaloupka, Grossman and Saffer, 2002). Several studies have confirmed price responsiveness of alcohol consumption (Nelson 1999; Kenkel 1993, 1996; Manning, Blumberg, and Moulton. 1995). However, similar to cigarette, the addictive nature of alcohol makes it difficult when analyzing price effects on alcohol consumption.

From the foregoing discussion, we hypothesize thus:

**Hypothesis three:** *Price of alcoholic beverages influences alcohol addiction.*

### 2.2.3. Government Involvement and Alcohol Addiction

The rising global alcohol addiction and its related harm necessitated the World Health Assembly (WHA) to call for effective alcohol policies among member states (WHO, 2005). Nigeria, being one, adopted the resolution. This resolution had as its main thrusts, commitment

of leaders to the policy, control of alcohol marketing and availability as well as price control aimed at controlling purchase. However, there is yet to be a formulated alcohol policy in Nigeria.

Despite the apparent high incidence of health, social, and economic implications of addictive alcohol consumption, it has remained a relatively low public health policy priority in most countries of the world (WHO, 2014). Alcohol consumption is common in Nigeria due to its unrestricted availability. Oluwaniyi (2010) argues that successive governments in Nigeria have underplayed the formulation of appropriate policy measures for alcohol consumption. Perhaps, the high revenues accruing to most developing countries from alcohol consumption suggests why successive governments rather than enunciate regulatory policies against the consumption habits seek to maximise incomes, and in consequence, neglect the inherent social, psychological, and health risks. In Nigeria, the credibility of the source of the warning message *"drink responsibly"* as used in a number of alcohol promotional messages is in doubt and as Andrews (1995) opines, reasonably affects its ability to lead to attitudinal change. From the foregoing discussion, we hypothesized thus:

**Hypothesis four:** *Poor policy formulation and implementation has a relationship with consumers' alcohol addiction.*

### 2.2.4.Theoretical Underpinning: Gateway Drug Theory

The gateway theory also known as stepping stone hypothesis provides an explanation for young people's drug intake adoption process. It states that the use of one drug increases the risk of progressing to a higher more harmful drug later and this risk increases with the frequency of use (Jensen, Melberg and Jones, 2005). Choo, Roh and Robinson (2008) suggest that licit drugs such as alcohol and tobacco serve as a gateway for the use of other illicit drugs. The Gateway Hypothesis holds that substance use typically follows a series of stages or progressions. Specifically, individuals typically progress from non-use of any substance as a child to use as a child, to use of alcohol and/or tobacco in early adolescence, potentially followed by use of marijuana and/or other illicit drugs (Kandel, 2002). Pudney (2003) underscored three mechanisms which form the basis for the gateway effect; the consumption of soft drugs create a psychological need for stronger experiences of the same type; the act of obtaining and using soft drugs exposes the consumer with other drug users and suppliers whom they otherwise would not have been in contact with and the experience of soft drug with no explicit harmful effects appears to contradict the negative publicity given to illicit drug use and encourage use of more hard drugs.

### 2.2.5.Empirical Evidences

In a study of rural consumers of alcohol and its effects on livelihood in Enugu state by Dimelu et al (2011), it was found that predictors of choice of alcoholic beverage consumed were availability (53%), ability to produce (50%), costs/prices (46.7%) and prestige (43.3%). Taste, advertisement and suitability for the body were found to be insignificant. In a similar study of the prevalence of alcohol among commercial drivers in Uyo, availability of the alcoholic beverage was found to be a major determinant of alcohol use (Akpan and Ikorok, 2014). Also in a related study carried out in tertiary institutions in Southwest Nigeria by Adekeye, Adeusi, Olufunke, Ahmadu and Muyiwa (2015), parental use and peer influence were found not to be significant influencing factors on students' use of alcohol, however, age was found to be a strong predictor. In contrast, Trang while studying Vietnamese females found that peer group influence and desire to socialise while drinking, are the main drivers of beer consumption intention. However, the study also revealed that parents have less impact on their children's

intention to drink beer. Netz (2009) in a study of attitudes of Thai consumers towards beer products found that gender and income levels have a significant influence on attitude.

Jensen et al. (2005) opine that if the use of soft drugs has a causal effect on the progression to more harmful drugs, policy makers should endeavour to nip in the bud excessive consumption of these soft drugs. However, man's action as a rational being is executed having in mind the expected outcome, the amount of control he has over the performance of such action and the required resources to achieve that.

Extensive researches have been conducted in search of factors and determinants of adolescent consumption of alcohol (Crundall, 1995). However, only a few of these studies have differentiated between determinants of alcohol abuse/misuse and moderate/normal consumption. This led Donovan (1997) to opine that similar factors influence trial, ongoing moderate consumption and excess consumption. Kilty (1990) supported this assertion when he found that predictors of 'normal' consumption behaviors are also the influencers of 'problem' drinking. It is the opinion of Labouvie (1990) and Cloninger (1987) that excess consumption of alcohol is a combination of factors, personal and structural. Therefore this study will also seek to make a proposition for the combined effect of factors that determine consumers' addictive consumption of alcohol.

## 3. METHODOLOGY

The research design used in this study is the causal design. This was adopted due to the wide and inclusive coverage of the study and its desire to find out the interactions among variables under study. Primary data was used for the study and were obtained from responses to questionnaire items on the subject matter.

The study population comprised of youths aged 18-50 years who consume alcoholic beverages and live in Enugu metropolis. The researchers judgementally and purposively chose a sample size of 250 respondents for the fact that this population is infinite. Due to the nature of the study, respondents were approached purposively at the points of consumption and their consent got before administering the questionnaire.

In a bid to collect data for the research, a closed ended questionnaire was carefully designed and structured to elicit responses from the respondents. The questionnaire employed the five-point Likert scale ranging from Strongly Agree to Strongly Disagree in measuring the variables and comprised of two sections; section A comprises of demographic information of the respondents while section B captured the subject matter responses of the respondents. The items used in measuring the latent variables were adapted from previous similar studies such as Basu et al (1998), WHO (2017), Dielman et al (1987) and Wang et al. (2008).

Reliability of the research instrument was tested using the Cronbach alpha reliability test in SPSSWIN version 22 for each of the latent constructs and the reliability indices are all above the 0.7 benchmark as opined by Nunnally and Bernstein (1994). It ranges from 0.7 to 0.84 showing that the instrument used is internally consistent (See Appendix). Table I presents detailed information on the respondents demographics.

**Table 1:** Demographic Variables

| Variables | Frequency | Percent (%) |
|---|---|---|
| **Gender** | | |
| Male | 131 | 72 |
| Female | 51 | 28 |

| | | |
|---|---|---|
| **Marital Status** | | |
| Single | 167 | 91.8 |
| Married | 14 | 7.7 |
| *No response | 1 | 0.5 |
| | | |
| **Age** | | |
| ≤20 | 35 | 19.2 |
| 21-35 | 131 | 72 |
| 36-50 | 10 | 5.5 |
| > 50 | 2 | 1.1 |
| *No response | 4 | 2.2 |
| | | |
| **Educational Qualification** | | |
| SSCE | 8 | 4.4 |
| Undergraduate | 136 | 74.7 |
| Post graduate | 38 | 20.9 |
| | | |
| **Income Level** | | |
| <50,000 | 117 | 64.3 |
| 50,000-100,000 | 31 | 17 |
| >100,000 | 7 | 3.8 |
| *No response | 27 | 14.8 |
| | | |
| **Religion** | | |
| Christian | 176 | 96.7 |
| Moslem | 3 | 1.6 |
| *No response | 3 | 1.6 |
| **Total** | **182** | **100** |

*No response: Cases where respondents did not select any of the categories in the item.

## 4. RESULTS

Of the two hundred and fifty copies (250) of the questionnaire administered, only two hundred and nine (209) copies, representing 79.7% were returned. Out of this number, only one hundred and eighty-two (182) copies relevant to this study were eventually used for the analyses. The 27 copies excluded did not meet up with the measure for addiction; the respondents' consumption was considered addictive given the frequency and quantity of their alcohol consumption. Heavy drinkers were those who took at least five drinks in one sitting at least once a month. Bearing in mind that the Nigerian beer bottle is about twice what is obtainable in other parts of the world (Obot, 2000), the researchers assumed two bottles taken at a sitting at least twice a month is considered addictive.

## 4.1. Test of Hypotheses

The hypotheses are tested here using the multiple regression analysis in SPSSWIN version 22.

**Table 2:** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .673a | .452 | .447 | 1.49090 |

a. Predictors: (Constant), GOVERNMENT INTERVENTION, SOCIO-CULTURAL ENVIRONMENT, PRICE, PEER GROUP

**Table 3.** ANOVAa

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 31.560 | 4 | 7.890 | 3.550 | .008b |
| | Residual | 393.434 | 177 | 2.223 | | |
| | Total | 424.995 | 181 | | | |

a. Dependent Variable: ADDICTIVE CONSUMPTION
b. Predictors: (Constant), GOVERNMENT INTERVENTION, SOCIO-CULTURAL ENVIRONMENT, PRICE, PEER GROUP

**Table 4.** Coefficientsa

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 4.849 | .657 | | 7.383 | .000 |
| | PEER GROUP | .050 | .039 | .127 | 1.267 | .000 |
| | PRICE | .061 | .051 | .111 | 1.194 | .000 |
| | SOCIO-CULTURAL ENVIRONMENT | .089 | .036 | .224 | 2.466 | .002 |
| | GOVERNMENT INTERVENTION | .142 | .126 | .082 | -1.122 | .003 |

a. Dependent Variable: ADDICTIVE CONSUMPTION

The regression analysis between addictive alcohol consumption and the influence of price, socio-cultural environment, peer group influence and government intervention is presented in tables 3, 4 and 5. The correlation coefficient, significant values and the number of cases is shown in tables 3 and 4 above. From the tables above, the correlation (R) shows 0.673, the significant value of 0.008 indicates the correlation is significant and implies that there is a positive relationship between addictive alcohol consumption and the latent constructs. The $R^2$ of 0.452 indicates that the variation in addictive alcohol consumption can be explained, 45.2% by the identified constructs. At R=0.673 and p=0.008, we do not accept the null hypotheses. Thus, it is indicative that there is a positive relationship between the latent constructs and alcohol addiction.

## 5. DISCUSSION AND CONCLUSION

The results of the present study confirm the earlier hypotheses by other scholars in different geographical locations and contexts. Similar to other studies, price was found to be a major determinant of alcohol addiction. Studies have found that increases in prices of alcoholic beverages disproportionately reduce alcohol consumption by young people, and also have a greater impact (in terms of alcohol intake) on more frequent and heavier drinkers than on less frequent and lighter drinkers (Anderson & Baumberg, 2006). Changes in alcohol prices have also been found to influence drinking to the point of intoxication. Babor et al. (2010) have shown that increasing the price of alcohol reduces both acute and chronic harm related to drinking among people of all ages. This kind of evidence indicates that heavy or problem drinkers are no exception to the basic rule that alcohol consumers respond to changes in alcohol prices.

Peer influence was found to be a predictor to alcohol addiction. This is consistent with the studies by Moffitt (2001) and Duncan et al. (2005). They found out that alcohol consumption and other substance abuse will affect individuals' choice of peer group. Similarly, Manski (1995) opined that individuals who binge drink are likely to have friends who drink.

Similar to the study by Dumbili (2012), our findings reveal that the government of Nigeria has no working alcohol policy in place to curtail level of alcohol availability, price control an regulation of alcohol abuse. A WHO report in 2014 corroborates our study; the report states that there is neither written alcohol policy nor national plan, no legally binding regulation on alcohol sponsorship and sales promotion or requirement to include a health warning in advertisements and on product labels. Also there are no restrictions for on/off premises sales of alcoholic beverages with respect to hours, days, places, etc. This is indicative of poor policy formulation and implementation. Inasmuch as there is a national legal minimum age for on and off premises sale on alcohol beverages, its implementation is not known in any part of Nigeria.

From the above findings, it can be concluded that peer influence, the price of alcohol products, poor policy formulation and implementation and the society's stance towards alcohol consumption which is reflected by beliefs, norms and actions significantly reinforce consumers' positive attitude towards addictive consumption of alcohol. This, therefore, indicates that a combination of these factors would contribute to the increasing effect of alcohol-related harm in the society today. By implication, individuals who live in a society where alcohol is accorded a necessary part of the people's social life with little or no noticeable regulation and enjoy affordable cost price, with a large part of their peers consuming alcohol are most likely to engage in trial consumption and with further consumption may slide into addiction. Further the Nigerian government's low level of intervention in the noticeable binge drinking amongst its youth population is indicative of a lassiez faire attitude towards alcohol consumption which encourages addiction among youths especially and this calls for new policy frameworks by relevant policy makers against such addictive consumption behavior.

Based on the findings of the study, the following recommendations were made:

1. An attempt to counter some of the positive beliefs and attitudes young people hold towards alcohol which increase consumption frequency among them and also heightened awareness campaigns on the harmful effects of consumption should be made. This would go a long way in declining the desire and drive for alcohol consumption among the vulnerable segments.
2. Government should seriously consider increasing the duties and taxes paid on the manufacture and sale of alcoholic drinks as a way of increasing the price of the product so as to act as a disincentive to its high frequency consumption and addiction.

3. Strong regulation is adduced to restrict young people's access to alcoholic beverages. This is necessary as there are indications that initial consumption at early age may lead to continual usage of the product and subsequently addiction. Ethical consumption standards among youths can be achieved through strict monitoring and regulatory measures by government against adolescent consumption habits.

**Conflict of Interest Statement**

The authors are not aware of any conflict of interest.

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**APPENDIX**

**Table I: Reliability Statistics**

|  | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | No of Items |
|---|---|---|---|
| Peer Pressure | 0.732 | 0.729 | 4 |
| Price of Alcoholic Beverages | 0.861 | 0.849 | 3 |
| Socio-Cultural Environment | 0.794 | 0.785 | 5 |
| Poor Policy Formulation and Implementation | 0.805 | 0.791 | 3 |
| Addictive Consumption | 0.700 | 0.701 | 2 |

# Practice of the Managerial Skills and Tools in the Selected Company

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**Abstract**

To solve problems in business practice, the manager needs to have a wide range of skills. The contribution evaluates the use of managerial skills in the selected EU companies to find what managerial skills managers consider important, which of them they use and how much time they devote to them. A questionnaire survey provided the necessary data. The target respondents were randomly selected managers at all levels of management. The results of the survey show reserves in managerial skills using in the company and can be used to suggest potential improvements for managers, based on the results of a questionnaire survey. Management of the companies can use the results of the research to prepare the necessary training skills for their managers and by this way to provide long-term sustainable competitiveness.

**Keywords**

Manager; Managerial Skills; Questionnaire Research; Improvement In Management

## 1. INTRODUCTION

Managerial skills play an important role in the functioning of a company. Managers obtain managerial skills through training and practice (Garnaut, 2012). They relate to mastering good management practices such as decision-making, planning and delegation. Managerial skills present the abilities of a manager to translate knowledge into practice. Skills are not inherent; it is possible to develop them by connecting the educational base, practice, personal experience and inseparable personal preconditions.

To solve challenges and problems in business practice, the manager needs to have a wide range of skills in various areas. The basic prerequisite for success in the field of operation is the necessary technical knowledge. This can be supplemented by the acquisition of interpersonal or communication skills that will ensure the effective use of resources in making managerial decisions.

Much interest in managerial skills has been generated recently; however, most of the questionnaires on managerial skills have focused on frequency and not competency (Shipper, 1995). Therefore, the European Commission (2016) is aware of the importance of acquiring and developing a wide range of skills, calling on the Member States of the European Union to promote the full use of human capital through initiatives (Lawrence, 2018). To support this, the European Commission adopted in 2016 a comprehensive program called the New Skills Agenda for Europe, which aims to ensure the possibility of acquiring and developing the skills of the next generation for a dynamically changing labor market. According to the document, almost 40% of employers across Europe lack the people with the necessary skills to ensure their

growth and innovation (www.minedu.sk).

The contribution deals with managerial skills according to the questionnaire of present state of management in the company, determined for managers at all level of management. From the view of the managerial skills´ state, there is possible to find out reserves and to suggest improvement for effective model of the company management and at the same time to increase effectiveness of skills of all managers in everyday practice. Therefore, the main goal of the contribution is to evaluate what managerial skills are important presently in the practice of the companies.

## 2. LITERATURE REVIEW

Armstrong (2007) describes in his publication on the latest trends and practices in human resource management that the managerial skills of individual managers, respectively actors of direct management at all levels in the organizational structure, influencing the success of the company presuppose the integrity of processes and procedures for managing these skills. He also suggests that managerial skills should be seen as complex and multifaceted, mental or physical skills, however, it is not enough for the manager to know not only what, but also how and when to use the acquired skills so that they bring the highest possible return in the given conditions of the company (Donnelly et al. 1992).

The professional literature states, resp. uses multiple divisions of managerial skills, as for example Karam (2011) as follows:

- Conceptual skills

- Technical skills

- Interpersonal skills

These skills in such a way conceptual skills deal with ideas, technical skills deal with things and interpersonal skills deals with people (www.nytimes.com). Conceptual and technical skills are needed to make a good decision, but interpersonal skills are most needed for a good leader. Soft skills or interpersonal skills are critical to managerial success. Due to the mentioned Beenen et al. (2018) discussed the need for more rigorous assessment of interpersonal skills. In the frame of managerial skills, managerial coaching has been popularized as a way of motivating, developing and retaining employees in organization), having potential impact on employees. Here Park et al. (2020) identified five dimensions of managerial coaching, demonstrated that managers' utilization of managerial coaching skills had a direct effect on employees' learning and organizational commitment and affected employees' organizational commitment through personal learning. Zaidi et al. (2021) explain how entrepreneurs initiate their startup business by considering their managerial skills, which could help fast growing economies.

According to Ahmad et al. (2021) managerial skills affects strategic planning and performance of small- and medium-sized enterprises (SMEs), indicating the positive effect of managerial skills on SMEs' performance and also suggested that strategic planning mediates the relationship between managerial skills and SMEs' performance and vice versa. In this connection, appropriate strategies for SMEs effect the managerial skills on the utilization of the firm's resources. The same is found out yet earlier also by Asah et al. (2015), revealed significant positive relationships between motivations, personal values and managerial skills of SME owners on performance. The study suggests that SME owners should incorporate values and improve management skills; only then, SMEs have a better chance of survival. Chatterjee and Das (2016), researching five dimensions of skills, namely, leadership skills, communication skills, human relation skills, technical skills and inborn aptitude, do similar research. The

dimensions had been chosen due to the evaluation of their influence to the business success, finding influence mostly to the micro-entrepreneurs.

It is no secret that employees leave their organizations because of bad managers (Beenen et al. 2021). Organizations should therefore increase interpersonal skills to perform well in the managerial role. Despite increasing popularity, little evidence describes the necessity and impact of coaching Carey et al. (2011). However, managerial coaching can be impacted by coach's role and attributes, selection of coaching candidates and coach attributes, obstacles and facilitators to the coaching process, benefits and drawbacks of external versus internal coaches, and organizational support. In addition, compassion could be increased among managers through improving their emotional skills (Paakkanen et al., 2020). Emotional skills mediate the impact of participating in the intervention group and compassion. Instead of being something innate, compassion is a skill that can be increased through training emotional skills, with observable benefits for the organization. This creates the space for broader research of managerial skills in the organizations.

The importance to study managerial skills is also important from the view of shareholders due to the financial crisis, causing an increase in the risk premium and shareholders' return around the world. In this area Matemilola et al. (2013) investigates the effect of managerial skills on shareholders' return, finding positive relationships. Except of psychological aspects of managerial skills, also technical aspects are important, providing incremental value to the managerial skill in the managerial performance (Hysong, 2008).

## 3. METHODOLOGY

The main goal of the survey was to find out what managerial skills managers consider to be key, which they use in the performance of their profession, and how much time they devote to them on a working day. Another equally important task of the survey was to obtain the necessary data to prepare the necessary training skills for their managers. In order for the corporate culture and employee motivation to be effective, the company's management should know the opinions, attitudes and management methods used by its managers.

The survey was conducted through a questionnaire, which was used to obtain the views of a large number of managers at various levels of management in a relatively short time (2 weeks). 96 questionnaires were distributed; the return rate was 92.7%, which represents 89 submitted questionnaires. The questionnaire was anonymous. The necessary data for my diploma thesis were obtained by a questionnaire survey, which is often used as one of the possible quantitative methods. The questionnaire was created in printed form, as it was easier for the company's managers to distribute and collect the questionnaires. In the first part of the questionnaire, the basic data of managers - respondents were ascertained, such as gender, age structure, achieved education of respondents and length of practice of respondents in management as such.

In the next part of the questionnaire, their attitudes and experiences in managerial skills were already ascertained. This is an essential part of this questionnaire, which should outline the factual state of managers' skills and on this basis, a training plan should be prepared to improve the necessary practices after the theoretical but also the practical part. The questions were closed, to which the respondents answered by circling the answer that best expressed their opinion. Despite the closed questions, they were able to add a brief comment to their answer. The questionnaires were completed according to the instructions. The questionnaire was created based on the studied theoretical part of this diploma thesis. The questionnaire contains 20 questions focusing on the use of managerial skills. Respondents to these 20 questions also answered basic questions such as age, gender, etc. A questionnaire survey was conducted with the managers of the Bukóza Holding, joint stock company, at all levels of management with the

agreement of the Director-General. The company is located near the town of Vranov nad Topľou.

The elaboration and submission of the questionnaires was set for a time horizon of 2 weeks, specifically from 08 June 2020 to 19 June 2020. The answers were collected and evaluated on an ongoing basis. 96 questionnaires were distributed, of which 89 responses were returned. The return of the questionnaire was therefore 92.70%, which is justified by the request for return from the company's management. First, filter questions are evaluated, which classify respondents into individual categories. Furthermore, the questions that are important for meeting the objectives and verifying the established hypothesis of this thesis are evaluated. Among the respondents, men predominated in the number of 77 persons (86.52%) and there were 12 female respondents (13.48%). This difference is more or less evident because it is an industrial enterprise.

Most managers are aged 51-60, which represents 40.45% of all respondents. The second most numerous group of managers is aged 41-50, which represents 25.84%. The third group of respondents is in the age category of 31-40 years, which represents 21.35% of the total number of returned questionnaires addressed to managers. The fourth group of respondents consists of managers aged 60 and over. The least numerous age category of managers is aged 18-30, which is made up of only four respondents, which is 4.49% of all respondents. Most respondents have completed university education of second degree, which is achieved by the master or engineering degree. 74 people (83.15%) achieved this education. The group of respondents with completed secondary school includes nine persons (10.11%). The third group of managers has a university degree with a bachelor's degree. These are four managers (4.49%), who, however, continue in II. university degree. Highest university education of third degree was achieved by 2 managers (2.25%).

## 4. RESULTS

The results had been obtained by requesting and evaluation of the respondents answers according to the following questions:

*1. How many years do you act in the management area?*

Managers were required to provide the exact number in an open-ended question. The collected data are grouped into individual categories according to years of managerial experience (see Table 1).

**Table 1.** The length of the Respondents Practice In The Management

| Possible answer | responds | Rate in % |
|---|---|---|
| Less than 1 year | 7 | 7,87 |
| -5 years | 8 | 8,99 |
| 6-10 years | 11 | 12,36 |
| 11-15 years | 34 | 38,20 |
| 16 years and more | 29 | 32,58 |

Table 1 shows that the largest number of managers, namely 34 (38.20%) have 11 to 15 years of experience in management. Another strong group of 29 people (32.58%) has been working in management for more than 16 years. 11 managers (12.36%) have experience in the field of management in the range of 6 - 10 years. 15 managers (16.86%) have experience in management for a maximum of 5 years, including those within one year.

2.  *At what level of the management is your position?*

The question helped to find out the level (role) of management and the rate on the management (see Figure 1).
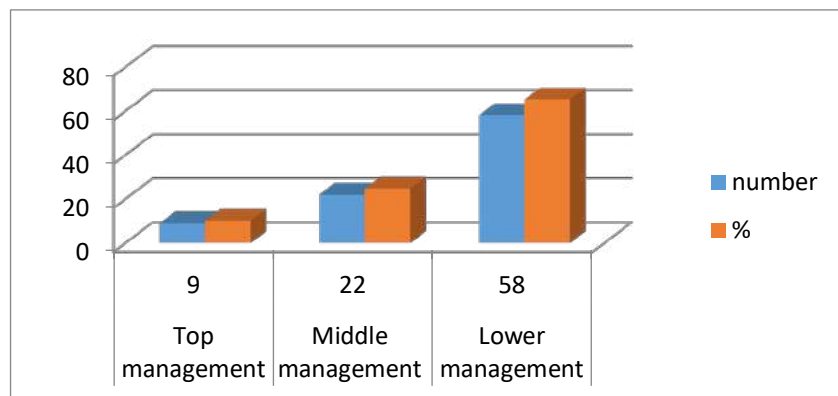


**Figure 1.** The Position of the Respondents

From the Figure 1 it is obvious and statistically usual that the largest number of managers, specifically 58 (65.17%) is located in the line, resp. lower management, i.e. that they are managers in direct contact with workers in the production, respectively. administrative sphere. Another group are managers at the level of middle management in the number of 22 people (24.72%). Top management consists of 9 managers (10.11%), who are also members of the boards of directors in the group of companies Bukóza Holding, joint stock company.

3.  *Do you know how to use managerial skills in the practice?*

Table 2 illustrates the question found out effective using of managerial skills during performance of the working position, the results.

**Table 2.** Effectiveness of Managerial Skills Using In The Practice

| Possible answer | responds | Rate in % |
|---|---|---|
| Yes –regularly | 18 | 20,22 |
| Yes – irregularly | 43 | 48,31 |
| No – but trying | 25 | 28,10 |
| No – I do not need it | 3 | 3,37 |

It is clear from Table 2 that not all managers effectively use managerial skills as a management tool. 43 managers (48.31%) stated that they use these skills but not regularly. In the second group of managers who have an effort but do not use managerial skills in practice, there are up to 25 people (28.10%) of the total number of managers who submitted questionnaires. That is pretty much more than a quarter of management. The question here is whether these are the

right people in the right place. It is quite shocking that three managers answered that they do not need to use these skills in their practice. Only 18 managers (20.22%) use managerial skills regularly, assuming that they are effective. When creating the possibilities of answers, it could be not find anyone in the last group. This is definitely an area for reflection for the whole society.

*4. How often do you use communication skills in your work?*

The question gives answer to the time of communication skills using in the practice of the managers work in the company. The answers are given in Table 3.

**Table 3.** Time Spent By Manager for The Communication

| Possible answer | responds | Rate in % |
|---|---|---|
| Daily | 78 | 87,64 |
| 3 times per week | 7 | 7,87 |
| Once a week | 4 | 4,49 |
| Two times per week | 0 | 0,00 |
| never | 0 | 0,00 |

Table 3 shows that communication as managers use a managerial skill at different times during the working day. Most managers 78 (87.64%) wrote that they actively communicate with their subordinates, resp. other employees during their working hours. The second group of 11 correspondents together (12.36%) communicates with colleagues; resp. subordinates approximately 1-3 per week. Thus, it is generally possible to state that the respondents actively communicate almost during the whole working day. There is no manager at any level in the company who would be able to communicate at the appropriate level.

*5. What is the frequency of the delegation skills using?*

The question gives idea of managers 'skills to delegate working task to the subordinates.
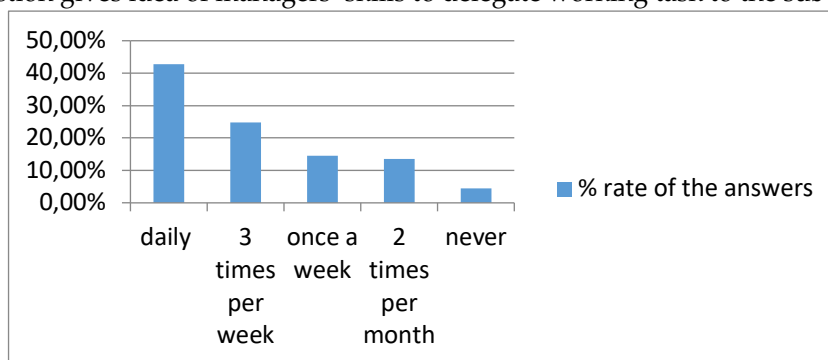


**Figure 2.** Frequency of The Delegation Skills Using

Figure 2 shows that 38 respondents (42, 7%) delegate tasks every day. 22 managers (24, 72%) mentioned they delegate the tasks three times per week. Approximately once a week delegate 13 managers (14, 61%). Yet 12 respondents (13, 48%) speak of delegation only two times per month. Only two managers (4, 49%) delegate never. Here is the question if such managers are at the proper place when they do not delegate, it means, they do not know how to manage.

*6. What is the frequency of the coaching in your practice?*

The answers are given in table 4.

**Table 4.** Frequency of Coaching Using In Managerial Practice.

| Possible answer | Responds | Rate in % |
|---|---|---|
| Daily | 7 | 7,87 |
| 3 times per week | 15 | 16,85 |
| Once a week | 22 | 27,72 |
| 2 times per month | 31 | 34,83 |
| never | 14 | 15,73 |

Table 4 expresses that 31 respondents (34.84%) can coach some of their subordinates about twice a week within their working hours and duties. 22 respondents (24.72%) coach their subordinates about once a week. 15 managers (16.85%) stated that they are able to coach their subordinates about 3 times a week. He can coach his subordinates 7 managers on a daily basis (7.87%). It is surprising that up to 14 managers (15.73%) do not coach their subordinates at all. It is to the detriment of things, because in this way, the managerial skills stagnate and the experience is not passed on to other employees.

*7. What is the frequency of decision skills using in your practice?*

The question gives idea of coaching ability of the managers in the frame of his working activities.
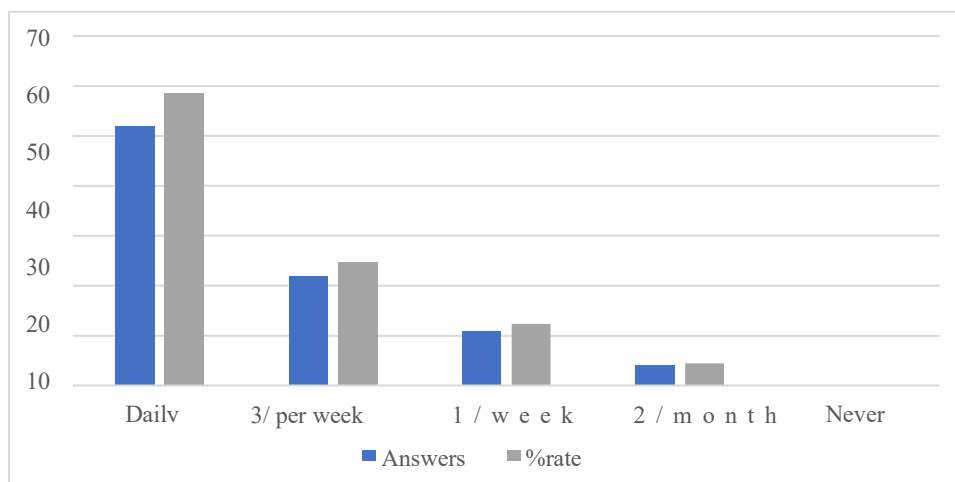


**Figure 3.** Frequency of Decision Skills Using In The Managerial Practice

Figure 3 expresses that 52 respondents (58.43%) make decisions on a daily basis within their working hours and duties. At least 3 times a week, 22 respondents - managers (24.72%) make decisions. 11 respondents (12.36%) make decisions at their level about once week. 4 respondents (4.49%) stated that they make decisions at their level about twice a month. It follows from the above there is no manager in the company who would make a decision. If that were the case, it would be more than non-standard.

*8. What is the frequency of the negotiation skills in your practice?*

The question gives idea of the manager to negotiate with his subordinates.
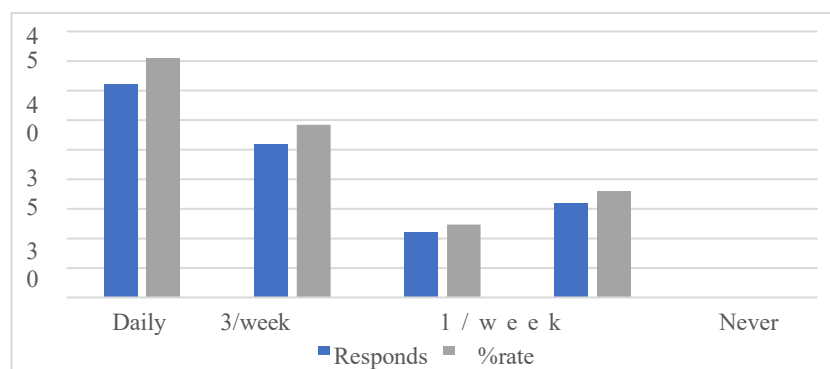
**Figure 4.** Frequency of Negotiation Skills Using In Management

Thanks to Figure 4, it can be stated that the use of negotiation in practice is variable. 36 managers (40.45%) say that they negotiate on a daily basis and 26 managers (29.21%) indicated that they negotiate about 3 times a week. Another 16 respondents (17.98%) say that they negotiate about twice a month. 11 respondents (12.36%) indicated that it is enough to negotiate once a week. Our questionnaire did not find a respondent - a manager who does not negotiate at all in his practice.

*9. What is the frequency of team workshops using in your work?*

The answers give idea of manager's skills to participate at the team workshops.

**Table 5.** Frequency of Team Workshops Using In The Managerial Practice

| Possible answers | Responds | % rate |
|---|---|---|
| Daily | 13 | 14,61 |
| 3 times per week | 9 | 10,11 |
| Once a week | 42 | 47,19 |
| 2 times per month | 21 | 23,60 |
| Never | 4 | 4,49 |

Table 5 shows that most managers, namely 42 (47.19%), need to attend a team meeting at least once a week. Another 21 respondents (23.60%) said that team meetings are held on average 2 times a month, which is every other week. 13 respondents (14.61%) prefer to participate in a team meeting on a daily basis. 9 respondents (10.11%) participate in a team meeting about 3 times a week. Only 4 managers (4.49%) indicated that they do not have team meetings at all.

*10. What is the frequency of time management using in your practice?*

The question provides responds to ability of the manager use the time in his working activities.

**Table 6.** Frequency of Time Management In The Managerial Practice.

| Possible answers | Responds | % rate |
|---|---|---|
| Daily | 42 | 47,19 |
| 3 times per week | 21 | 23,60 |
| Once a week | 12 | 13,48 |
| 2 times per month | 10 | 11,24 |
| Never | 4 | 4,49 |

Table 6 shows the information that 42 respondents (47.19%) plan their time on a daily basis. 21 managers (23.60%) plan their time about 3 times a week. 12 respondents (13.48%) manage their time once a week. 10 managers (11.24%) indicated that they only manage time 2 times a month.

The remaining four respondents (4.49%) state that they do not use time management in practice at all.

*11. What is the frequency of control activity using in your work?*

The answers speak about the ability of the manager to control tasks solving of the subordinates.
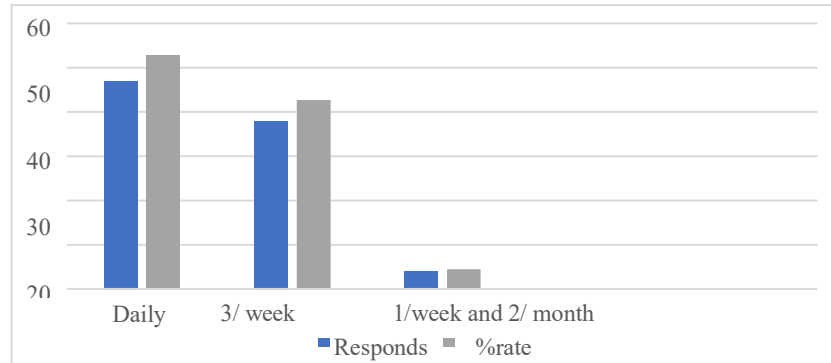


**Figure 5.** Frequency of the Control Using In The Management.

From Figure No. 5 it is clear that the control activities give managers great importance, because up to 47 respondents (52.81%) perform the control of planned or assigned tasks, respectively. processes on a daily basis and another 38 respondents (42.70%) deal with the control approximately 3 times a week. Only 4 respondents only need to perform control activities once a week. There is no manager in the interviewed company who would not use this managerial skill in his practice.

*12. How often do you use innovation solutions in your work?*

Managerial skills in area of innovation tools using at the different level using can be evaluated according to the Figure 6. Figure 6 shows that respondents perceive use in practice as follows. 1 manager (1.17%) still uses innovations in his practice as he is familiar with them. 27 respondents (30.34%) use innovative solutions in their practice as continuously as possible. 18 respondents (20.23%) answered that they rarely use innovative procedures and solutions. 43 respondents (48.32%) answered that they do not use innovative solutions in their practice at all.
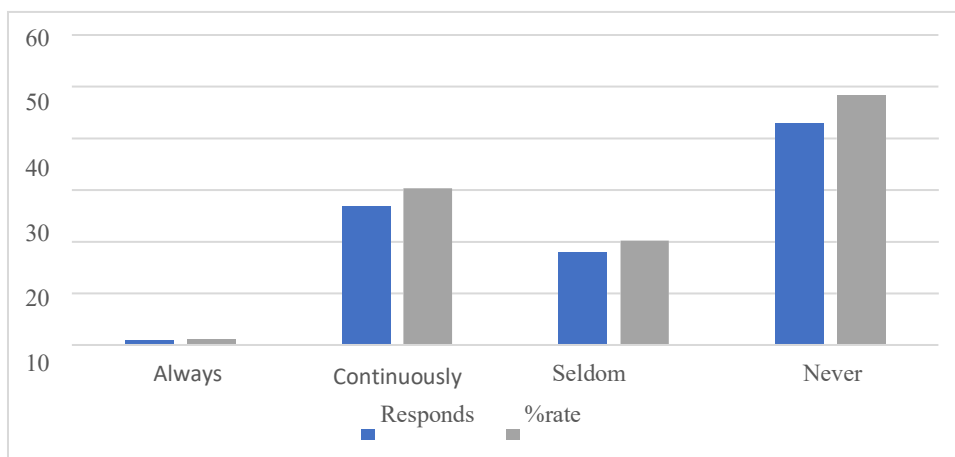


**Figure 6.** Using of Innovation Solution In The Managerial Practice.

*13. What is the space for the creativity in your work?*

The managerial skills can be evaluated also according to the creative thinking of the managers. Table 7 gives the responds.

**Table 7.** Using of Creativity In The Managerial Practice

| Possible answer | Responds | % rate |
|---|---|---|
| Not limited | 14 | 15,73 |
| According to the situation | 53 | 59,55 |
| Sometimes | 22 | 24,72 |
| Any | 0 | 0,00 |

Table 7 shows that respondents perceive creativity as a natural tool for managerial skills. As many as 14 respondents (15.73%) even stated that creativity is a complete part of their thinking and they use it indefinitely in practice. 53 managers (59.55%) use elements of creativity according to the situation, plans and strategy in the company. 22 respondents (24.72%) use elements of creativity to perform their practice from time to time. The survey shows that all managers are creative, because none of the respondents answered the possibility of never using the creativity in the practice.

*14. What is the quality of your presentation skills?*

The question given idea of quality of the managerial presentation skills at all levels so the analyzed company (see table 8).

**Table 8.** Quality of Presentation Skills In The Managerial Practice

| Possible answers | Responds | % rate |
|---|---|---|
| top presentation skills | 6 | 6,74 |
| medium presentation skills | 21 | 23,60 |
| low presentation skills | 28 | 31,46 |
| any presentation skills | 34 | 38,20 |

Table 8 shows that about 2/3 of the respondents have no, resp. minimum presentation skills. Specifically, 34 respondents (38.20%) stated that they had absolutely no presentation skills. 28 managers (31.46%) stated that their presentation ability is quite low. 21 respondents (23.60%). Only 6 managers (6.74%) with answers to this question claim that their presentation skills are at a high level.

*15. Rank the following individual managerial skills according to the importance.*

The question will bring us closer to the quality of presentation skills of managers at all levels of management of the company in question. In the question, respondents ranked skills according to which is most important for them in practice. Skill in the last place is significant; it is only a subjective view of the respondents.

**Table 9.** Ranking of the Managerial Skills Using

| Possible answer | Responds |
|---|---|
| Communication | 8,9 |
| Delegation | 6,9 |
| Coaching | 4,3 |
| Decision | 7,3 |
| Negotiation | 6,6 |
| Team workshop | 6,8 |
| Time management | 4,2 |
| Control | 5,2 |
| Innovativeness | 5,1 |
| Presentation skills | 1,8 |

Table 9 shows the importance of skills in practice in the selected company. Respondents consider communication to be the most important skill with an average value of 8.9. In second place with a value of 7.3 is decision-making. In other places, skills such as delegation, team meetings and negotiations with an average of 6.9 to 6.6 are very close. Next is control with an average of 5.2 and innovation with an average of 5.1. Next in order are creativity, coaching and time management with an average of 4.6 to 4.2. This is followed by the skill of evaluation with an average of 2.9. Respondents consider presentation to be the least necessary skill, with an average of 1.8.

16. *How effective is your managerial skills using in the practice?*

The question finds out the ability of the respondents to use managerial skills in their work effectively. Figure 7 illustrates the responds.
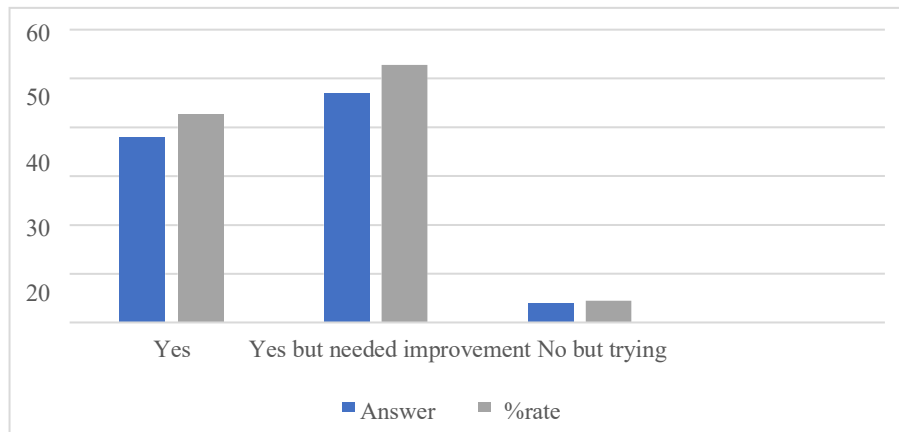


**Figure 7.** Ability of the Manager to Use Managerial Skills In The Practice

According to Figure 7, up to 47 managers (52.81%) of respondents think that they can perform managerial skills, but know that they need improvement. 38 managers (42.70%) think that they perform managerial skills without any shortcomings. Only four respondents (4.49%) admit that they do not know how to use managerial skills, but make an effort to improve managerial skills. None of the respondents state that they could not use managerial skills at all.

## 5. DISCUSSION AND CONCLUSION

Based on a questionnaire survey, which was conducted with managers of all levels of management of the group of companies Bukóza Holding, joint stock company, on the basis of obtained information there are several findings, which can be used to make recommendations and possible changes in the practice of managers. The questionnaire finding regarding time management is not at all satisfactory. In managerial practice, it is almost unacceptable for managers at any management level to state that they have not used the principles of managing their working time on a daily basis. The results of the questionnaire survey show that time management managers use it most often on a daily basis, but several managers also stated that they rarely plan their time at work. It is astonishing that four managers stated in the questionnaire that they do not use time management at all. Certified training in this area can be recommended, where managers would find that by managing their time well, they would be able to perform many times more activities and relieve the stress of time pressure or the chaos of not organizing activities. In addition, more experienced managers could coach inexperienced managers in the skill in question, and thus teach every skill manager how to plan their working hours. The manager should acquire the ability to plan his time already during his studies at high school or university, and after starting his education, they should give him the

opportunity to develop this skill in managerial practice. By the way, about half of the respondents are involved in active coaching for at least one week, so the improvement of this skill in the surveyed company would also be used.

Team meetings are the best way to improve the level of managerial skills within the company. Meetings of colleagues in the work should serve to not only solve problems and submit proposals for the organization itself. Team meetings are also teamwork because more managers meet and are equal during it. At least one day a week during the meeting, managers deal with various model situations and learn from each other how best to handle these situations. Managers would be able to improve other skills, such as communication, negotiation and peer feedback could help many to make the right decisions. From the evaluation of the questionnaire, it is clear that managers carry out control activities very often. If considering the proverb that trust and verify, then that is fine. However, there can be control mechanisms in the company so that this activity does not take up much space in managerial activities. In terms of the use of task delegation, company managers are aware that they should manage at their levels and not solve everything. Thus, the delegation of tasks is at an optimal level. When considering the answers to the questions about the importance and frequency of using individual managerial skills, many managers stated that the use of innovative solutions and creative thinking is at a very low level. It reaches only 1/3 of the surveyed managers. Therefore, managers are not sufficiently educated in the field of innovation. It is supported also by the results of Custodio et al. (2019), as well as research of Svac and Caganova (2020).

Although respondents list presentation skills at the last level of importance in managerial practice, training in this area can be recommended as well, which would strengthen managers in presenting their results through effective presentation. It is not important to pretend managers are working a lot, but it is more important to know how to sell results of managers' work through an effective presentation tool. All managers should undergo professional training in certain cycles when taking up the position of manager, as well as during it. Managers could make regular self-study as well as lifelong learning in the area of their careers. Managers would thus gain knowledge and skill in how to use the strengths of their manager's personality in negotiation and decision-making. Thanks to the training, managers would gain know-how on how to coach their subordinates. Managers should not be afraid to use the power of delegation, which would strengthen the links between the various components of the team, the skills of employees and the reputation of the manager in the eyes of superiors in meeting goals. The manager would thus gain more time for other activities, which could again be reflected in the smooth operation and profits of the surveyed company. If the manager is educated and continuously applies new knowledge in practice, it will increase the effectiveness of using managerial skills for his practice and ultimately increase the company's reputation. It presents the similar results as study by Barros et al. (2013), speaking of effective influence of increased managerial skills to the performance of the company. The most important outcome of our recommendations is that through continuous and never-ending training in management skills. By this way there would be leaders that are more natural for the company, as employees in the 21st century need leaders rather than programmed and often-arrogant managers. The future possible research can be orientated to the evaluation of training of the managerial skills in the companies.

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**JOMAES**

# Determinants of Patronage of Smartphone Among Female Students of Tertiary Institutions in Ekiti State

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## Abstract

Telecommunication industry has reconfigured our big world to a small village through the availability of swift devices for easy communication. One of the best gifts ever presented to humanity by this industry is Smartphone. However, irrespective of the sound and impressive job done by this industry, there is a need for the purchase of this device for proper usage. This therefore brings us to a marketing platform where demand and supply agreement need to be fulfilled between manufacturer and consumers. This study examined the determinants of Patronage of Smartphone among the Female Students in Tertiary Institutions in Ekiti State. Stratified and convenient random sampling technique were used to select the study area and the respondents in order to make sure that every member of the selected faculties in the university evenly represented. The population for this study was 21,827. The sample size for the study was 399 using the Taro and Yamane (1992).Three hundred and ninety-nine questionnaires were administered to the respondents. Data obtained was analyzed using descriptive statistics and multiple regressions. The article therefore established smartphone brand awareness through usage, brand perception through price and brand quality through designs contributed significantly to the patronage of Smartphone among female students of tertiary institutions in Ekiti State. It is therefore recommended that the above mentioned factors should be taken into consideration for better patronage of smart phone among female students of tertiary institutions.

**Keywords**
Smartphone, Brand Name, Design, Features, Price and Tertiary Institution

## 1. INTRODUCTION

The majority of our working time is spent communicating, which entails both giving and receiving information. This can be done in a variety of ways, including speaking, writing, listening, and reading materials. As a result, information is disseminated or absorbed. The social transaction model of communication entails getting one's thoughts across to listeners. It entails making oneself understandable to the person or people to whom the information is targeted. This suggests that communication's purpose is to implant ideas in the minds of those who hear it (Ogwumike, Ndimele and Innocent, 2015). All living beings on the planet have a similar habit of communicating. Humans, on the other hand, have more sophisticated and enhanced communication routes than animals. Traditional and modern communication methods can be divided into two categories. This can be traced back to the communication sector's new technological breakthrough. On a day-to-day level, technology also improves communication. Examining the communication environment, enhanced mobile phones known as Smartphones have greatly aided in the improvement of human communication. Richard and

Joel's efforts laid the groundwork for the creation of mobile phone communication. Smartphones are now recognized as one of the most prevalent information sources.

The first Smartphone, known as a Simon Smartphone, was invented by International Business Machine Corporation (IBM) in 1992. (UKEassys, 2018). This was a significant technological advance, as well as a response to market demand, because people desire to communicate with one another in a short amount of time. With the use of a Smartphone, it is now able to send messages and emails to one another in a more efficient and timely manner. It's incredible to think that a single technical product may revolutionize a customer's culture, way of life, and entire society. After the advent of the Smartphone, a significant shift occurred in human life, paving the way for advancement in the realm of technology. In this generation, finding someone without a smartphone is nearly difficult. Because of its numerous purposes, such as the capacity to communicate with clients, family members, and coworkers in a variety of ways, the smart phone has become an indispensable gadget. To put it another way, a Smartphone is a Personal Computer (PC) with increased features and capabilities. Smartphones are currently one of the most widely used information sources. According to 2006 Country Statistics from the Population Reference Bureau, mobile phones are one of the most frequent information access devices, with about 31% of the global population having access. People use mobile phones for a variety of functions, including voice communication, Short Message Services (SMS), Multimedia Message Services (MMS), recording, calculating, playing games, and more. When it comes to new media, the importance of networks cannot be overstated. The entire planet is connected to each other thanks to networks.

## 2. LITERATURE REVIEW

Jisha and Jebakumar (2018) looked at how female college students felt about their Smartphones in terms of reliance. The research employed a qualitative approach. The findings revealed that today's female college students rely on their smartphones to organize their daily lives. From the government's perspective, it is suggested that pupils be educated about the dangers of excessive reliance on mobile phones. Alternatively, some form of intervention, either from the family or from the college side, is essential to keep such reliance under control. As a result, a "the sooner, the better" strategy should be implemented from both internal and external sources. Jisha and Jebakumar (2019) investigate the average Smartphone usage among female college students in Coimbatore, Tamil Nadu. A questionnaire was used as part of the survey method. According to the findings, female college students regard their smartphones as an integral part of their lives, without which they feel unsatisfied. According to the report, female college students primarily utilized their smartphones for social media contact. Olusegun (2016) investigates the perception of smartphones among Nigerian undergraduate college students. A Qualitative Approach was also used in the research. The content revealed the development of the Smartphone as a self-concept among Nigerian college students.

At the University of Ghana, Noah (2019) investigates the use and impacts of smartphones as learning tools in remote education. Sampling Techniques were used in the survey research. The findings highlighted certain restricting problems in the usage of Smartphone, including Smartphone freezing crucial learning moments, inconsistent internet access, and distant education undergraduate university of Ghana. According to the study, there should be a constant strong Wi-Fi connection, constant power, and the University of Ghana's distance education unit should train students on how to effectively use their Smartphones for academic activities with minimal distractions. The goal of Manvin and Narina (2018) is to analyze relevant literature on Smartphone usage patterns in order to determine the harmful and beneficial effects of smartphones on students. The survey method was employed. The findings

examine the use of smartphones among 21st-century university students, as well as the impact of smartphone use on student life, both positively and negatively. In Lagos State Tertiary Institutions, Patrick, Mufutau, and Olushola (2018) examine the impact of Smartphone qualities on student purchasing decisions. The study used a descriptive research design. The findings revealed that all of the study's Smartphone features were shown to be favorably and significantly associated to students' purchasing decisions. Firms should focus on upgrading their technology in order to introduce innovative features and applications, as well as adopting a variety of pricing methods, while not overlooking image and design aspects, which were viewed as secondary factors in determining consumers' Smartphone decision. Azira, Siti, Law, Nurliyana, and Meriam (2016) investigate the factors that influence smartphone purchase intentions among Malaysian university students. It was decided to employ a survey questionnaire. The results demonstrate that three variables, namely product characteristics, brand name, and social influence, have a substantial link with purchasing intention, with the exception of one variable, Product sacrifice, which has no meaningful relationship. Tokelo and Joshua (2018) explore the impact of smartphone use on the learning processes of university students in a developing country. The researchers used a quantitative research methodology. Smartphone use has a good effect on student academic advancement, according to the study.

Amine and Berkan (2019) wanted to describe the purposes, patterns, and situations of smartphone use among university students in developing countries, with a focus on Turkey. The research used a cross-sectional survey method. The findings have implications and considerations for practitioners who want to use Smartphone learning for educational purposes. In addition, Arif, Aslam, and Wajeeha (2014) used a structural equation model to investigate students' reliance on smart phones and their impact on purchase behavior in Iraq. In this investigation, a survey questionnaire was used. The findings show that students' reliance on smartphones is influenced by social needs, social influence, and convenience. There was also a link between a student's reliance on a smart phone and their purchasing habits. Siti, Junainah, Seri, and Suhaila (2017) investigate the factors that influence smartphone usage among students at Malaysian institutions of higher learning. The method employed was descriptive research. Three factors of Smartphone usage were discovered (entertainment, learning process and social interaction).

Rahul (2017) seeks to determine the frequency of cell phone use among female students in India, as well as the purpose of cell phone use. The study employed qualitative and qualitative methods. Female communication students at Amity University used their phones mostly for sociability, privacy, safety, online presentations, and escapism. Female mobile phone users are agitated when their phone is not in their hand or is turned off, according to the study. This is due to a problem with addiction. The method employed was descriptive survey research. It discovered how students' connectivity in class and out-of-class involvement may be influenced by their use of educational Smartphones. Olabusuyi and Adeniyi (2014) look into the factors that influence Smartphone demand among students at the University of Ibadan in Nigeria. The expost-facto survey research design is used. The survey discovered that the most crucial element in a student's decision to purchase a smartphone is the design and functionality of the device. Eserinune (2015) investigated the impact of mobile phones on students in tertiary institutions in Abraka, Nigeria, as well as the positive and negative consequences of their use. The study used a survey research design that was modified. According to the findings, the use of mobile phones by university students has resulted in a vast and diverse pool of knowledge. According to the report, university officials in Nigeria should take a more active part in reducing the negative consequences of mobile phone usage among students in terms of examination malpractices. Chew, Lee, Lim, Thai, and Wong (2012) look at the factors that

influence smartphone purchasing intentions among young adults in Malaysia's University Tunku Abdul Rahman Perak Campus. It was decided to do a descriptive research study. It was established that, as a result of the present technological trend and evolution of mobile phone innovation, the demand for Smartphones is fast expanding. Smartphones have been a regular need for most people in recent years due to their capabilities and advantages over other technology gadgets.
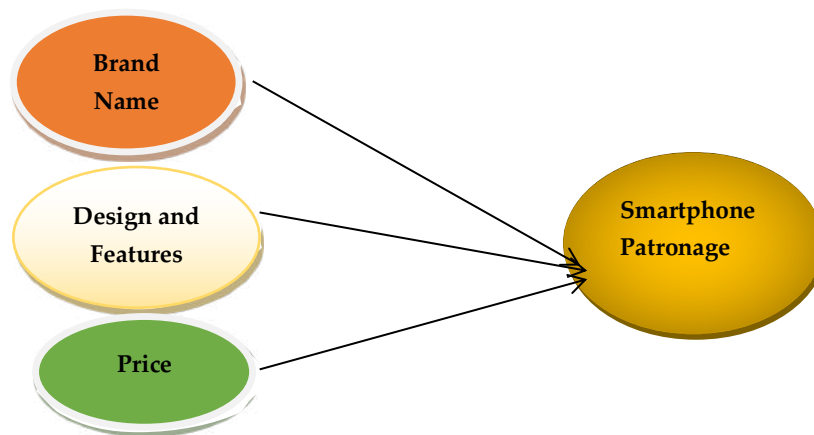


**Figure1.** Conceptual Framework
Source: Adapted from Kothari 2004

## 3. METHODS

In this study, the research design used was quantitative survey research. This was put to use. Because determining the patronage of Smart phone among female students in higher institutions in Ekiti state, the adaption of quantitative survey study was used. Four sub-variables were used to measure the determinants of Smartphone patronage (brand name, price, design and features).

All female students at Ekiti State University, Federal University Oye Ekiti, and the Federal Polytechnic Ado Ekiti were included in this study. The total number of people in this study was 21,827. According to Yamane, the sample size for the study was 399.

The Taro and Yamane (1992) model is given as:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = anticipated total sample size

N = population size

E = degree or level of significance (5% i.e. 0.05)

Therefore, the total sample shall be computed as:

$$n = \frac{21,827}{1 + 21827(0.05)^2}$$

n = 399 respondents

Multiple regression analysis was used to analyze the data and its model is shown below:

A model of three (3) explanatory variables was formulated capturing the variables of Patronage of Smartphone.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where;

Y is the patronage of smart phone among female students

$X_1$ is Brand Name,

$X_2$ is Design & Features,

$X_3$ is Price,

$\beta_1, \beta_2, \beta_3$ and $\beta_4$ are the corresponding coefficients

$\varepsilon$ is the error term

## 4. RESULTS

**Multiple Regression Analysis**

The followings are the findings of the research as presented in the Tables below:

**Table 2.** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|------|----------|-------------------|----------------------------|
| 1 | .979[a] | .960 | .095 | 1.35013 |

a. Predictors: (Constant), Brand Name, Design and Features, Price, Preference

**Interpretation:**

**Table 3.** Analysis of Variance (ANOVA[a])

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------|
| | Regression | 1767.536 | 4 | 441.884 | 3.617 | .005[b] |
| 1 | Residual | 46418.116 | 380 | 122.153 | | |
| | Total | 48185.652 | 384 | | | |

a. Dependent Variable: Smart Phone Patronage

b. Predictors: (Constant), Brand Name, Design and Features, Price

**Table 4.** Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 38.519 | 2.619 | | 14.702 | .000 |
| Brand Name | 4.254 | 3.563 | .243 | 2.814 | .016 |
| Design and Features | 7.896 | 1.681 | .658 | 4.697 | .000 |
| Price | -2.478 | 1.027 | -.221 | -2.412 | .027 |

a. Dependent Variable: Smart phone Patronage

The result of the study showed that brand name has a positive and significant effect on patronage of Smartphone among female students in Tertiary institutions in Ekiti State. Similarly, the result affirmed that for every one unit increase in uniqueness in brand name, there was a 4.3% increase in the patronage of Smartphone among female students of Ekiti State tertiary institutions. Features and designs also exerted a positive and significant effect on patronage and showed that for every one unit improvement on features and designs of smart phones, there was a 7.9% increases in the patronage of smart phones among female students of Ekiti State tertiary institutions in Ekiti State.

Price exerted a negative but significant, this perhaps could be as a result of the economic situations in Nigeria. The result showed that for every one unit increase in price of Smartphone, there was a 2.5% decline in the patronage of smart phones among the female students' participants.

## 5. CONCLUSION AND RECOMMENDATIONS

From the result obtained from the analysis, the study concluded that Smartphone brand awareness through their usage, Smartphone brand perception through their price and factors that influence Smartphone brand loyalty and Smartphone brand quality through their designs and features, corresponding price contributed to the patronage of Smartphone among female students in tertiary institutions in Ekiti State. It is therefore, recommended that every Smartphone brand should seek good reputation in other to build loyalty in their customers, this will later serve them well as it will improve the patronage of their product. The market should not just be flooded with various Smartphones simply because of profit but quality should be the watch word of every Smartphone brand.

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JOMAES

# Effect of Human Capital Investment on Economic Growth: Nigeria Perspective

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**Abstract**

The study was conceptualised to ascertain the effect of human capital investment on economic growth in Nigeria. The ex-post facto research design was adopted because data relating both explained and predictor variables already exist in literature. The data for the study were extracted from CBN statistical bulletin and analysed using and descriptive statistic and Ordinary Least Square (OLS) as well as cointegration regression analysis. The result revealed that only capital expenditure on education has a positive and significant association with RGDP. Capital expenditure on health and universal education has a positive but insignificant association with RGDP, recurrent expenditure on education and health have a negative and insignificant association with RGDP. We concluded that human capital investment on economic growth in Nigeria is not significant. The study recommended that Government and policymakers should show concerted and sincere effort in building and developing human capacity through adequate educational funding across all levels.

**Keyword**

Universal Basic Education, Real Gross Domestic Product, Recurrent Expenditure, Capital Expenditure

## 1. INTRODUCTION

The wave of change brought about by advancement in technology has altered the eighteenth-century production system and introduce a shift from labour-intensive to capital intensive technique. This necessitated a change from industrial to the knowledge-oriented economy(Ahmadi, Ahmadi &Shakeri 2011, Hung & Wu 2010, Raze 2011,Hsu & Fang, 2010), thus permitting knowledge, technology and expertise as crucial drivers and ingredients necessary for economic growth and development in this twenty-first century. This implies that proper application of expertise, technology and knowledge with physical assets will not only sharpen the competitive edge of an organization or country but will place them on merit over the others (Bornemann, 1999).

In past centuries, physical assets took prominence over intellectual capital, but this was with little growth and development outcome in Nigeria. The nascent publications of the United Nations Development Programme (UNDP) which introduced human development as a trailblazer for developed and developing countries alike have caught the attention of Nigeria especially now with the United Nations Sustainable Development Goals 2030 running for which Nigeria is party (Adedeji&Banidele 2003, World Bank 1995, Barro 1991). Eigbiremolen and Anaduaka (2014)

asserted that difference in the socio-economic development across the nation is attributed not so much to National resources and endowment and stock of physical capital but to the quality and quantity of human resources. Danda (2010) and Olajide and Adebayo (1996) identified human resources as crucial factors for growth and development. Eigbiremolen, *et al*(2014) pended that wealth and prosperity of nations rest ultimately upon the development of people and the effective commitment of their energies and talents.

Thomas Stewarts defined human capital investment as "something that cannot be touched, although it slowly makes you rich". It is all of the non-tangible or non-physical assets and resources of an organization as well as its practices, patent and implicit knowledge of its members and their network of patterns and contracts.Human capital investment includes inventions, ideas, general knowledge, design approaches, computer programme and publications (Raza, 2011). It is a property that is based on knowledge (IFAC, 2001). Suffice to say that human capital investment has to do with the management of employees, knowledge, experience, skills, customer relations technologies and innovations.

The existence of a positive relationship between innovation, competitiveness and economic growth has been widely recognised and as a result, in recent decades, fostering innovation has become pivotal to many national and international policies (Sanchez, Salazar &Basilio, 2012). To improve the economy, the government has to invest heavily in the educational, health sectors and of course encourage inventions etc. As this will lead to an increase in per capita income as well as national income and improve the peoples' standard of living.

It is very derogatory and disheartening that Nigeria government budgets run into trillions of naira every year yet there is nothing to show for it as poor remuneration and welfare package, abandon capital projects, inadequate funding of projects, poor condition of service and others has been the issue of the day (FRN, 2000). Also, most workers in Nigeria civil service are illiterates hence, they make use of outmoded capital equipment and methods of production which leads to low marginal productivity, low real income, low savings, and low investment and of course low rate of capital formation.

Again, the health sector of Nigeria economy has been a mess as it has continued to operate without advanced medical equipment and the attendant effect has been that our politicians now travel abroad for medical checkups and treatments thereby transferring funds which could have been used to develop this nation to other countries of the world and this has boosted the economy there. Furthermore, indigenous or Nigerian medical Doctors now migrate to other countries of the world to practice there for better pay and government regard for their profession. No, wonder Nigeria is still underdeveloped and experiences low Gross Domestic Product (GDP).

At this point, it crucial to ask what is the effect of government capital expenditure, recurrent expenditure, expenditure on education and health on the Gross Domestic Product (GDP) of Nigeria. Hence, this study is fashioned to provide answers to these questions as stated above.

From empirical literature, there exist different studies both developed and developing countries alike on human capital such as Reza (2011) investigated intellectual capital and financial performance in Iran, Iranmahd, Moeinaddin&Heyrani (2014) studied the effect of intellectual capital on the cost of finance and firm value in Tehran, Ahmadi, Ahmadi &Shakeri (2011) examined the survey of the relationship between intellectual capital and organizational performance within the national Iranian South oil company. In Nigeria, The studies of Kanayo (2013), Isola and Alani (2010), Jaiyeoba (2015) were also on intellectual capital. However, the scarcity of literature in Nigeria necessitated the urgent need for this study on the effect of government capital and recurrent expenditures on health and education on economic growth in

Nigeria. This study has a long duration which will enable the researchers to make an informed decision.

## 2. LITERATURE REVIEW

The concept of human capital investment is derived from the analysis of the economic efficiency of enterprises. Since the early 1990s', human capital investment has undergone extraordinary development (Viedma Marti, 2007). Stwart (1997) opines that human capital investment is the intellectual material that has been formalized, captured and leveraged to create wealth by producing a higher-valued asset. It is anything an enterprise can use to increase its competitive advantage in the market place, including knowledge, information, intellectual property rights and experience Lu & Wang (2010)

### 2.1. Classification of Intellectual Capital

*Human Capital:*

This is an integral part intellectual capital investment which comprises of the skill, competence, intellectual agility, innovation, creativity, values and experience of an individual employee within an organization ( Bonlis 2002, Cabrita&Bontis 2008). Roose et al (1997) added that human capital can be acquired through increased training of employees and this encourages economic growth (Schulz, 1961). Competence here refers to the skill and education of employees as well as attitude is the behavioural component of employees work. Intellectual agility refers to the process of changing procedures and thought regarding the innovative approaches in problem-solving (Balouei&Ghasemian 2014).

The term human capital can be described as the sum of employees competence, knowledge, skills, innovativeness, attitude, commitment, wisdom and experience. Organizations rely on human capital a lot as it helps organizations to respond to environmental changes innovatively (Kong, 2010,). De Pablos (2003) pointed out that importance of human capital lies in its ability to improve the efficiency and efficiency of organizations and in turn gain a competitive advantage. Human capital consists of the values, attitude and habits or the people in the organization, in addition to the leadership that motivates people to display their potentials in the organization. Worthy of mention here is that human capital differs in organizations which give the characteristics of being inevitable, rare and non-replaceable. Human capital is not fully controlled by the firm or organization which distinguishes it from the other resources available in the firm (Ngah& Ibrahim 2011, Hussi, 2004,). Hence, Chen, Wang & Sim (2012) advised that organizations should continuously invest in their human capital in order to improve their competitive advantage. Human capital theory shows that education leads to improvement in workers' level of cognitive skills and consequently increases their productivity and efficiency. Theodore Schultz, Gory Buckert and Jacob Mineer introduced the motion that people invest in education so as to increase their stocks of human capability which can be formed by combing innate ability with investment in human beings. Instances of such investment include expenditures on health, education, motivation and on-the-job training. However, in order to increase the stock of human capital, in a firm period, the gross investment must exceed, depreciation resulting from intense use or lack of use, with the passage of time (Ogujiuba, 2013). The provision of education is seen as a productive human capital investment, an investment which is considered by the proponent of the human capital theory are equally or even more equally worthwhile than physical capital investment. It is established by human capital theorists that basic literacy enhances the productivity of workers in low skills occupations. Those theorists further asserted that interment which demands logical and analytical reasoning and which productive technical and specialized knowledge increases the marginal productivity of workers in high skill professions and position.

Clarke, Seng & Whiting (2010) funded that within the value-added intellectual capital model, human capital is defined as the salaries and wages (Public, 1998).

*Structural/or Organizational Capital:*

This refers to human sources of knowledge whose intrinsic value is greater than its material value. As an intangible asset, it can be traded, reproduced and shared within the firm (Zambon 2002, Dubra 2002). Examples of structural capital include databases, organizational charts, operating process and information system, strategies, organizational culture. Structural and organization capital can be legally protected in the form of patents and trademarks. It can create a strong supportive culture that encourages employees to gain experience. It is an institutionalized knowledge owned by an organization (Yundet, 2000).

*Relational/Customer Capital:*

This has to do with knowledge embedded in the relationship established within the outside environment (Bontis, 1996, Edvinsson& Sullivan 1996). Relational capital is the value of the current and ongoing relationship with individuals or organization that provides them with service. Customer capital is the potential ability obtained by an organizationthrough external factors.

## 2.2. Economic Growth

This is a quantitative increase in the country's input and output over a period of time. Sustained economic growth leads to economic development and can only be present when all sectors of the economy are growing at the same time and is sustainable. The Endogenous growth theory advocates the stimulation of economic growth and development through improvement in human capital using policies which aim at increasing expenditure on education.

## 2.3. Relationship between Human capital investment and economic growth

Knowledge is a major determinant of economic growth. In Nigeria, there is evidence of poor investment in human capital in the educational sector as this has manifested often in strike upon strike both in universities, post-primary and primary schools and has been found to be consistent (Bakare, 2006). The attendant effect of this has been the turnout of half begged graduates and a higher level of illiteracy and low rate of economic growth. Sanusi (2003) asserted that low investment in human capital on the competitiveness of Nigerian labour force in the production of goods and services and low level of skill will certainly reduce the quality and quantity of individual output. Suffice to say that adequate investment in human capital serves as a pathfinder for improved productivity and economic growth. Schultz (1963) and Dension (1962) pointed out that a residual in the united state then was attributed to the level of education of the workers. This goes a long way to say that investment in education and skill of workers is an investment to improve productivity as well as the economy.

## 2.4. Theoretical Framework

*Human Capital Theory:* This theory believes that education increases the productivity and efficiency of workers by enhancing their cognitive skill. The theorist hold prima-facia that people invest in education mainly to increase the human capabilities which is a combination of innate abilities with investment in human being ( Babalola, 2000, as cited in Adelakun, 2011). It is expedient to state that the stock of human capital increases in a period only when gross investment exceeds depreciation over time, with intense use or lack of use. Investment in

education is a productive investment in human capital which the proponents of human capital theory consider to be worthwhile than in physical capital. This means that basic literacy enhances the productivity of workers.

Additionally, instruction that demands logical and analytical reasoning that provides technical and specialized knowledge to increase with the marginal productivity of workers in high skill or profession and position.The greater investment in education, the better for national productivity and economic growth.

This study will adopt this theory as it upholds that investment in education which is one of the independent variables in this study and has been let down as a concern in Nigeria will improvethe economy.

*Modernization Theory:* This theory holds that education transforms an individual's value, belief and behaviour. Modern attitude and behaviour are acquired through exposure to schools, factories, and mass media. The normative and attitudinal change continues through the life cycle, permanently altering the individual's relationship with social structure. The greater the number of people exposed to modernization institutions, the greater the level of individual modernity attained by society. In a nutshell, improved society is a function of improved people. This study will also adopt this theory because improved society and people will lead to economic growth.

## 2.5. Empirical Review

Adelakun (2011) investigated human capital development and economic growth in Nigeria. The objectives of the study were to examine the structure of human capital development in the national economic trend, the relative size and trend of human capital development and its possible prospects in the emerging global economic growth. Secondary data was used for the study and Gross Domestic Product (GDP) served as a proxy for economic growth while the proxy for human capital investmentwas total government expenditure on education and health and the enrolment pattern of primary, secondary and tertiary school. The result of the analysis confirmed that there is a strong positive relationship between human capital and economic growth. The study recommended that stakeholders need to evolve a more pragmatic means of developing human capacities since it is seen as an important tool for economic growth in Nigeria.

The relationship between intellectual capital and financial performance: An empirical investigation in an Iranian company was investigated by Reza (2011) to find out the relationship between intellectual capital performance and financial performance. The study covered a period of thirty years from 1980- 2009. The data for the study is secondary sourced from the annual reports and accounts of one of the Iranian companies. The study employed valued Added intellectual coefficient developed by Ante Public to measure intellectual capital. Productivity, profitability and growth rate in revenue and these proxies were measured as Profitability- Return on Assets(ROA) Employees productivity –net sales for the period divided by the number of employees and growth in sales is measured as changes in fir's current year sales over last years' sales. A descriptive analysis of the data was also carried out. However, multiple regression analysis of the OLS was employed and the result of the analysis showed that the relationship between the performance of a company's intellectual capital and profitability, employees' productivity, and growth rate in sales is informative. The empirical findings suggest that the performance of a company's intellectual capital can explain profitability and productivity.

In 2014, Iranmahd, Moeinaddin, Shahmoradi and Heyrani examined the effect of intellectual capital on cost of finance and firm value. The object of the study was to examine whether or not a relationship exists between intellectual capital, cost of capital and firm value and how strong such a relationship will be. The study covered all firm listed in Tehran stock exchange between

2005- 2012. The data for the study is secondary sourced from annual account and report of the companies listed on Tehran stock exchange for an eight-year period. To measure intellectual capital and valued-added applied were used the calculation of which was performed through Palic's method. The study used the Pearson correlation, univariate and multivariate regression, and Z Wang test. The findings showed that valued-added of capital applied, value-added of intellectual capital and the value-added of intellectual capital coefficient negatively influenced the weighted average cost of capital, yet they did not affect enterprise value.

Ahmadi, Ahmadi and Shakeri (2011) carried out a study the survey of the relationship between intellectual capital and organizational performance within the national Iranian south oil company with an objective to test the relationship between human, structural and relational capitals and organizational performance within the national Iranian south oil company. The study employed the survey approach hence, the sources of data were primary from questionnaires served to 3800 managers, experts and supervisors of the National Iranian South Oil Company out of which 249 managers, experts and supervisors received the questionnaire and 236 responded representing about 94.8%. The study measured intellectual capital by considering the three components of intellectual capital thus human, structural and relational capitals. The organizational performance was measured as organizational performance. The analysis of variance of t-test and Pearson coefficient was used for the test of reliability. The result of the test hypothesis revealed that there is a positive relationship between intellectual and organizational performance.

The human capital development and economic growth: The Nigeria experience was examined in 2014 by Eigbiremolen and Anaduaka. The objective of the study was to find out the effect of intellectual capital on economic growth in Nigeria. The study covered a period of fourteen years from 1999- 2012. The study employed the augmented Solow human capital growth model to investigate the impact of human capital development on the national output a proxy for economic growth using quarterly time-series data. The result of the test hypothesis revealed that human capital in line with theory exhibits significant positive impact on output level. It also revealed a relatively inelastic relationship between human capital development and output level. The study recommended that government and policymakers should be concerted and sincere effort in building and developing human capacity through adequate educational funding across all levels.

Babatunde, Adedayo and Omonike (2014) studied the intellectual capital formation and economic growth in Nigeria with the central objective of examining the contributions of education to growth in Nigeria. Secondary data was used for the study covering the period 1980-2011.the proxy economic growth was the growth rate of real gross domestic product. The independent variable intellectual capital was measured using Total expenditure on education, total school enrolment ratio for primary, secondary and tertiary educations in Nigeria and real capital investment as a proxy for physical capital. The unit root and co-integration tests were conducted and the error correction mechanism was employed. The result of the test showed that investment in education maintains a positive long-run relationship with economic growth while school enrolment and real capital investment exhibit long-run negative relationship with economic growth. The study recommended that policymakers should pay more attention to the education sector in terms of its yearly allocation and disbursement. Also that school enrolment ratio of the population should be increased and that more should be invested by the government in the acquisition of physical capital to stimulate rapid economic growth in Nigeria.

Ogujiuba (2013) carried out a study on the impact of human capital formation on economic of Nigeria (CBN) annual report, Central Bank of Nigeria Statistical Bulletin, and major Economic, financial and Banking Indicators, federal Office of Statistics' Economic and Statistical Review of various years, covering the period 1970-2010. The estimation procedure followed the two steps procedure of Engle and Granger (1987), Granger (1986) and Henry (1985). The dependent variable

in the study is economic growth measured by real gross domestic product rate (RGDPG), while the independent variable was measured using capital expenditure on education ( CE), recurrent expenditure on education (RE), real gross capital formation (RGCF), primary school enrolment (PRYE), post-primary education enrolment (PPE), and tertiary education enrolment (TERE). The result of the test of hypothesis showed that investment in human capital in terms of education and capacity building at the primary and secondary levels impact significantly on economic growth, while capital expenditure on education was insignificant to the growth process. Thepaper, therefore recommend that educational institutions in Nigeria shouldbe re-structured for quality schooling at the primary, secondary and tertiary levels.

In 2015, Jaiyeoba investigated human capital investment and economic growth in Nigeria. The paper aimed to examine the relationship between investment in education, health and economic growth in Nigeria. The study covered the period 1982- 2011. The trend analysis, Johansen co-integration and ordinary least square technique. The dependent variable in the study is economic growth measured by Real Gross Domestic Product (RGDP). The independent variable human capital investment is measured by Government expenditure on education, health, gross capital formation, primary enrolment, secondary enrolment and tertiary enrolment rate. The findings of the study revealed that there is a long-run relationship between government expenditure on education, health and economic growth with expected positive signs and are statistically significant. The findings of the study showed a strong implication on education and health policies and considering that they are of great debate in the country. The study recommends that to accelerate growth and liberate Nigerians from the vicious cycle of poverty, the government should put in place policies geared towards massive investment in the educational and health sectors.

Sanchez, Salazar and Basilio (2012) investigated intellectual capital and productivity: intellectual management as support for financing innovation in small and medium scale enterprises in Spain. The main objective of the study is to show how both small and medium scale and financial institutions can benefit from using a commonly agreed intellectual capital report for financing innovation activities. The study employed the survey method and about 142 companies were used. The result of the analysis showed that there is a direct relationship between the systematic management of intellectual capital and business successes.

## 3. METHODS

The research design for this study is ex-post facto. The ex-post facto research design is a method of finding out possible antecedents of event that have happened but cannot be manipulated by the investigator. Kerlingere and Rint (1986) opine that ex-post facto investigation seeks to reveal possible relationship by observing an existing condition or state of affairs and searching back time for a plausible contributing factor. This design allows the researcher to describe observed events using the data derived from such observation to determine the relationship between human capital investmentcost and economic growth in Nigeria. The data for this study is sourced from the federal budget office, ministry of financeand United Nations annual publication of various years. The ordinary least square regression technique was used for analysis with the aid of E- view 8the data was analyzed. The study covered nineteen years that is 2004-2021.

*Model specification*

$RGDP = f(CEE, CEH, REE, REH, UBE)$ ............1

$RGDP_{it} = f(\beta 0 + \beta 1 CEE_{it} + \beta 2 CEH_{it} + \beta 3 REE_{it} + \beta 4 REH_{it} + \beta 5 UBE_{it} + et)$ ..............2

Where RGDP = Real Gross Domestic Product, CEE = Capital Expenditure on Education, REE= Recurrent Expenditure on Education, CEH= Capital Expenditure on Health, REH = Recurrent Expenditure on Health, UBE = Universal Basic Education, and et = Error term

## 4. RESULTS

**H0₁**: *The effect of human capital investment on the economic growth of Nigeria is not significant.*

**Decision rule:** Accept the null hypothesis if the probability value computed utilizing E-view is less or equal to 0.05 (i.e. P≤0.05).

### 4.1 Descriptive Statistics

**Table 1.** Descriptive Statistics

| Variable | CEE | CEH | REE | REH | UBE | RGDP |
|---|---|---|---|---|---|---|
| Mean | 4.500000 | 4.331053 | 4.857368 | 3.920526 | 4.605789 | 4.936842 |
| Median | 4.550000 | 4.580000 | 4.810000 | 4.420000 | 4.580000 | 4.980000 |
| Maximum | 4.790000 | 4.700000 | 5.480000 | 4.700000 | 4.890000 | 6.970000 |
| Minimum | 3.960000 | 2.680000 | 4.540000 | 1.540000 | 4.040000 | 2.360000 |
| Std. Dev. | 0.217358 | 0.526423 | 0.293936 | 1.106820 | 0.201282 | 1.613640 |

Evidence from descriptive statistics showed that the mean value of 4.500000 is indicated capital expenditure on education (CEE). This implies that a good amount of government expenditure is invested in the acquisition of equipment for education. This is validated by an std. deviation value of 0.217358. Also, the minimum and maximum value of 3.96000 and 4.790000 was observed for CEE.

Capital expenditure on health indicated a mean value of 4.331055. Meaning that the Government also invest in the acquisition of equipment in the health sector of Nigeria economy, this is supported with an std. deviation value of 0.526423. The minimum and maximum value of CEH is 2.68000 and 4.700000.

Recurrent expenditure on education (REE) showed a mean value of 4.857368, indicating that Government recurrent expenditure on education is good as affirmed by an std. deviation of 0.293936. REE also indicated a minimum and maximum value of 4.540000 and 5.480000.

The mean value of 3.920526 was indicated for recurrent expenditure on health. This value is positive and implies that Government expenditure on health is not too meagre. This is validated by an std. deviation value of 1.106820. The minimum and maximum value of 1.540000 and 4.700000 was also shown for recurrent expenditure on health (REH).

Universal basic education (UBE) is indicated to have a mean value of 4.605789. This also means that the Nigerian Government has spent a good amount on UBE. The minimum and maximum value of UBE is 4.040000 and 4.890000. The standard deviation value of 0.201282 was also recorded for UBE.

From Table 4.1 there is an indication of 4.936842 mean value for Real Gross Domestic Product (RGDP). This value is positive and it implies that RGDP is a determinant of human capital development in Nigeria. The std. deviation of 1.613640 was noticed for RGDP. The minimum and maximum value of 2.360000 and 6.970000 was also recorded.

**Table 2.** Unit Root Test

| variable | RGDP | CEE | CEH | REE | REH | UBE |
|---|---|---|---|---|---|---|
| ADF test statisti | -3.837134 <br> **** <br> *** <br> ** | -4.632383 <br> **** <br> *** <br> ** | -5.231591 <br> **** <br> *** <br> ** | -5.795296 <br> **** <br> *** <br> ** | -2.923266 <br> **** <br> *** <br> ** | -3.886653 <br><br><br> ** |
| Order of integratio n | I(1) | I(0) | I(1) | I(0) | I(II) | I(II) |
| Remarks | Stationer y | Stationer y | Stationer y | Stationer y | Stationer y | Stationer y |

Table 4.2 above presents the unit root test summary conducted in order to ascertain the stationarity of the data using Augmented Dickey Fuller (ADF). As shown above, Real Gross Domestic Product (RGDP) is stationary at 1%, 5% and 10% first difference and same with capital expenditure on health (CEH), Capital expenditure on education and recurrent expenditure on education are stationary at 1%, 5% and 10% at levels while recurrent expenditure on health is stationery at second difference but universal basic education is stationery at 10% at the second difference. However, according to Box and Henkins (1978), non-stationary time series in levels may be made stationary by taking their first differences. A given series is said to be integrated of order $d$ (denoted $I(d)$) if it attains stationarity after differencing $d$ times. If the series is $I(1)$ it is deemed to have a unit root. This situation arises if the first difference of the series is $I(0)$. We take the first differences of the respective variables and perform the unit root test on each of the resultant time series. Hence, the stationarity of the variables has been ascertained.

**Test of Hypothesis**

*The effect of capital expenditure on education, capital expenditure on health, recurrent expenditure on education, recurrent expenditure on health and universal basic education is not significant on the real gross domestic product in Nigeria.*

**Decision rule:** Accept the null hypothesis if the probability value computed by means of SPSS software is less than or equal to 0.05 ( i.e. p≤0.05)

**Table 3.** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .817[a] | .668 | .540 | 1.09481 | 1.129 |

a. Predictors: (Constant), UBE, CEH, REE, CEE, REH
b. Dependent Variable: RGDP
Source: Author computation from SPSS 23 result

From table 3above, the correlation (R) is 81.7% which signifies a strong positive relationship between the RGDP and the explanatory variables. The coefficient of determination of 66.8% is equally very high and suggests that independent variables (CEE, CEH, REE, REH and UBE) could explain about 66.8% of the variations in RGDP. It is only 33.2% that relates to other variables outside the model. This result indicates that real Gross Domestic product is a function of human capital investment in Nigeria to a greater extent. In other words, the more increase in human capital investment, the higher the economic growth. The standard error is employed to check the correctness of the estimates represented by the regression line measuring the exactitude of the predicted figures. When it is very small, that is less than 1 or 0, it is perfect. Thus, the Standard

error of the Estimate has the value of 1.09481 which is not far from the point of zero implies that the regression line and the correlation, as well as the predicted values, are accurate. The Durbin-Watson of 1.129 indicates absence of autocorrelation in the distribution.

**Table 4.**ANOVA

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 31.287 | 5 | 6.257 | 5.221 | .008[b] |
| | Residual | 15.582 | 13 | 1.199 | | |
| | Total | 46.869 | 18 | | | |

a. Dependent Variable: RGDP
b. Predictors: (Constant), UBE, CEH, REE, CEE, REH
Source: Authors computation from SPSS 23 Result, 2020

The F Statistics on table 4 above is 5.221while the significant value is 0.000 < 0.05 level of significance. This result is statistically significant and indicates that the model is a good fit. Thus, the independent variable jointly and significantly impacts on the dependent variable (RGDP).

**Table 5**. Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. | Tolerance | VIF |
| 1 | (Constant) | -25.339 | 10.461 | | -2.422 | .031 | | |
| | CEE | 4.797 | 1.279 | .645 | 3.749 | .002 | .864 | 1.158 |
| | CEH | .438 | .581 | .143 | .753 | .465 | .712 | 1.405 |
| | REE | -.585 | 1.015 | -.107 | -.576 | .575 | .742 | 1.347 |
| | REH | -.069 | .285 | -.047 | -.242 | .812 | .668 | 1.497 |
| | UBE | 2.151 | 1.380 | .269 | 1.558 | .143 | .858 | 1.166 |

a. Dependent variable RGDP

**Source:** Author's computation from SPSS 23 result, 2020

As contained in table 3 the tolerance value of 0.864, 0.818, 0.712, 0.742, 0.668 and 0.858 is less than 0.10, hence, indicates that we have not violated the multicollinearity assumptions. This means that there is no collinearity between the independent variables in our study. This is well supported by the variance inflation factor (VIF) value of 1.158,1.405, 1.347, 1.497, and 1.166 which is far below the cut-off of 10 (Pallant, 2001).

The t-statistics are employed to test the level of effect the independent variables have on the Real Gross

Domestic Product (RGDP). From the Table, it can be observed that capital expenditure on education (CEE) has a positive and significant impact on real gross domestic product as evidenced by (t-statistics value of 3.749, P-value of .002 < 0.05). This result is corroborated by the findings of Ogujiuba (2013). Capital expenditure on health is shown to have a positive but insignificant relationship with the real gross domestic product as validated by (t-statistic value of 0.753, P-value of 0.465 >0.05). The implication is that the Nigerian government has not invested much in the health sector of the economy, no wonder the collapse and massive exodus of Nigerian Medical Doctors to abroad for practices and politicians for medical attention. Recurrent expenditure on education (REE) is shown to have a negative and insignificant relationship with the real gross domestic product (t-statistic value -.576, P-value of 0.575 >0.05). This accounts for

incessant strike embarked upon by the teachers and lecturers in our educational institutions. This finding is validated by the study of Jaiyeoba (2015). Recurrent expenditure on health is indicated to have a negative and insignificant association with the real gross domestic product as validated by the t-statistic value of -.242 and a probability value of 0.812 which is greater than 0.05level. Again, this validated the cogent reason for the collapse of the health sector and the lamentations of health workers for better remuneration. Universal basic education (UBE) is shown to have a positive but negative association with real gross domestic product. Meaning that government investment or spending on UBE is very insignificant when compared with economic growth in Nigeria. This implies that education for all as embedded in UBE is not realisable at the rate of government expenditure for it at present.

## 5. CONCLUSION

The study examined the effect of human capital investment on economic growth in Nigeria intending to find out if human capital investment affect economic growth significantly and positively in Nigeria. Data for the study was sourced from CBN statistical Bulletin. Descriptive statistic, unit root test, multicollinearity test, and multiple regressions of the OLS were all conducted. The test of hypotheses was carried out with the aid of solution package for social sciences version 23 and our findings revealed that Capital expenditure on education (CEE) has a positive and significant relationship with the real gross domestic product as supported by the studies of Babatunde, Adedayo and Omonike (2014) and Ahmadi, Ahmadi and Shakeri (2011). Capital expenditure on health and universal basic education have a positive but insignificant relationship with the real gross domestic product. This finding does not corroborate the finding of Jaiyoba (2015). The reseason could be based on the scope of the study and data used for the study. Recurrent expenditure on education and recurrent expenditure on health has negative and insignificant relationship with real gross domestic product. Again, our finding disagrees with the study of Jaiyobab (2015). From the result obtained from the test of hypotheses, we conclude that the effect of human capital investment on economic growth in Nigeria is not significant. This implies that Nigerian government has not invested much in ensuring the development of the people, no wonder the chronic poverty creeping the people which has manifested not just in increased crime rate but also poor economic growth in Nigeria.

## 6. RECOMMENDATIONS

This study examined the effect of human capital investment and economic growth in Nigeria and find out that human capital investment does not have a significant relationship with economic growth in Nigeria, hence the following recommendations:

- ✓ Government and policymakers should show concerted and sincere effort in building and developing human capacity through adequate educational funding across all levels. This is in line with the recommendation of Eigbiremolen and Anaduaka (2014),
- ✓ That educational institutions in Nigeria should be re-structured for quality schooling at all levels.
- ✓ That the amount budgeted for capital expenditure on education and health should be both revisited in the national budget as this is not adequate.
- ✓ That the government should properly implement the national budget to enable improved performance of various measures of human capital investmentas evidenced in our results.

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**Table 1 Descriptive statistics**

| Variable | CEE | CEH | REE | REH | UBE | RGDP |
|---|---|---|---|---|---|---|
| Mean | 4.500000 | 4.331053 | 4.857368 | 3.920526 | 4.605789 | 4.936842 |
| Median | 4.550000 | 4.580000 | 4.810000 | 4.420000 | 4.580000 | 4.980000 |
| Maximum | 4.790000 | 4.700000 | 5.480000 | 4.700000 | 4.890000 | 6.970000 |
| Minimum | 3.960000 | 2.680000 | 4.540000 | 1.540000 | 4.040000 | 2.360000 |
| Std. Dev. | 0.217358 | 0.526423 | 0.293936 | 1.106820 | 0.201282 | 1.613640 |

**Unit Root Test.(Table 2)**

| variable | RGDP | CEE | CEH | REE | REH | UBE |
|---|---|---|---|---|---|---|
| ADF test statisti | -3.837134 **** *** ** | -4.632383 **** *** ** | -5.231591 **** *** ** | -5.795296 **** *** ** | -2.923266 **** *** ** | -3.886653 ** |
| Order of integration | I(1) | I(0) | I(1) | I(0) | I(II) | I(II) |
| Remarks | Stationery | Stationery | Stationery | Stationery | Stationery | Stationery |

*NOTE:  **** significant at 1%     ***Significant at 5 %       **Significant at 10%*

**Table 3. Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .817[a] | .668 | .540 | 1.09481 | 1.129 |

a. Predictors: (Constant), UBE, CEH, REE, CEE, REH
b. Dependent Variable: RGDP
Source: Author computation from SPSS 23 result

**Table 4.ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 31.287 | 5 | 6.257 | 5.221 | .008[b] |
| | Residual | 15.582 | 13 | 1.199 | | |
| | Total | 46.869 | 18 | | | |

a. Dependent Variable: RGDP
b. Predictors: (Constant), UBE, CEH, REE, CEE, REH
Source: Authors computation from SPSS 23 Result, 2020

**Table 5 Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -25.339 | 10.461 | | -2.422 | .031 | | |
| | CEE | 4.797 | 1.279 | .645 | 3.749 | .002 | .864 | 1.158 |
| | CEH | .438 | .581 | .143 | .753 | .465 | .712 | 1.405 |
| | REE | -.585 | 1.015 | -.107 | -.576 | .575 | .742 | 1.347 |
| | REH | -.069 | .285 | -.047 | -.242 | .812 | .668 | 1.497 |
| | UBE | 2.151 | 1.380 | .269 | 1.558 | .143 | .858 | 1.166 |

a. Dependent variable RGDP

**JOMAES**

# The Quality of E-Health: First Steps on How to Implement and Evaluate Digitalization in Health

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**Abstract**

E-Health is a new modern way to offer better services in health care system worldwide. Many countries have developed during the last years specific tools to implement digital in health care system. In this paper, we focus on the e-Health indicators used across the world in order to select the ones who may be used in future research. The study is longitudinal and uses data with no limit in time and space, observational with the focus on the existing reports, studies. Most of the data gathered is qualitative, the information was processed and interpreted. Each country followed specific rules in order to create the framework for e-Health. There is a need for digital health services in all countries and to create new pathways to offer better services for those who needed. In the paper below we analyzed a number of 26 sources, in order to describe the process of implementing a program in health system such as electronic health records, to find quality indicators for e-Health in order to evaluate it and the dimension of digital information in medical system.

## 1. INTRODUCTION

e-Health implementation world wide is a desired action because of the benefits for the patients and for de medical staff. Although many countries develop hardware and software especially for implementing e-health, there are unclear and not established indicators to assure the same evaluation (Hypponen, Ammenwerth, Nohr, Faxvaag, & Walldius, 2012). e-Health helps the medical system using information and communication technology. It consists of online consultation, diagnosis, prescribing, prevention and education through online technology. e-Health is composed from telemedicine, tele-care, m-Health, e-Public health, tele-health and e-Mental health (Ossebaard & Van Gemert-Pijnen, 2016). The main definition of e-Health is the following: e-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology (Eysenbach, 2001).

Modern information and communication technology (ICT) is widely used by the patients and medical staff. Socio-demographic aspects are influencing the use of this technology for healthcare. Moreover, the possibilities of e-health applications particularly for inter-sectoral communication and data exchange appear to extend impressively. Further studies should also be developed in order to verify data safety and data security (Holderried, 2016).

Usually there are benefits from implementing electronic health records, but not always it can be measured. Whatsoever, there are benefits to the adherence to guidelines, in surveillance and monitoring and in decrease medical error (Knight, Szucs, Dhillon, Lembke, & Mitchell, 2014).

The National Library of Medicine defines quality indicators as 'norms, criteria, standards and other direct qualitative and quantitative measures used in determining the quality of health care' (Alguren, 2018).

In the process of implementation, telemedicine meets some barriers like connectivity problems, adherence of the medical staff and patients, financial issues, data security, effectiveness, rural setting, legal liability. (Kruse, Karem, Shifflett, Vegi, Ravi, & Brooks, 2018). This study reports on implementing e-Health and quality indicators and may offer some information about future creation of specific guides.

## 2. CONCEPTUAL FRAMEWORK

Analyzing the current situation of the measurements regarding quality of e-Health may offer information of the areas that can benefit the most and regular upgrade following the international changes in the field (Black, și alții, 2011). Patients prefer to access their online records, and this can lead to a stronger doctor-patient relationship, following the medication prescribed and increase empowerment (Knight, Szucs, Dhillon, Lembke, & Mitchell, 2014).

In a systematic review conducted in 2014, on over 53 reviews reviled that usually the benefits of the e-Health aren't measured at all or in small amounts conducting to insufficient data. The lack of data may block the development and improving. The evaluation of e-Health is needed in order to take intro consideration development on a large-scale (Black et all., 2011). In a study on evaluation, there were identified 75 different evaluation systems that shows the inexistence of a standardized protocol. The study is a guide for e-Health researchers to find the suitable evaluation approach for each phase of their studies. The most used evaluation approach were questionnaires in all of the studies and feasibility studies in 88 % of the studies (Bonten et.all, 2020).

In a study conducted on 2784 of patients, one in every three adult consultation and one in five pediatric consultation was replayed. Recording health consultation is important to the patients and has benefits in the medical practice (Wolderslung, 2015). Checklist may improve the referrals letters from gastroenterologist in a survey in Norway. The process is easier ad less time consuming, but the effect is limited (Eskeland S. L., 2018). During COVID-19 lockdown and despite the barriers like costs, legal liability, video consultations were very much appreciated by 90% of the patients, but significantly lower between medical staff which 40% had high level of satisfaction. The main reasons are technical problems and more work in order to successfully attend consultations (Barkai, Gadot, Amir, Menashe, Shvimer-Rotschild, & Zimlichman, 2020).

Another example of benefits from telemedicine is telestroke, a program that allows rapid diagnosis and treatment of the patients with signs of stroke. There are some barriers also like costs, effectiveness, but over the years this program showed its benefits (Wechsler et all., 2016). Some aspiration of telehealth were established in a study in the case of home dialysis patients: increases supervision, decrease clinic visits, decrease hospitalization rate, increase access to practitioner by patients, earlier diagnosis and treatment of medical conditions, allows the practitioner to adjust therapy, increases patient and practitioner satisfaction and quality of life. The advantages of telehealth by stakeholder are: decrease travel time and cost, increase supervision of care, decrease visits, improve adherence to treatment, and disadvantages are possible loss of privacy and security, set up telehealth equipment and services, obtain monthly labs by another venue, unable to collect the facility fee (Lew, 2020).

For the integration of eHealth, three important principles should be considered in the same time. First, the role of the patient needs to be integrated in the decision, structure of the organization and daily care process. Second, the technology should be very well integrated to

the structure of the organization and daily care process. Third, human resources needs to be linked with the desired end results (Tossaint-Schoenmakers, Versluis, Chavannels, Talboom-Kamp, & Kasteleyn, 2021).

**2. 1 Integration of E-Health Into Health Care**

For implementing a program for health records, the following are necessary (Knight, Szucs, Dhillon, Lembke, & Mitchell, 2014):

- staff that register patients,

- new software and hardware if necessary,

- improving and maintaining data quality,

- patient consent,

- access to patient to introduce information.

For implementing a program in Australia between 2011 and 2012, experts set change principles and improvements measures.
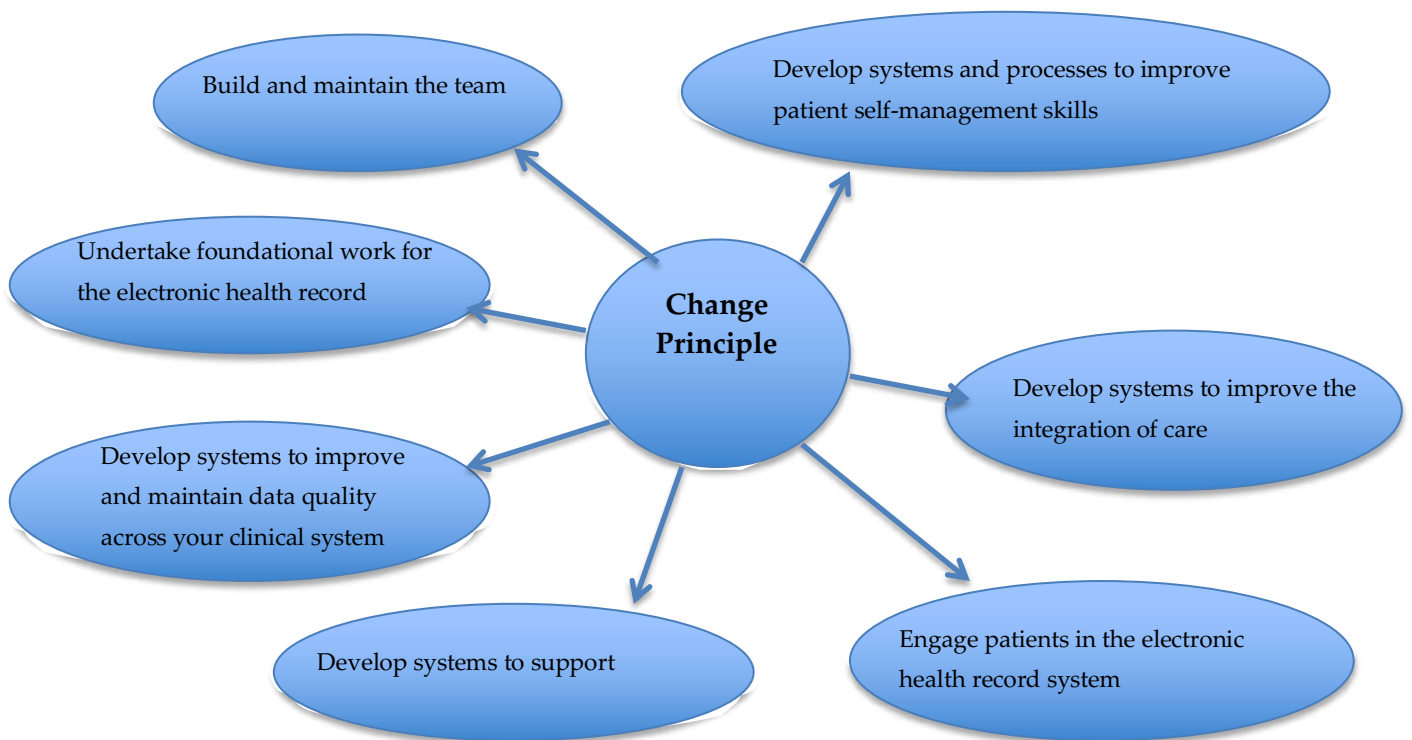


**Figure 1**. Change Principles for Implementing A Health Program

Source: adapted from (Knight, Szucs, Dhillon, Lembke, & Mitchell, 2014)

The same program used some improvement measures like number of uploads in the program, percentage of coded diagnoses and percentage of current prescriptions.

Regarding the integration of e-Health into health care, the following principles are useful to take into account: the role of the patient has to be integrated in the daily care process, the

technology must be adapted to the structure of the organization and the involvement of human resources to the care system must be appropriate with the desired results (Tossaint-Schoenmakers, Versluis, Chavannels, Talboom-Kamp, & Kasteleyn, 2021).

## 2.2 Digital Dimension of the Healthcare

Digital and social media innovation has developed in three broad areas as follows (Halvorson, Goldbriugh, Kennedy, Kent, Close, & Becker,, 2012):

1. Digital Channel for Health – in which healthcare providers are implementing digital services in the traditional healthcare system in order to improve quality, productivity and access to medical services. Examples are: online access to laboratory results, follow-up consultations by e-mail, mobile access to radiology images.
2. Digital Innovation for Consumers – in which patients take better care of their own chronic illnesses. Examples: online communities of patients in which they share experience.
3. Digital Initiatives for Social Impact – public and private organizations target people in order to promote campaigns to prevent diseases and promote health. Examples: stop smoking campaigns, reduce child obesity through sport and healthy diet.

The healthcare sector has three traditional spaces like hospitals, clinics and homes. The three digital areas listed above are considered a new "fourth space" in the medical system. Among services offered by the fourth space, there are as follows: hospital/clinic websites, physician-patient e-mails exchanging information, social media to patients, medication reminders, appointment booking, physicians networks, e-prescribing, lab result reporting, health information and advice, remote imaging review, online pharmacies, video consultations, provider wellbeing apps, remote monitoring (Halvorson, Goldbriugh, Kennedy, Kent, Close, & Becker, 2012).

## 2.3 Dimensions of Digital Health

According to The Healthcare Information and Management Systems Society (HIMSS), there are four key dimensions of digital health: Person-Enabled Health, Predictive Analytics, Governance and Workforce, and Interoperability (HIMSS).

1. Person-Enabled Health expresses the connection between patients and their health providers based on the personal values, needs and health targets. It can be measured by personal care delivery, proactive risk management and predictive population health.
2. Predictive analytics represents the transformation of data into knowledge and it can be measured by personalized analytics, predictive analytics, operational analytics.
3. Governance and workforce supervises digital health systems through policies and law and assures security, privacy, stewardship and accountability.
4. Interoperability expresses the connection between different digital health systems, apps, devices in order to provide information easily with no borders. His dimension is measured by foundational interoperability, structural interoperability, semantic interoperability and organizational interoperability.

Digital Health Indicator measures improvement of the digital health ecosystem and is based on the four dimensions developed by HIMSS with the purpose to help the transformation of digital health.

In a study, a new approach for scale development of the e-health service quality was established. The model of e-Health service quality has 3 dimensions, each one with sub-dimensions, as follows (Hadwich, Georgi, Tuzovic, Buttner, & Bruhn, 2010):

1. potential quality: accessibility, competence,
2. process quality: information, usability/user friendliness, security of data/system, system integration, trust, individualization, empathy, ethical conduct,
3. outcome quality: degree of performance, reliability, ability to respond.

## 2.4 Quality Indicators

According to OECD, developed in 2013 almost 70 health care quality indicators (HCQI) regarding primary care, acute care, mental health, cancer care, patient safety and patient experiences (Carinci et all., 2015).

Also they defined criteria to score the HCQI such as validity, reliability, relevance, actionability, international feasibility, international comparability. These criteria help to decide which indicators are reliable and should be kept or omitted from future data collection and also help prioritize relevant indicators (Carinci et all., 2015).

According to US Institute of Medicine, there are six components of quality in health care for de 21st century: safety, effectiveness, patient-centeredness, timeliness, efficacy and equity (Ossebaard & Van Gemert-Pijnen, 2016).

World Health Organization developed a Global Observatory for e-Health and there where established indicators to measure the benefits of e-Health (Haux et all., 2018).

1. Access to health care professionals to their patients heath record data.
2. Access of patients to their health record data.
3. Access of caregivers to the patients health record data.
4. Enabling health care professionals to add data to their patients health records.
5. Enabling patients to add data to their health record(s).
6. Enabling caregivers to add data tot the patients health record(s).

WHO conducted study in 7 countries (Austria, Finland, Germany, Hong Kong, South Korea, Sweden and Unites States) based on the 6 indicators for e-Health. The results varied between the countries and if three of the six indicators where completed, it was a sign for good development of the e-Health, especially for the benefit of the patients (Haux et all., 2018).

Other e-Health indicators are (Hypponen, Ammenwerth, & Keizer, Exploring a methodology for eHealth indicator development, 2012):

1. Structural quality: hardware quality, software quality, computer information and agreement of the users;
2. Information logistics quality: information quality, user satisfaction, costs of information processing, usage patterns;
3. Effects of e-Health on the processes quality: processes efficiency, organizational and social issues, appropriateness of care;
4. Effects of e-Health on quality of care outcome: costs of care, patient outcome, patient-related knowledge or behavior, patient satisfaction.

Regarding the access to health care professionals to their patients health data, one example is that electronic checklists improved the quality of referral letters (Eskeland, Rueegg, Brunborg, Aabakken, & De Lange, 2018).

When there is lesser referral information can take longer to see a specialist and this may lead to delayed diagnosis. Tele-health may improve the delay to diagnosis and early treatment (Tay, Lim, Lee, Low, & Cheung, 2014).

**2.5 E-Quality Measures of Electronic Health Records**

The importance of implementation of electronic health records (EHRs) increased over the years along with health information technology (HIT). HIT is composed of clinical decision support systems (CDS), computerized provider order entry (CPOE) and web-based personal health records (PHRs). In USA, heath system uses five electronic quality measures (e-QMs) to define it.
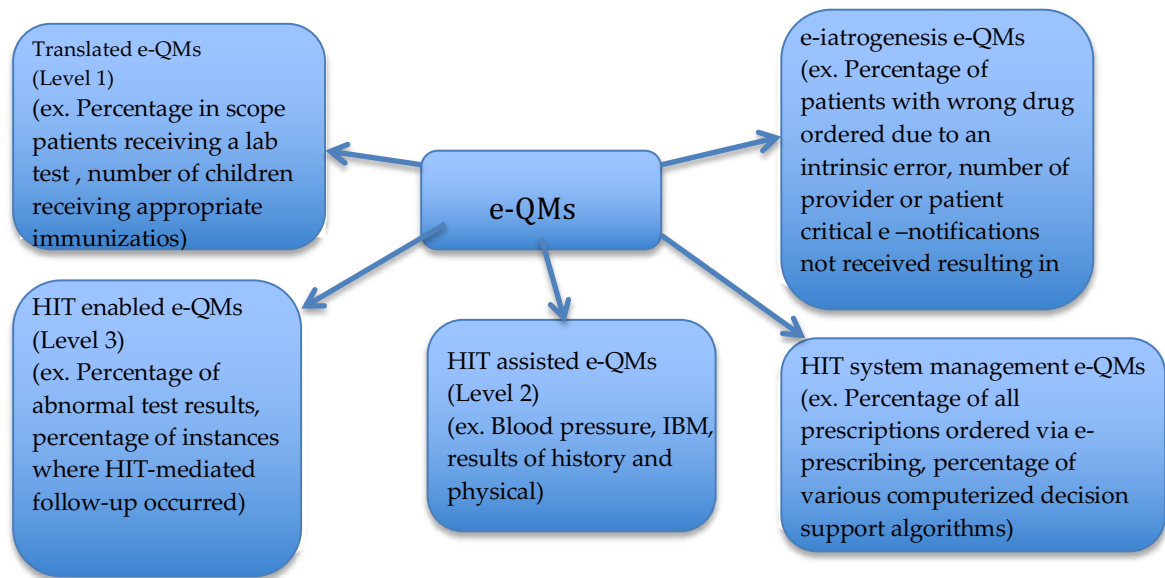


**Figure 2.** EHR/HIT e-Quality Measures of Provider Performance

Source: adapted from (Weiner, Fowels, & Chan, 2012)

Implementation of EHR must be easy to use, easy to understand how in works, easy to adjust over time, with the help of users, departmental leaders and information technology specialists. This requires regular evaluation and changes in systems (Ovretveit, Scott, Rundall, Shortell, & Brommels, 2007).

In France was evaluated the implementation of EHR in the Hôpital numérique 2012–2017" program taking into consideration four quality indicators: the quality of patient record, the evaluation of pain status, the delay in sending information at hospital discharge and the nutritional status evaluation. The model showed positive aspects of the use of EHR by improving the quality of care management (Plantier et all., 2017).

The benefits of EHRs (electronic health records) are easier accessibility, manipulation, legibility, sharing, transportation and preservation of electronic data. The risks are represented by threats to patient safety if paper persistence, unwanted access to unsecured networks, organizational inefficiency due to increased time to document and retrieve data (Black, și alții, 2011).

**3. METHODOLOGY**

The present article includes an analysis of the documentation found in various publications and scientific articles in order to illustrate the indicators, dimension of the e-Health. Therefore, we used a comprehensive search into numerous sources of secondary data, such as articles, reports and books from the domains of e-Health from electronic databases, such as e-nformation, PubMed, Academia, EDU, and websites using keywords like quality indicators in eHealth, quality indicators in telehealth. A study was excluded if the full text was not available, if it was in other language other than English.

The study is longitudinal and uses data with no limit in time and space, observational with the focus on the existing reports, studies. Most of the data gathered is qualitative, the information was processed and interpreted.

The main hypothesis is that the existence of e-Health increases the quality of the medical services provided to the patients by the medical staff. In order to evaluate, it is necessary to establish the suitable indicators for each phase or program.

## 4. RESULTS

In this article were included a variety of study designs, some of them on specific diseases. All studies showed definition, structure, evolution, and indicators that were potentially related to the evaluation of eHealth.

First step in e-Health is implementing electronic health records. There are specific steps to implement it like preparing staff in order to work properly with the new program, installing new software and hardware if needed, continuous analysis and improvement of the process. Some countries selected specific indicators to assess the process. In US, the Institute of Medicine selected six main components of health care: safety, effectiveness, patient-centeredness, timeliness, efficacy and equity which are more general. These components have five specific indicators called quality measures like number of children receiving immunization, abnormal lab test results, IBM, etc. These indicators are more specific and show an image of the e-Health at some point.

On the other hand, the World Health Organization established six indicators to measure the benefits of e-Health. These indicators are more specific on base activities in telemedicine like if health care professionals have access and the permit to add data to their patients heath record data, access and the power to change medical data by patients, access of caregivers to the patients health data.

To evaluate a system, there is a need of specific indicators that show the activity of implementing and using the benefits of medicine. In some countries there are indicators that can present a clear image on a specific subject, but in others countries there are not well establish or comprehensive indicators. These may lead to not be able to compare and adjust using the experience of the countries with better e-Health programs.

## 5. DISCUSSIONS

There are not worldwide indicators for evaluating the efficacy of implementing e-Health in the medical sector. Each country or organization developed some indicators for e-Health in general or for specific compounds of e-Health. Some indicators such as those developed by WHO refer to the access and the possibility of modifying the heath records by the caregivers, patients and health care professionals.

Other indicators refer to the entire process such as software needed, hardware, knowhow, information quality, costs, patient satisfaction, etc. Many countries started to developed EHR in order to make an easier access to medical information.

The efforts of applying e-health in developed countries are limitative and not properly evaluated. In order to increase the quality of e-health worldwide, it is recommended to select specific indicators and use them by all the countries, or at least by the countries in the same area, region or continent.

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JOMAES

# Corporate Governance and Earnings Quality of Quoted Consumer and Industrial Goods Companies in Nigeria

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## Abstract

This study investigates the impact of corporate governance on earnings quality of quoted firms in Nigeria. Corporate governance was indicated by board size, board diversity and the number of female representatives on the board while earnings quality was measured by the earnings per share and net assets per share. The study employed the expo facto research design and was anchored on the Agency Theory. The population of the study was Consumer and Industrial Goods firms listed on the Nigerian Stock Exchange. The researcher employed the purposive sampling technique to select a total of twenty out of the thirty companies as sample for the study. Secondary data was sourced from the companies' annual reports for the period of 2015 – 2020 and was analyzed using descriptive statistics, correlation and multiple regression techniques. The results basically indicate that there was an inverse and non-significant relationships between board size and earnings quality (EPS and NAPS). The study also revealed a positive and significant relationships between board diversity and both EPS and NAPS. It was recommended that board size should not be increased since it has negative and insignificant effect on earnings quality; but board diversity should be encouraged due to its positive and significant effect on earnings quality of listed firms in Nigeria.

## Keywords

Corporate Governance, Earnings Quality, Board Diversity, Earnings Per Share

## 1. INTRODUCTION

Corporate governance practices and its nexus with firm performance recently and continuously have attracted a considerable number of empirical studies globally. This is not unconnected with the numerous cases of corporate failures and financial scandals that have been perpetrated by opportunistic managers, who variously use their positions to foster their interests above that of the shareholders. On the global front for example, the Tyco Scandal of 2002, where a New Jersey-based company managed by Dennis Kozlowski, together with his Chief Finance Officer stole over 150 million dollars and tried to inflate company income by over 500 million US dollars, through questionable accounting practices, including huge loans made to the CEO, that were then forgiven, was case of abuse of corporate governance. Again, the waste management scandal that took place in 1998 in Houston involving a public limited waste management company (where a reported 1.7 billion dollars were manipulated in fake earnings through the act of fraudulently increasing the depreciation period for their tangible non-current assets in

their statement of financial position), is a case of note and is still fresh in the minds of accounting information users globally. Other notable examples of failure to adhere to corporate governance ethics by management include Enron scandal, World.Com and Xerox. Nigeria has also witnessed several cases of scandals attributed to corporate governance issues. For instance, the management of Cadbury Nigeria Plc was caught in a scandal in October 2006, where they fraudulently manipulated the value of their closing inventory in their books, in order to achieve ambitious growth targets (Okaro & Okafor, 2016) was a case of abuse of corporate governance principles. Consequently, that corruption made the company, which purportedly recorded losses of about 15 million dollars during the year, lost significant public confidence and bad reputation among investors and other stakeholders; and was later penalized and made to pay for its inactions by the Securities and Exchange Commission (Okaro & Okafor 2016). Other corporate scandals in Nigeria were those of the defunct African Petroleum Plc, Afribank Plc, Intercontinental bank Plc and Oceanic Bank Plc and that of Cadbury Nigeria Plc (where the Managing Director was sacked for overstating the financial position of the company over a number of years to the tune between ₦13 billion and ₦15 billion). The above and several others, may have continually necessitated the increased interest on researches on governance.

Historically, one of the earliest works on Corporate governance could be traced to the publication by Berle and Means (1932), who emphasized the need for the separation of ownership from control in a company and the attendant difficulties that usually accompany it. However, a better clarification and distinction was done by Tricker (1994) regarding the control exercised by the management of a corporation, in his bid to discuss corporate governance by stating that if management is about the planning and control of business, then in the business world, governance should center around proper administration of companies. That view was in consonance with that of John and Senbet (1998), who also emphasized that corporate governance should be concerned with the separation between those who manage and control the corporation, those who own it and the agency problems it creates. Hence, the main aim of Corporate governance therefore, is for the promotion of corporate transparency, honesty, fairness and accountability in financial reporting, as well as compliance with ethical and regulatory standards. It also emphasizes the need for management to be accountable to the shareholders (who own the entity) and ensure the efficiency and effectiveness of the board of directors in the discharge of their responsibilities which includes overseeing the managers who run the companies' operations on a day-to-day basis (Ilaboya & Obaretin, 2015). This is in a bid to prevent some opportunistic behavior of managers who may abuse their offices, as it is usually noticed in the management/governance of a corporation, where often times the manager's interest tends to conflict with that of the shareholders' interests when they do not earn what is desire (Jensen & Meckling, 1976).

Three key corporate governance issues are of essence to this study namely; the size board of directors, the need for board diversity and board gender diversity. The board composition and efficiency is very crucial to the survival and growth of the firm because they mediate and control the relationship between the managers and the owners. Ferreira (2010), describes the board as the most important arm that is charged with decision making in the company. This invariably means that the more efficient the board, the more likely the fortune of the company and the more the interest of the shareholders will be protected. It is believed that a well-structured and balanced board (in terms of: size, structural diversity with respect to ratio of local to foreign directors represented on the board and the percentage of women to men representation on the board) will not only enhance the smooth and efficient functioning of the company but will also affect its earnings and reputation.

Earnings Quality, on the other hand, can simply be referred to as the extent to which earnings reported by companies show a firm's economic reality. It is also known as quality of earnings (QOE), which means capability of firm earnings (or its income) to predict its future profits.

The question then is: what is the impact of these corporate governance practices or issues on firm performance, firm earnings and even firm value? The answers to these; justify the positions of the Securities and Exchange Commission, the Financial Reporting Council of Nigeria and other regulatory bodies, which have continually emphasized the need for total compliance with the codes of corporate governance by corporate bodies in Nigeria due to its attendant positives; not only to the corporation but the shareholders and other stakeholders at large.

Arguably, we can trace most of the notable corporate accounting frauds and scandals in history to the abuse of corporate governance rules and principles (Nangih & Anichebe 2021). Consequently, several empirical studies such as those of Bhasin (2013), Dalton and Dalton (2011), Johl, Kaur and Cooper (2015), Nkanbia-Davies, Gberegbe, Ofurum & Egbe, (2016), Ammari, kadria & Ellouze (2014), and Rouf (2012) have all carried out studies on corporate governance. However, their findings were inconsistent and controversial. These were not unconnected with some deficiencies noticed in the area of variables used, content scope and the methodologies adopted in those studies. These constitute study gap, hence the need for an in-depth study, which will serve as a bridge. This is what the study sets out to accomplish. Consequently, the study seeks to empirically look at the impact of corporate governance on earnings quality of listed firms in Nigeria.

## 2. LITERATURE REVIEW

### 2.1. Corporate Governance and Dimensions

Corporate governance is seen as the rules, procedures and rules through which institutions are governed and regulated. It also encompasses the controls and procedures that exist to ensure management acts in the best interest of shareholders Good and strong corporate governance makes managers uncomfortable in carrying out activities that may be deceptive in the financial reporting. When good corporate governance practices are maintained, it leads to high quality financial statements (Nkanbia-Davies, Gberegbe, Ofurum & Egbe, 2016). Hence, the ultimate aim of corporate governance is for the promotion of transparency, fairness and honesty in financial reporting, as well as to comply with ethical and regulatory standards. Akinsulire (2014) opined that corporate governance factor in such issues as the directors' responsibilities, including the review and reporting to shareholders and other interested stakeholders. Corporate governance, therefore, is used to reduce the agency cost that arises as a result of the disparity or variance between managers and shareholders interest. Some principles of corporate governance to be adopted include; laying solid foundation for management and oversight, structure the board to add value, promote ethical and responsible decision making, safeguard the integrity of financial reporting, respect the right of shareholders and recognize and manage risk. This study conceptualizes corporate governance using the following proxies;

*2.1.1a The Board Size-* Is a dimension of corporate governance system which affects the effectiveness of the board of directors. Board size is the term which describes the number of persons on the board of directors of a company in a given period. There is no consensus across countries and corporate governance codes as to the number of persons that should sit on the board of a company; however, the board should not be so large as to be unwieldy (Financial reporting council, 2010).

*2.1.1b Number of Female Representative on the Board -*The number of female representative on the board refers to the proportion of women who occupy the board membership positions. This

also has to do with how many females are on the board (i.e. how many females are among the board of directors of the company). Studies have shown that having female member representation on the board of directors improves the performance of the board. To measure number of female representatives on the board, this study used the number of female on the board out of the total number of persons on the board.

*2.1.1c Board Diversity*- Board diversity has to do with the number of local and foreigners present on the board. Meanwhile, in this context, board diversity simply means the number of foreigners available on the board. This is a significant aspect of corporate governance; it is also defined as the presence of foreigner directors on the board of directors of corporation.

## 2.2. Earnings Quality and Measures

Different authors and researchers described earnings quality differently. Some characteristics employed in their definitions of the word earnings were words such as persistence, predictive ability of earnings, smoothness of earnings, earnings manipulation and accrual quality. In general, earnings that are considered of high quality are those with high level of persistence, predictability, less volatility, timely, lower level of earnings management and higher accrual quality (Khairul et al. 2014).

Prior researches on earnings quality have employed various measures as proxies of earnings quality because of different perspectives in the understanding of the construct (Chukwu, Idamoyibo & Akunna, 2020). One of the attributes of earnings used in measuring earnings quality is how current earnings of an entity or corporation persist over time. Following the works of Mahjoub and Khomoussi (2013) as well as Chukwu, et al (2020) we define earnings as earning per share (EPS) and net assets per share (NAPS). Therefore, earning per share (EPS) and net assets per share (NAPS) were used as proxies for earnings quality.

Earnings per share (EPS) means the total earnings attributable to each unit of ordinary share of a company. It is calculated as a company's profit after tax less preference dividend divided by the number of ordinary shares. A better EPS shows greater value of the company or greater earnings quality because investors will pay more for a company's shares if they perceive will increase their earnings capacity relative to its share price in the future. Net asset per share, on the other hand, is commonly used to identify potential investment opportunities within mutual funds, indexes. One could also use net asset per share to view the holdings in their own portfolio. Net asset per share is the basic calculation of net assets per share which is total assets – total liabilities = Net assets.

## 2.3 Theoretical Review

This study is anchored on the Agency theory. The theory has its base in economic theory explained by Alchian and Demsetz in 1972, and was further developed by Jensen and Meckling in 1976. The theory emphasizes on the fact that ownership of companies should be separated from its control (Bhimani,2008). The agency theory in this study explains the relationship between the managers, shareholders and major providers of debt finance, and in order for the firm to be in existence and its performance to be effective their (i.e. shareholders, managers and major providers of debt finance) relationship matters a lot. Antonelli, D'Alessio and Cuomo (2016) stated that agency theory explains corporate governance concept. Corporate governance attributes align the objective of the management with that of the shareholders by playing the monitoring or supervisory roles.

## 2.4 Empirical Review

Amin, Lukviarman, Suhardjanto and Setiany (2018) investigated board characteristics on earnings with audit quality as moderating variable on concentration ownership of companies from the period of 2011 to 2014 of manufacturing companies in Indonesia. The research employed moderating regression analysis. They found a positive effect between audit committee independence, audit committee expertise and audit committee size with earnings quality while audit committee meetings had a negative effect on earnings quality.

Waweru and Prot (2018) assessed the effect of corporate governance on accrual earnings management of companies in Eastern Africa. The study employed a sample of 48 firms listed on the Nairobi Stock Exchange and the Dar es Salam Stock Exchange. The study results showed that board independence, board gender diversity and directors share ownership were positive and significantly related to discretionary accruals.

Yodbutr (2017) investigated the influence of corporate governance on earnings quality of Thailand financial firms from the period of 2011 to 2015 using the multiple regression analysis and findings revealed non-association between corporate governance and earnings quality, but the control variable of firm size had positive association with earnings quality. The size of firms determines the earnings quality of such firms.

Nalukenge, Tauringana, and Ntayi (2017) explored the relationship between corporate governance, internal controls and financial reporting in Ugandan Microfinance Institutions (MFIs). Data were collected from 70 Ugandan's MFIs and were analyzed using ordinary least squares regression. They found that board role significantly influences internal controls over financial reporting. In addition, they revealed that auditor type, size, accounting qualification and age do not significantly influence financial reporting quality.

Azzoz (2016) investigated corporate governance characteristics on earnings quality and earnings management of Jordan ASE financial listed companies from 2007 to 2010. The governance variables used include board size, CEO duality, board composition, audit size, audit composition and audit committee activity using modified Jones model and multiple regression. They found relation between audit committee size and audit committee activity with earnings quality and earnings management. They recommended the reduction of board of directors' members, adjustment in the external directors and non - executive board of directors' proportion and audit committee of financial Jordanian firms.

Nkanbia-Davies et al (2016) examined corporate governance and earnings quality of listed banks in Rivers State from the period 2010-2014 using regression analysis and Pearson product moment correlation and findings suggested that corporate governance has a positive relationship with earnings quality. They concluded that corporate governance is essential to earnings quality and improvement of the performance of banks. However, no relationship was established between independent audit committee and accrual quality in that study.

Younis (2016) investigated corporate governance and earnings quality of manufacturing listed firms on Karachi Stock Exchange using audit quality, CEO duality and board size. Findings suggested that audit quality and board size have a significant negative relationship with earnings management while firm size has a significant positive relationship with earnings management. Quality of earnings can be generated by reduction of earnings management through audit quality and board size.

Patrick, Paulinus and Nympha (2015) examined the relationship between corporate governance and earnings management practices in Nigeria. Using a sample of 33 firms, they found that board size, firm size, board independence and strength of audit committee have significant

influence on earnings management practices in Nigeria. They recommended for the use of improved corporate governance codes in Nigeria.

Uwuigbe, Peter and Onyeniyi (2014) investigated the influence of corporate governance mechanisms on earnings management of some quoted companies in Nigeria. The regression results from the data collected from 40 listed firms revealed that board size and board independence negatively influence earnings management in Nigeria. In addition, the result indicated that CEO duality has significant positive influence on earnings management.

Leventis, Dimitropoulus and Owusu-Ansah (2013) assessed the effect of corporate governance on accounting conservatism in the United States. Using both market – based and accrual – based measures of conservatism on a sample of 315 firms they revealed that well-governed banks engaged in significantly higher levels of conservatism in their financial reporting processes. In relation to governance structures, banks with effective board and audit committees were reported to have recognized provisions for losses on non performing facilities compared to those that do not have effective governance structures.

Ugbede, Lizam and Kaseri (2013) define corporate governance as the blood that fills the veins of transparent disclosure and good accounting practices. It ensures that firms conform to good practices that protect the interest of shareholders and its environments, by ensuring fairness, transparency and accountability in business activities among its employees, management and board of directors.

## 3. METHODOLOGY

The design adopted for this research is the expo facto design. The population of the study is consumer and industrial firms in Nigeria. A total sample of 25 industrial and consumer goods companies (i.e. 12 industrial goods companies and 13 consumer goods companies). However, a sample size of 20 companies were selected, using Purposive Sampling technique, and used for the study. Data was collected from the company's annual report for the period of 2015 – 2020 and were analyzed using descriptive statistics, correlation and multiple regression techniques.

Based on the study objectives, two models were formulated, which essentially relates to earnings quality as the dependent variable and corporate governance as the independent variable.

Model 1: $EPS = \beta_0 + \beta_1 BSZ_{it} + \beta_2 NOF_{it} + \beta_3 BDV_{it} + \mu_{it}$ ……………………..(1)

Model 2: $NAPS = \beta_0 + \beta_1 BSZ_{it} + \beta_2 NOF_{it} + \beta_3 BDV_{it} + \mu_{it}$ ……………………..(1)

Where; EPS = Earnings per share

NAPS = Net Asset per share

BSZ = Board Size (which represents the number of directors on the board).

NOF = No of females in the board

BDV = Board Density

$\beta_0$ = coefficient of correlation

$\beta_{1-3}$ = coefficient to be estimated or the coefficients of slope parameters

$\mu$ = Error term; it captures other explanatory variables not clearly included in the model.

$_{it}$ = Where i and t represent all the companies and the years' time period respectively. The expected signs of the coefficients (i.e. a prior expectations) are such that $\beta_1$, $\beta_2$ while $\beta_3 < 0$.

## 4. ANALYSIS AND INTERPRETATION OF RESULTS

**Table 1.** Regression Statistics (Model 1) for selected listed firms

Dependent Variable: EPS
Method: Least Squares
Included observations: 150

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| BSIZ | -0.848103 | 0.481865 | -1.760044 | 0.0805 |
| BDIV | 1.800058 | 0.596975 | 3.015297 | 0.0030 |
| NOF | 0.074171 | 0.910140 | 0.081494 | 0.9352 |
| C | 6.712569 | 3.530572 | 1.901270 | 0.0592 |

| | | | |
|---|---|---|---|
| R-squared | 0.059776 | Mean dependent var | 3.208307 |
| Adjusted R-squared | 0.040457 | S.D. dependent var | 13.40334 |
| S.E. of regression | 13.12941 | Akaike info criterion | 8.013892 |
| Sum squared resid | 25167.70 | Schwarz criterion | 8.094175 |
| Log likelihood | -597.0419 | Hannan-Quinn criter. | 8.046508 |
| F-statistic | 3.094061 | Durbin-Watson stat | 1.485312 |
| Prob(F-statistic) | 0.028900 | | |

**Table 2.** Descriptive Statistics

| | EPS | BSIZ | BDIV | NOF |
|---|---|---|---|---|
| Mean | 3.208307 | 9.673333 | 2.540000 | 1.720000 |
| Median | 0.830000 | 9.000000 | 2.000000 | 2.000000 |
| Maximum | 64.00000 | 18.00000 | 10.00000 | 6.000000 |
| Minimum | -74.00000 | 4.000000 | 0.000000 | 0.000000 |
| Std. Dev. | 13.40334 | 3.476666 | 2.579293 | 1.341741 |
| Skewness | 0.252894 | 0.559439 | 0.821571 | 0.637329 |
| Kurtosis | 17.57507 | 2.499648 | 2.774978 | 3.078994 |
| Jarque-Bera | 1329.303 | 9.388989 | 17.19096 | 10.19372 |
| Probability | 0.000000 | 0.009145 | 0.000185 | 0.006116 |
| Sum | 481.2460 | 1451.000 | 381.0000 | 258.0000 |
| Sum Sq. Dev. | 26767.77 | 1800.993 | 991.2600 | 268.2400 |
| Observations | 150 | 150 | 150 | 150 |

**Table 3.** Correlation Statistics for Selected Listed Firms

| | EPS | BSIZ | BDIV | NOF |
|---|---|---|---|---|
| EPS | 1.000000 | 0.030135 | 0.191741 | -0.001734 |
| BSIZ | 0.030135 | 1.000000 | 0.712100 | 0.465116 |
| BDIV | 0.191741 | 0.712100 | 1.000000 | 0.268942 |
| NOF | -0.001734 | 0.465116 | 0.268942 | 1.000000 |

**Table 4.** Regression Statistics (Model 2) for Selected Listed Firms

Dependent Variable: NAPS
Method: Least Squares
Included observations: 150

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| BSIZ | -0.030474 | 0.561315 | -0.054290 | 0.9568 |
| BDIV | 4.762492 | 0.695406 | 6.848508 | 0.0000 |
| NOF | -0.007238 | 1.060206 | -0.006827 | 0.9946 |
| C | 3.363104 | 4.112699 | 0.817736 | 0.4148 |
| R-squared | 0.393948 | Mean dependent var | | 15.15260 |
| Adjusted R-squared | 0.381495 | S.D. dependent var | | 19.44714 |
| S.E. of regression | 15.29422 | Akaike info criterion | | 8.319131 |
| Sum squared resid | 34151.31 | Schwarz criterion | | 8.399415 |
| Log likelihood | -619.9349 | Hannan-Quinn criter. | | 8.351748 |
| F-statistic | 31.63453 | Durbin-Watson stat | | 0.714035 |
| Prob(F-statistic) | 0.000000 | | | |

**Table 5.** Correlation Statistics for Selected Listed Firms

| | NAPS | BSIZ | BDIV | NOF |
|---|---|---|---|---|
| NAPS | 1.000000 | 0.444120 | 0.627640 | 0.166845 |
| BSIZ | 0.444120 | 1.000000 | 0.712100 | 0.465116 |
| BDIV | 0.627640 | 0.712100 | 1.000000 | 0.268942 |
| NOF | 0.166845 | 0.465116 | 0.268942 | 1.000000 |

**Table 6.** Descriptive Statistics

| | NAPS | BSIZ | BDIV | NOF |
|---|---|---|---|---|
| Mean | 15.15260 | 9.673333 | 2.540000 | 1.720000 |
| Median | 6.120000 | 9.000000 | 2.000000 | 2.000000 |
| Maximum | 79.36000 | 18.00000 | 10.00000 | 6.000000 |
| Minimum | -5.000000 | 4.000000 | 0.000000 | 0.000000 |
| Std. Dev. | 19.44714 | 3.476666 | 2.579293 | 1.341741 |
| Skewness | 1.539962 | 0.559439 | 0.821571 | 0.637329 |
| Kurtosis | 4.566453 | 2.499648 | 2.774978 | 3.078994 |
| Jarque-Bera | 74.62314 | 9.388989 | 17.19096 | 10.19372 |
| Probability | 0.000000 | 0.009145 | 0.000185 | 0.006116 |
| Sum | 2272.890 | 1451.000 | 381.0000 | 258.0000 |
| Sum Sq. Dev. | 56350.50 | 1800.993 | 991.2600 | 268.2400 |
| Observations | 150 | 150 | 150 | 150 |

The regression statistics for model 1of the sampled firms as shown in table (1) is

EPS = 6.713 + 0.074NOF + 1.800BDIV – 0.848BSIZ. The above model statistics shows that if there is no change in the independent variables, the EPS will be 6.713 units. The EPS has an inverse relationship with the Board Size; it implies that any unit increase in Board size will reduce EPS by the units of its coefficient. The adjusted R-squared, which is the coefficient of determination

or measure of good fit of the model is 4% in the model. This showed that our model displayed is not fit because $R^2$ is not close to 100%. By implications, it means that 4% of the changes in EPS (the dependent variable) were caused by the independent variables in our model, leaving the remaining 96%, which would be accounted for other variables outside the model as captured by the error term. The F-statistic measures the overall significance of the explanatory parameters in the model, and it illustrates the appropriateness of the model used for the analysis while the probability value means the model is statistically significant and valid in explaining the outcome of the dependent variable, was 3.094 and its probabilities are 0.029 which is less than 0.05. Our model is a bit free from the problem of autocorrelation because the Durbin Watson statistic of 1.49 is slightly above; and it suggests the absence of serial auto correlation in the series.

From the Descriptive statistic of selected listed firms table 2 above, the mean value of about 3.21; on the other hand, board size (BSIZE), number of female representative (NOF) and board diversity (BDIV) had the mean values of 9.67, 1.72 and 2.54 respectively. Also, in the descriptive statistic above, the entire variables are normally distributed according to the Jarque-Bera statistic with all their p-value less than 0.05.

From the Correlation statistic of selected listed firms table 3; it shows that there is a positive and negative significant relationship between EPS and other variables in this work, it shows that EPS and Board size (BSIZE) is 3%, EPS and Board diversity (BDIV) is 19.2% while EPS and Number of female representative (NOF) is -0.2%. According to the results shown above, there is a positive and significant relationship between board size (BSIZ) and EPS, there is a positive and insignificant relationship between board diversity (BDIV) and EPS while there is also a negative and significant relationship between number of female representative on the board and EPS.

The regression statistics for model 2 of the sampled firms as shown in table (4) is

NAPS = 3.363 - 0.007NOF + 4.762BDIV - 0.030BSIZ. The above model statistics shows that any unit increase in the number of female representative (NOF) and board size (BSIZ), the NAPS will reduce by their respective coefficients. That is, Number of female representative on the board and Board size has a negative effect on the NAPS, if been increased. As indicated in Table 4, our R-squared ($R^2$) is 38.1% in the model. By implications, it means that 38.1% of the changes in NAPS (the dependent variable) were caused by the independent variables in our model, leaving the remaining 61.9%, which would be accounted for other variables outside the model as captured by the error term. The F-statistic is 31.635 and its probabilities are 0.000 which is less than 0.05. Our model is not free from the problem of autocorrelation because the Durbin Watson statistic of 0.71 which is low; and it suggests the presence of serial auto correlation in the series.

From the Correlation statistic of selected listed firms table 5; it shows that there is a strong significant relationship between NAPS and other variables in this work, it shows that NAPS and Board size (BSIZE) is 44.4%, NAPS and Board diversity (BDIV) is 62.8% while NAPS and Number of female representative (NOF) is 16.7% and they are all positively and insignificantly associated.

From the Descriptive statistic of selected listed firms table 6, the mean value of about 15.15; on the other hand, board size (BSIZE), number of female representative (NOF) and board diversity (BDIV) had the mean values of 9.67, 1.72 and 2.54 respectively. Also, in the descriptive statistic above, the entire variable is normally distributed according to the Jarque-Bera statistic with all their p-value less than 0.05.

## 5. DISCUSSION

*Ho₁: Board size does not significantly affect the earnings per share of a firm.*

A review of the regression analysis results for the sampled firms shows that the empirical findings for this study show that there is a negative and insignificant relationship between board size and earnings per share for the sampled firms. This is evident in the probability and $t$-statistic of 0.081 and -1.760 respectively. Hence, we accept the alternate hypothesis and reject the null hypothesis. This result basically indicates that there is an inverse relationship between board size and earnings per share. This result is indicative of the fact that firms with the large board size of directors tends to have a reduction on the earnings per share of the firm. This outcome however contradicts the findings of Nkanbia-Davies, Gberegbe, Ofurum and Egbe (2016) who found that corporate governance has a positive relationship with earnings quality of banks.

*Ho₂: Board size does not significantly affect the net assets per share of a firm.*

The second hypothesis shows that there is a negative and significant relationship between the board size and net assets per share for the sampled firms in Nigeria. This is evident in the probability and $t$-statistic of 0.957 and -0.054 respectively. Hence, we accept the alternate hypothesis and reject the null hypothesis. This result basically indicates that there is an inverse relationship between board size and net assets per share (i.e. the more the board size, the lesser the level of net assets per share). This implies that if the firm increases its board size it tends to have a negative impact on the net assets per share of the firm (i.e. if the board size is increased than the aggregate assets of the firm tends to reduce in the sense that funds that needs to be channeled in the purchasing more assets for the firm will be channeled to the board).

*Ho₃: Number of female representative on the board does not significantly affect the earnings per share of a firm.*

The third hypothesis shows that there is a positive but insignificant relationship between the number of female representative on the board and earnings per share for the sampled firms in Nigeria. This is evident in the probability and $t$-statistic of 0.935 and 0.081 respectively. Hence, we accept the null hypothesis. This result basically indicates the number of female representative on the board does not affect the income of the firm. This result implies that an increase of female on the board can lead to an increase of the earnings per share of the firm (i.e. it implies that the more females represented on the board, the higher the earnings per share of the firm with the studies that found out that availability of females on the board brings about a positive performance of the firm).

*Ho₄: Number of female representative on the board does not significantly affect the net asset per share of a firm.*

The fourth hypothesis shows that there is a negative and significant relationship between the number of female representative on the board and net assets per share for the sampled firms in Nigeria. This is evident in the probability and $t$-statistic of 0.995 and -0.007 respectively. Hence, we accept the alternate hypothesis and reject the null hypothesis. This result basically indicates that there is an inverse relationship between number of female representative on the board and net assets per share. This implies that if the firm has much female representative on the board it tends to have a negative impact on the net assets per share of the firm. This result implies that an increase in the number of females been represented on the board, does affects the net assets per share of the firm. It also implies that the more females represented on the board are reduce then it affects the net assets per share of the firm positively.

*Ho₅: Board diversity does not significantly affect the earnings per share of a firm.*

The fifth hypothesis shows that there is a positive and insignificant relationship between the board diversity and earnings per share for the sampled firms in Nigeria. This is evident in the probability and t-statistic of 0.003 and 3.015 respectively. Hence, we accept the null hypothesis. This implies that an increase of the board diversity does not affect the earnings per share of the firm (i.e. if the firm increases its board diversity it tends to have a positive impact on the earnings per share of the firm). That is to say, as foreigners are been made members of the board it affects the income of the firm positively. Also, this hypothesis helps in making a valid decision making for the firm.

*Ho₆: Board diversity does not significantly affect the net assets per share of a firm.*

The sixth hypothesis shows that there is a positive but insignificant relationship between the board diversity and net assets per share for the sampled firms in Nigeria. This is evident in the probability and t-statistic of 0.000 and 6.849 respectively. Hence, we accept the null hypothesis. This implies that an increase of the board diversity does not affect the net assets per share of the firm (i.e. if the firm increases its board diversity it tends to have a positive impact on the net assets per share of the firm). That is to say, as foreigners are been made members of the board it affects the aggregate assets of the firm positively. Also, this hypothesis helps the firm, shareholders, public at large in making a valid decision making.

## 6. CONCLUSION AND RECOMMENDATIONS

The study examined the effect of corporate governance on earnings quality of listed consumer and Industrial goods firms in Nigeria. The findings revealed that:

- Board size, had an inverse and insignificant relationships on EPS and NAPS.

- Board diversity had positive and significant influence on EPS and NAPS

- However, number of female representatives had positive and insignificant effect on EPS but a negative and insignificant influence on NAPS any increase in the number of female representative on the board will lead to an increase of the firm's earnings which is the EPS.

Based on the findings, the study concludes that: Firstly, that board size does affect the earnings quality. Secondly, the number of female representative on the board does not affect the earning of a firm and thirdly, the availability of foreigners on the board positively affects the earnings quality of a firm.

The study therefore recommends that;

- The number of foreigners on the board should increase thereby the firm should employ foreign directors on their board so as to enhance their reported earnings quality in Nigeria.

- Also, there should be availability of females on the board in order to increase and enhance reported earnings quality in Nigeria.

- The size of the board of directors should be made moderate and not too much on the board in order not to cause a reduction in the earnings of the firm or the firm can reduce the remuneration of the board of directors in order avoid a negative impact on the earnings of the firm.

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JOMAES

# Three-Margin Analysis of China's Animal-Derived Food Import

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**Abstract**

Aggregate import of China's animal-derived food increased remarkably and has been on a continuous upward trend. This paper uses import data at the Harmonized System (HS) six-digit level from 2002 to 2018 to explore the growth driver of China's animal derived food imports. It is found that: (1) China's animal-derived food import growth is mainly driven by rapid quantity growth, which contributes up to 70.12%; (2) Although China's animal-derived food import market is highly concentrated, it exhibits a tendency toward diversification; (3) There is an enormous difference between developed and developing countries in terms of exporting at the bilateral level, at which the degree of product variety differs with the particular type of trading partners, although variety generally increases.

**Keywords**
Animal-Derived Food, Import Growth, Three-Margin Analysis

## 1. INTRODUCTION

China is a major producer, consumer and trading country of animal-derived food[①], and aggregate import has been on a continuous upward trajectory, driven by the combined effects of strong domestic demand, rapid economic development and the domestic food safety incidents. However, domestic production is unable to meet consumers growing demand for high-quality and wide variety of animal-derived food, thus leading to the dramatic increase in the scale of imports. The total import volume has exceeded 20 billion US dollars, accounting for more than 20% of China's total imports of agricultural products. Moreover, China's animal-derived food import sources are highly concentrated, still dominated by developed countries, which account for 58.2% of overall imports. However, as illustrated in Figure 1, there is a trend that developing countries' share continues to grow, and import sources are more diverse.

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[①]Animal-derived food refers to all edible animal tissues as well as eggs and milk, including meat and its products (including animal organs), aquatic animal products, etc. This paper links "animal-derived food" to the relevant products in HS02 (meat and edible mince), HS03 (fish, crustaceans, mollusks and other aquatic invertebrates), HS04 (dairy products; eggs; natural honey; other food animal products) and HS16 (meat, fish, mollusks and other aquatic invertebrates) of the HS (2002 version) at 6-digit-code level. See WCOTradeTools.org for more details on the higher-level codes.

Meanwhile, China's animal-derived food categories structure has changed (Figure 1. China's Import Share Of Developed Countries And Developing Countries

Source: CEPII BACI database.

**Figure 2**). The total share of the top 10 products in total import value fell from 93.20% to 83.17%, implying higher diversification and lower concentration of animal-derived food. For example, HS03 took a large share before 2008 but has started to decline steadily since 2014. On the other hand, the share of HS02 grew from 25.43% to 38.72% gradually, and now has overtaken HS03 to rank first.
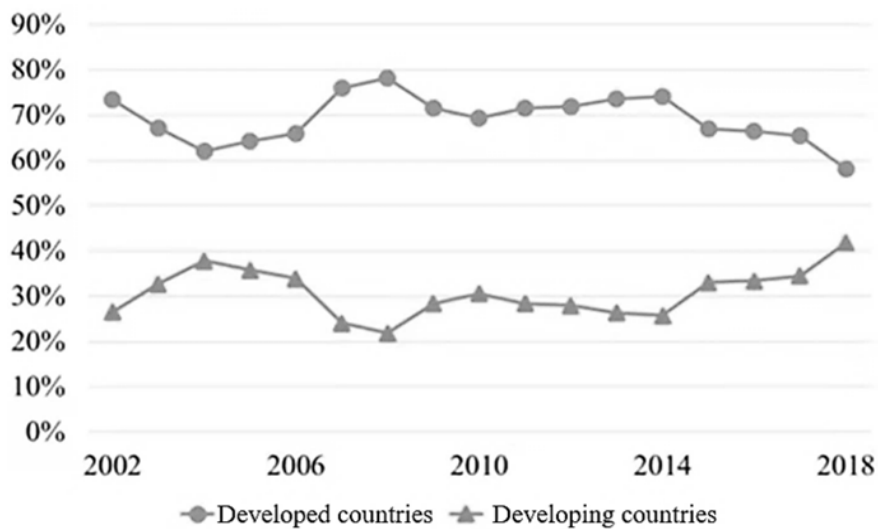


**Figure 1.** China's Import Share Of Developed Countries And Developing Countries

Source: CEPII BACI database.
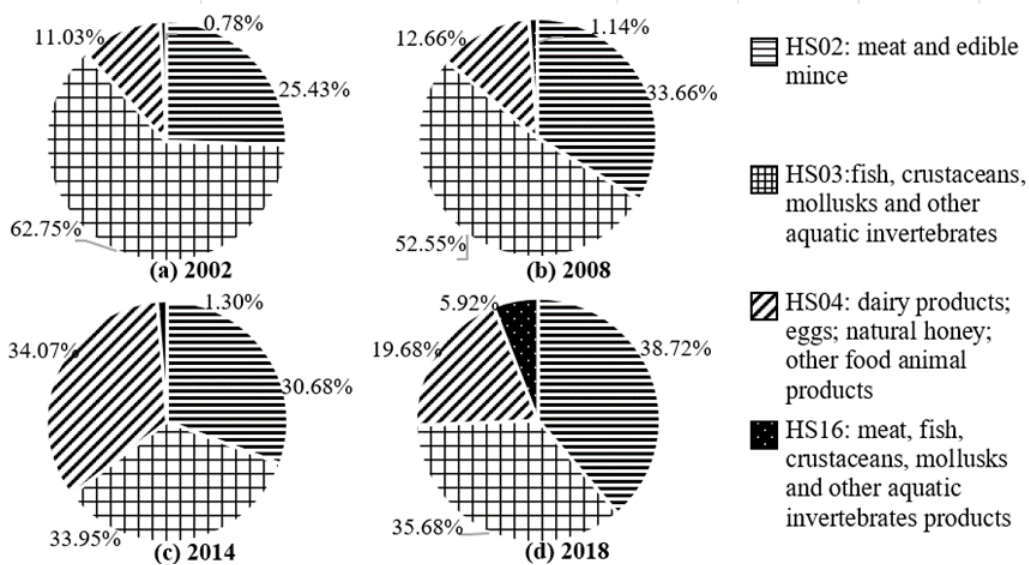


**Figure 2.** Product Composition of the Import Trade in Some Years

Source: CEPII BACI database.

What we concentrate on in this paper is that what exactly the driving forces behind the growth of China's animal-derived food imports is and whether it is mainly driven by rapid price growth, quantity growth, or extensive margin growth. To obtain more insights, we use the three-margin analysis methodology to systematically analyze the driving forces of China's animal-derived food imports from both static and dynamic perspectives, and empirically explore the contribution ratio changes of China's animal-derived food import growth after the accession of WTO. By this means, it offers practical implications for the import trade and domestic industry on a theoretical basis.

## 2. LITERATURE REVIEW

A significant number of literatures examines the impact of SPS measures on trade margins. Bao and Yan (2014) measured the binary margins of China's agricultural exports, arguing that SPS measures have a significant dampening effect mainly at the level of the intensive margin. Using an HMR model based on firm heterogeneity, Qin and Ni (2014) found that the trade effects of SPS measures took effect through the export costs of firms and contributed to increase in the expansion margin and decrease in the intensification margin of trade. Fontagné et al. (2015) studied the impact of product standards on trade margins at the firm level and found that the imposition of restrictive SPS measures generates additional fixed and variable costs that affect the trade expansion margin and the agglomeration margin across firm heterogeneity effects. As a result, SPS measures would lead to a decrease in firms' export participation rate and a greater fall in the value of exports at the agglomeration margin, with negative effects even exceeding those associated with a 10% increase in tariffs. A study by Beestermöller et al. (2018) on Chinese firms exporting agricultural products to the EU through a binary margin approach also shows that EU health standards exclude small firms from the market on the expansion margin and promote the export size of incumbent exporters on the intensification margin.

Ferro et al. (2015) introduced the Heterogeneity in Trade Index (HIT) to analyse the impact of food safety standards on international agricultural exporters and found that exporters were more likely to export to low-standard countries due to increased fixed costs. If developed and developing countries were to further harmonize and comply with established international standards, this would reduce fixed costs and thus increase exports from developing countries, as firms would then only need to comply with one international standard rather than several different importing countries' standards. It is worth noting that safety standards have a negative but statistically insignificant effect on the margin of aggregation in the case of low-income importers-high-income exporters if the importing country has stricter safety standards compared to the exporting country.

Furthermore, Fernandes et al. (2019) innovatively assessed the impact of product standards on firms' export decisions, covering all exporting firms in 42 developing countries and pesticide standards for 243 agricultural and food products in 63 importing countries over the period 2006-2012, elaborating on the impact of product standards on heterogeneous firms. Zhang and Wang (2020) analyzed the impact of importing countries' food safety standards on Chinese micro-firms' export behavior and technological innovation from 2000-2007 and found that although higher technical standards in importing countries force firms to exit in the short run,

with negative effects on the expansion and intensification margins, they have a positive effect on disadvantaged exporters in terms of promoting technological innovation and are conducive to exporters' trade growth in the long run.

Therefore, a large number of studies in China and abroad have studied the trade impact of SPS measures on exporting countries through binary margin analysis. To be theoretically valuable, this paper contributes to the existing literature by exploring the impact of SPS measures on import trade flows and ternary margins from the perspective of importing countries.

## 3. METHODOLOGY

As already noted, we aim to assess the three margins of China's animal-derived food import and analyze its growth structure and main driving forces. Here, we outline our methods for achieving these empirical tasks. Following the three-margin decomposition methodology proposed by Shi (2010), we decompose the total value of China's animal-derived food imports into extensive, price and quantity margin at the HS six-digit code level.

First, the import value is decomposed into the extensive margin (EM) and the intensive margin (IM). The extensive margin is appropriately weights categories of goods by their overall importance in exports to a given country, and it is the ratio of a particular country's animal-derived food exports to the world within categories it has exported to China, compared to animal-derived food it has exported worldwide. It reflects the variety of products China has covered. The intensive margin is the ratio of a country's animal-derived food exports to China compared to that to the world inside the categories it has exported to China. It reflects China's share in the markets of these categories. Then, the intensive margin is further decomposed into quantity margin ($Q$) and price margin ($P$).

The extensive margin and intensive margin are defined as:

$$EM_{jk} = \frac{\sum_{i \in I_{jk}} p_{ki} q_{ki}}{\sum_{i \in I_k} p_{ki} q_{ki}}, IM_{jm} = \frac{\sum_{i \in I_{jk}} p_{jki} q_{jki}}{\sum_{i \in I_k} p_{ki} q_{ki}} \tag{1}$$

where $j$ is used to represent China, and $k$ is the trading partner. $m$ will be rest-of-world (*ROW*), while $i$ is the product category. $p_{jki}$ and $q_{jki}$ denote the average price and quantity of product $i$ imported by China from country $k$. $p_{ki}$ and $q_{ki}$ denote the average price and quantity of product $i$ exported by country $k$ in the world market. $I_{jk}$ denotes the set of products imported by China from country $k$, and $I_k$ is the full set of products exported by country $k$ in the world market, and thus there is $I_{jk} \subseteq I_k$.

Furthermore, the intensive margin can be decomposed into price margin $P$ and quantity margin $Q$ as in Eq. (2):

$$IM_{jk} = P_{jk} \times Q_{jk}, P_{jk} = \prod_{i \in I_{jk}} \left( \frac{p_{jki}}{p_{ki}} \right)^{w_{jki}}, Q_{jk} = \prod_{i \in I_{jk}} \left( \frac{q_{jki}}{q_{ki}} \right)^{w_{jki}} \tag{2}$$

The weights $w_{jki}$ can be calculated by the following formula, where *ln* denotes the natural

logarithm, $s_{jki}$ is the proportion of commodity $i$ in China's import from country $k$, and $s_{ki}$ is the proportion of commodity $i$ in world's export to country $k$, that is:

$$s_{jki} = \frac{p_{jki}q_{jki}}{\sum_{i \in I_{jk}} p_{jki}q_{jki}}, s_{ki} = \frac{p_{ki}q_{ki}}{\sum_{i \in I_{jk}} p_{ki}q_{ki}}, w_{jki} = \frac{\dfrac{s_{jki} - s_{ki}}{\ln s_{jki} - \ln s_{ki}}}{\sum_{i \in I_{jk}} \dfrac{s_{jki} - s_{ki}}{\ln s_{jki} - \ln s_{ki}}} \qquad (3)$$

The price margin stands for the weighted product of the ratio of China's animal-derived food import price to that of the world. If the value is greater than 1, it indicates that China's import price is higher than the world average import price. The quantity margin stands for the weighted product of the ratio of China's animal-derived quantity to that of the world.

We summarized each exporter's margins across all the markets as follows. We first decompose China's imports from each market $k \subseteq K_j$, where $K$ is the set of countries for which export data are available. We then take the geometric average of China's decompositions across the $K_j$ markets to get:

$$EM_j = \prod_{k \in K} EM_{jk}^{\alpha_{jk}}, IM_j = \prod_{k \in K} IM_{jk}^{\alpha_{jk}}, P_j = \prod_{k \in K} P_{jk}^{\alpha_{jk}}, Q_j = \prod_{k \in K} Q_{jk}^{\alpha_{jk}} \qquad (4)$$

where weight $\alpha_{jk}$ is the logarithmic mean of the shares of $k$ in the overall imports of $j$. Thus, the aggregated three-margin decomposition result of China's animal-derived food imports in year $t$ can be obtained as in Eq. (5).

$$S_{jt} = EM_{jt} \times IM_{jt} = EM_{jt} \times P_{jt} \times Q_{jt} \qquad (5)$$

In order to compare the contribution ratio of each margin on import growth, we calculate the growth rates of the three margins and the import share $S$, and calculate the contribution of the three margins to the growth of the import share.

## 4. EMPIRICAL RESULTS

We utilize the HS six-digit code data of China's animal-derived food import from CEPII BACI database from 2002 to 2018, and the corresponding export data of all exporters. It should be noted that though the trade data in the database has been updated to 2020, considering the huge impact of the African swine fever epidemic in 2019, we set the time limit for research data to 2018. Since China's import sources market are not exactly the same in different years, we take all countries (regions)that are available in each year as samples.

The empirical analyses are in three parts. First, we study the overall characteristics and changes in the three margins of China's import growth. Second, we divide the period into three phases, and study the dynamic roles of the three margins; and lastly, by using a kernel distribution graph to simulate China's import growth.

### 4.1 Overall Analysis

The decomposition results of China's animal-derived food import growth from 2002 to 2018 are

shown in Table 1.

We find that: (1) China's animal-derived food import growth depends more and more on quantity and price growth, which contribute up to 70.12% and 22.51% respectively, and less on extensive margin, with the smallest contribution of 7.36%. (2) The extensive margin constantly decreases from 2006, indicating that the varieties of animal-derived food imported by China gradually decreased, probably due to the impact of international animal epidemics during this period, and then rebound above the starting level afterward. (3) China's import price of animal-derived food has been lower than the average international market price for a long time, but it continues to increase, especially the faster growth rate after 2009, which is related to the growth of China's per capita GDP greatly enhanced consumption of residents, and the demand for higher-quality import products (Wei, 2016). Besides, China has set up higher tariffs, and took a series of non-tariff measures in order to protect domestic agriculture, which also drives up the import prices consequently (Zhu and Wu, 2012; Liu et al., 2016). As a result, China's import price is above international market average price.

**Table 1.** Decomposition Results of Three Margins of China's Animal-Derived Food Imports

| Year | K | Import Share | EM | IM | |
| --- | --- | --- | --- | --- | --- |
| | | | | P | Q |
| 2002 | 98 | 0.0805 | 0.8284 | 0.8943 | 0.1086 |
| 2003 | 102 | 0.0536 | 0.7937 | 0.9254 | 0.0730 |
| 2004 | 103 | 0.0460 | 0.7840 | 0.9013 | 0.0651 |
| 2005 | 107 | 0.0412 | 0.7896 | 0.8656 | 0.0603 |
| 2006 | 107 | 0.0477 | 0.7623 | 0.8408 | 0.0744 |
| 2007 | 118 | 0.0531 | 0.7979 | 0.8727 | 0.0763 |
| 2008 | 108 | 0.0492 | 0.7965 | 0.9323 | 0.0663 |
| 2009 | 121 | 0.0668 | 0.8181 | 0.9064 | 0.0901 |
| 2010 | 126 | 0.0689 | 0.8243 | 0.9292 | 0.0900 |
| 2011 | 131 | 0.0725 | 0.8092 | 0.9179 | 0.0976 |
| 2012 | 127 | 0.0743 | 0.8250 | 0.9714 | 0.0928 |
| 2013 | 120 | 0.0964 | 0.8216 | 0.9733 | 0.1205 |
| 2014 | 123 | 0.0924 | 0.8343 | 0.9841 | 0.1125 |
| 2015 | 121 | 0.0850 | 0.8117 | 0.9859 | 0.1062 |
| 2016 | 125 | 0.0986 | 0.8229 | 1.0162 | 0.1178 |
| 2017 | 125 | 0.1014 | 0.8574 | 0.9758 | 0.1212 |
| 2018 | 111 | 0.1197 | 0.8554 | 0.9833 | 0.1423 |
| Average annual growth rate（%） | | 2.51 | 0.20 | 0.59 | 1.70 |
| Import growth contribution rate（% | | 100.00 | 7.36 | 22.51 | 70.12 |

Source: Calculated by the authors based on data from the CEPII BACI databases.

## 4.2 Sub Periods Analysis

Considering the historical stages of China's animal-derived food import growth and the impact of the world financial crisis that breakout in 2008, we divide the period from 2002 to 2018 into

three sub-periods, 2002-2008, 2009-2014, and 2015-2018, respectively. The results are shown in Table **2**.

**Table 2.** Changes and Contribution Rates of Three Margin by Period

| Stages | Indicators | S | EM | P | Q |
|---|---|---|---|---|---|
| 2002—2008 | Growth rate (%) | -7.86 | -0.65 | 0.70 | -7.89 |
|  | Contribution rate (%) | 100.00 | 10.01 | -11.03 | 101.01 |
| 2009—2014 | Growth rate (%) | 6.70 | 0.39 | 1.66 | 4.55 |
|  | Contribution rate (%) | 100.00 | 5.56 | 24.17 | 70.27 |
| 2015—2018 | Growth rate (%) | 12.10 | 1.76 | -0.09 | 10.25 |
|  | Contribution rate (%) | 100.00 | 13.76 | -0.67 | 86.91 |

Source: Calculated by the authors based on data from the CEPII BACI databases.

From 2002 to 2008, the share of China's animal-derived food import trade showed a downward trend with an average annual growth rate of -7.86%. The price margin increased relatively slow with an average annual growth rate of 0.70%, as domestic consumption was not that strong, and most of the products were imported at a low price. The decrease in quantity margin was the determining factor of the slow growth of animal-derived food import, with an average annual growth rate of -7.89%. During this period, farming industry in some areas hit hard by animal diseases, such as Mad Cow Disease (BSE) and avian influenza. Thus, China's imports from the US, Japan, Korea and Western Europe were restricted to a considerable degree. For example, as early as 2001, due to the outbreak of BSE in Japan, the General Administration of Customs of the People's Republic of China (GACC) prohibited the import of related products from Japan, and the lifting of the ban was not announced until the end of 2019 (GACC, 2019).

From 2009 to 2014, China's animal-derived food import experienced rapid growth, quantity and price margins growth serving as determined forces. That is because the robust domestic demand simulates import quantities, and there have been a number of incidents here in domestic market, such as the poisoned milk powder incident in 2008 and lean meat powder incident in 2011. There incidents dented consumers' confidence badly, and more consumers turned to products imported from developed countries (Xie and Yang, 2013; Li et al., 2019). Wealthier countries export higher-quality products at moderately higher prices, driving up the growth of price margin (Lai et al., 2018; Aiginger, 2019).

After 2015, the growth of China's animal-derived food import has accelerated remarkably, with a slight decrease in the price margin. The average annual growth rate of the extensive margin reached 1.76%, contributing 13.76% to the import growth, indicating the expansion of new trading relationships and product varieties.

### 4.3 Bilateral Trade Analysis

We select the top 20 countries whose trade volume accounts for 86.28% of China's total animal-derived food imports for three-margin analysis, which probably reflects the overall situation. The results are shown in Table 3.

**Table 3.** Decomposition Results of Three Margin of Bilateral Trades

| Import source countries | 2002 | | | 2008 | | | 2018 | | |
|---|---|---|---|---|---|---|---|---|---|
| | *EM* | *P* | *Q* | *EM* | *P* | *Q* | *EM* | *P* | *Q* |
| New Zealand | 0.8809 | 0.9112 | 0.0537 | 0.9001 | 0.8860 | 0.0554 | 0.9897 | 0.9595 | 0.2941 |
| Brazil | 0.7704 | 0.7129 | 0.0056 | 0.5184 | 0.8370 | 0.0011 | 0.8957 | 1.1283 | 0.1715 |
| Australia | 0.9234 | 0.9352 | 0.0177 | 0.9288 | 0.9502 | 0.0276 | 0.9683 | 1.0061 | 0.1940 |
| US | 0.8508 | 0.7890 | 0.0891 | 0.9373 | 0.9320 | 0.0903 | 0.9558 | 1.0566 | 0.0670 |
| Russia | 0.8274 | 0.6178 | 0.2481 | 0.7779 | 0.6527 | 0.1950 | 0.9113 | 1.0012 | 0.2846 |
| Argentina | 0.3592 | 0.8067 | 0.0701 | 0.5071 | 0.8546 | 0.0655 | 0.7498 | 0.9923 | 0.3329 |
| Canada | 0.7522 | 0.7134 | 0.0639 | 0.7489 | 1.0234 | 0.0443 | 0.9098 | 0.8384 | 0.1539 |
| Uruguay | 0.8419 | 0.8763 | 0.0217 | 0.6172 | 0.7507 | 0.0309 | 0.9407 | 0.9367 | 0.3685 |
| Germany | 0.6033 | 1.0235 | 0.0036 | 0.6559 | 1.3793 | 0.0023 | 0.6554 | 1.1256 | 0.0498 |
| Denmark | 0.5428 | 0.7132 | 0.0228 | 0.5609 | 1.0854 | 0.0366 | 0.7662 | 0.9930 | 0.0810 |
| Spain | 0.4039 | 1.0889 | 0.0161 | 0.5108 | 1.0940 | 0.0089 | 0.7635 | 0.9935 | 0.0635 |
| Indonesia | 0.7245 | 0.5134 | 0.0240 | 0.7898 | 0.7303 | 0.0222 | 0.9733 | 0.6678 | 0.1159 |
| Netherlands | 0.5005 | 0.6111 | 0.0082 | 0.5262 | 0.9491 | 0.0171 | 0.6518 | 0.9571 | 0.0417 |
| Ecuador | 0.3452 | 0.9825 | 0.0087 | 0.1321 | 1.2574 | 0.0006 | 0.7007 | 0.9356 | 0.1863 |
| France | 0.6191 | 1.2361 | 0.0074 | 0.7392 | 1.2986 | 0.0156 | 0.7868 | 1.0297 | 0.0527 |
| Chile | 0.5983 | 1.2247 | 0.0219 | 0.6413 | 2.4867 | 0.0082 | 0.9536 | 1.0535 | 0.0741 |
| Vietnam | 0.7965 | 0.3816 | 0.0250 | 0.9490 | 0.7095 | 0.0210 | 0.9314 | 0.9306 | 0.0821 |
| Norway | 0.8824 | 0.9167 | 0.0239 | 0.8996 | 0.9674 | 0.0336 | 0.9080 | 1.1899 | 0.0402 |
| India | 0.8132 | 0.5033 | 0.0817 | 0.8464 | 0.7919 | 0.0535 | 0.6218 | 0.6985 | 0.0968 |
| Japan | 0.9153 | 0.7323 | 0.1737 | 0.9409 | 0.7779 | 0.1596 | 0.8346 | 0.9168 | 0.1826 |

Source: Calculated by the authors based on data from the CEPII BACI databases.

Overall, China's animal-derived food import grows mainly along the quantity margin and price margin, with several countries' price margin exceeding one in 2018, indicating the average price of China's animal-derived food has exceeded the world's average price, while the contribution of the extensive margin is relatively small.

In addition, it can be found that the three margin of China's animal-derived food import growth is significantly heterogeneous between developed and developing countries. Therefore, we use kernel density distribution analysis to compare the three margins distribution of developed and developing countries in 2018. It should be noted that the results in **Hata! Başvuru kaynağı bulunamadı.** include all China's 111 trading partners in 2018 more than just the top 20 listed in Table 3.
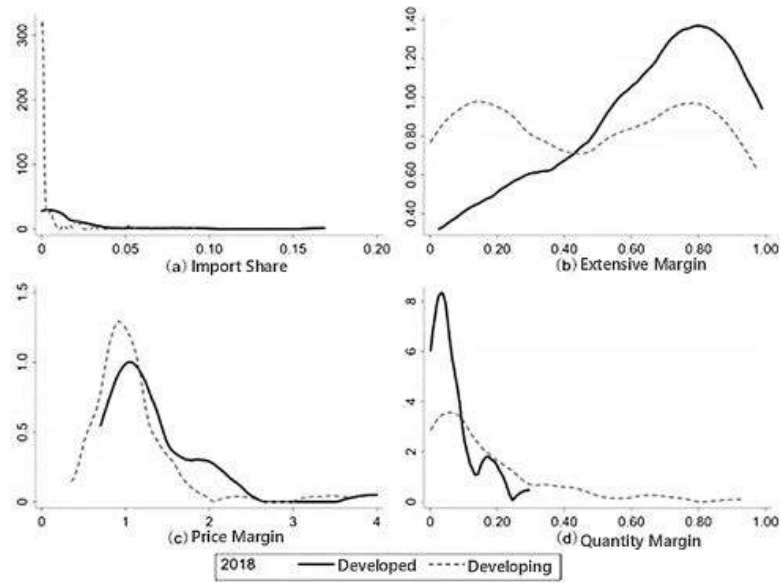
**Figure 3.** Comparisons of Three-Margin Shares Between Developed And Developing Countries In 2018

**Hata! Başvuru kaynağı bulunamadı.** reports the kernel density distribution analysis results: **Hata! Başvuru kaynağı bulunamadı.**The peak of the developed countries' share curve is on the right of developing countries', and the density closed to zero of developing countries' curve is higher. (b)Extensive margin distribution of developed countries' right tail is thicker, while developing countries' distribution curve is more dispersed, which means developed countries export a wider range of products to China. (c)Price margin distribution of developed countries is thicker and denser, indicating their prices are generally higher than those of developing countries. (d)Quantity margin distribution of developing countries is more skewed to right and the right tail is thicker, indicating that developing countries' animal-derived food export to China accounts for a higher proportion of their total exports in the world market. Obviously, it is because developed countries usually have more trading partners and a larger export scale.

## 4.4 Dynamic Analysis

In order to further identify the dynamic characteristics of the import growth on three margins and to check the robustness of our conclusions, we use a kernel density distribution method to analyze the data in 2002, 2008, 2014 and 2018, and the results are shown in Figure 4.
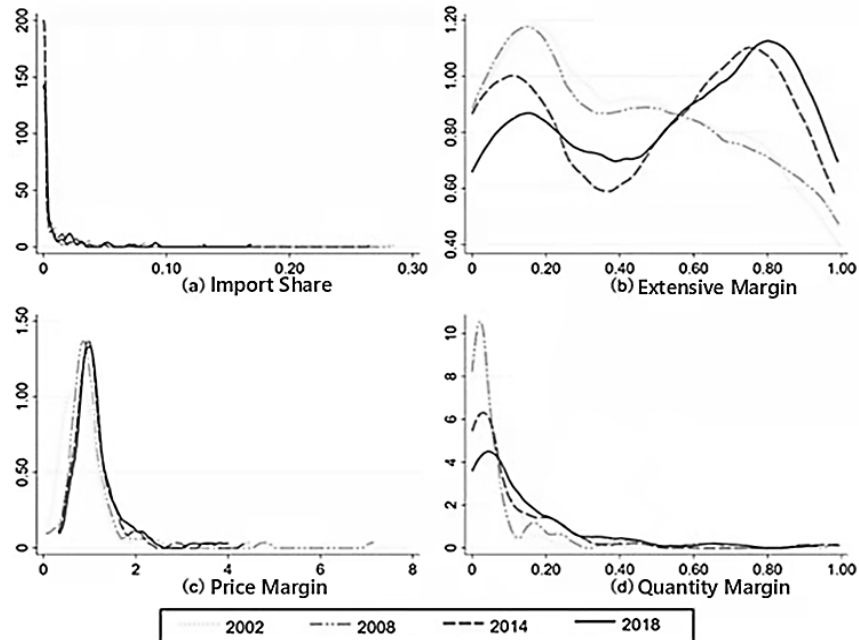


**Figure 4.** Kernel Density Distributions of China's Imports And Three Margins In Specific Years

The results show that: (a)From 2002 to 2018, the density of share distribution around the peak has reduced, the right tail slightly has thickened, and the density closed zero has increased significantly, implying that China's import share from each trading partner has increased, and the import sources have been more diversified. (b)The density on the right side of the extensive margin distribution has gradually increased, the right tail has become thicker, and the peak has shifted to right, indicating that China's import varieties from most trading partners have increased; meanwhile, the density on the left side of the distribution has decreased significantly after 2008. Combined with the previous analysis of the three-margin decomposition result on the bilateral trade level, there are good reasons to believe that the categories of products exported by developed countries to China still have great growth potential, and the density between 0 and 0.40 is still dense. (c)The peak of the price distribution has been constantly higher, but the density on both sides of the distribution curve has decreased and the right tail has been thicker, indicating that the price margin distribution curve has had an obvious upward trend from 2002 to 2014, with a slight decline in 2018. The price margin between China and some trading partners have exceeded the world average price level after 2008, though the proportion has been decreasing. (d)The right tail of the quantity margin distribution has become significantly thicker, suggesting that China's import of animal-derived food has been showing a trend of diversification.

Combining Figure 4 (a) and Figure 4 (d), it is found that quantity margin and import share's distribution characteristics and trends of the growth are consistent and almost perfectly overlap,

thus it can be concluded that China's animal-derived food import is mainly driven by quantity margin, which is consistent with the analysis results in Table 1 and Table 2.

## 5. DISCUSSION AND CONCLUSION

China has experienced rapid trade growth since China joined the WTO in 2001. The paper has identified the main driving forces and characteristics of China's animal-derived food import growth. We follow the three-margin methodology to decompose the import growth into extensive, price and quantity margin, and present a series of empirical analyses using China's animal-derived food import data at the HS six-digit level from 2002 to 2018. It is found that: (1) China's animal-derived food import has expanded rapidly, and is mainly driven by quantity growth, which accounts for 70.12% of overall growth. (2) China's animal-derived food import sources have been highly concentrated, but there shows a trend of diversification. (3) Consumers' growing demand for variety, high quality and food safety is widening the gap between food supply and demand, which has contributed to driving the constantly growth of import trade. (4) There are huge differences between the bilateral-level three margins of developed and developing countries' export to China, which requires more attention in the follow-up studies. For these significant findings, the study, by establishing a three-margin framework, has enriched and elaborated the analysis in the role SPS measures play in animal-derived imports.

These conclusions have important policy implications for China. First, since quantity is the main driving factor for China's animal-derived food import growth, it requires China to produce large quantities to satisfy the domestic market's ever-growing demand. Second, the lack of growth in extensive margin means that China's import concentration has not fundamentally changed. Therefore, China's imports are overly dependent on specific products or partners, which are easily affected by external factors and are highly volatile. Promoting import diversification is critical to China's future import growth. Third, since price can substitute for quality to a certain extent in empirical work, it can be seen from these data that the rapid increase in China's import prices means that the demand for high-quality products is rising. Product quality is critical to competitiveness, and China should also improve its own product quality if it is to reduce its reliance on imports. How to improve product quality is also important for China's import security and endogenous economic growth. To conclude, China should transform from a quantity-driven to an extensive marginal-driven import, and at the same time vigorously develop high-tech agriculture, improve productivity, reduce agricultural risks, and ensure the quality and quantity of product supply. This is a task that poses a major challenge to both the government and companies.

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**JOMAES**

# Socially Responsible Bond ETFs in the US: A Performance Evaluation

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**Abstract**

This paper seeks to answer whether socially responsible bond Exchange Traded Funds (ETFs) in the USA can outperform the main local aggregate bond and stock market indices. More specifically, the performance of 62 bond ETFs with Environmental, Social and Governance (ESG) Scores of 7/10 or above is assessed over the period 1/1/2018 - 31/12/2021. The sample has been selected based on data availability over the study period. Standard research methodology is applied including the single-factor market model and the risk-adjusted return metrics of Sharpe and Information ratios. Performance persistence is evaluated too. The findings show that, in raw return terms, the mean bond ETF underperforms the Bloomberg US Aggregate Bond Index and the S&P 500 Index. In addition, the examined ETFs cannot produce any material above-market return. Furthermore, daily returns seem to persist but weekly and monthly returns display a reverting behavior. A similar reverting behavior is observed between the annual return rankings of ETFs. Overall, our results are in line with those findings in the literature that show, on average, ESG portfolios cannot beat the non-ESG peers on a consistent basis.

## 1. INTRODUCTION

A constantly increasing part of the investing community is no longer concerned only about the financial gains from their investments. Nowadays, investors take seriously into consideration the environmental, social and governance (ESG) aspects of their investments. This growing trend has resulted in the launch of thousands of so-called "sustainable funds" worldwide, which now manage trillions of dollars.

According to MSCI, the objectives of investors using ESG criteria when forming their investment decisions should be classified in three categories. The first category concerns the "values-based" investing, according to which an investor tries to align their ethical, social, environmental, religious and other values with firms and industries that abide by the same values. In this kind on investing, financial gains is not top priority for investors. The second category relates to "impact" investing. In this case, investors seek opportunities to make a positive social or environmental impact in alignment with their mission or beliefs, even at a cost to the financial return on their investments. The third category acknowledges that the integration of financial opportunities and risks relating to ESG issues to the investment decision making process may contribute to achieving enhanced long-term risk-adjusted returns.

The socially responsible segment of the fixed-income market is growing rapidly because investors have started to realize that, when identifying risks in fixed-income investments,

environmental, social and governance factors are of equal importance to the corresponding factors in equity investments.

Sustainable investing with fixed-income products is implemented with a wide range of options. These options include screening techniques, via which sectors or securities are included or excluded based on ESG criteria. They also include ESG integration, which takes ESG factors into consideration along with traditional financial analysis when making investment decisions. Other choices concern thematic investing, which chooses assets with a specific ESG theme, impact investing, which aims to deliver positive societal outcomes, and issuer engagement, which engages issuers of securities to sustainable behavior and practices.

This paper examines the performance of 62 responsible bond ETFs traded in the USA that incorporate ESG factors in their investing strategies. The consideration of ESG factors is testified by the high ESG scores awarded to the examined ETFs. Performance is evaluated in several ways including raw returns, above-market returns and risk-adjusted returns, namely the Sharpe ratio and the Information ratio. The persistence in performance is assessed too. The study period spans from 2018 to 2021.

The empirical findings show that the bond ETFs in the sample achieved slightly positive cumulative returns during the period under study. However, this performance is inferior to the return of the index used as a proxy for the entire bond market in the USA. This is also the case when the return of bond ETFs is compared to equity returns represented by the S&P 500 Index. Going further, the examined bond ETFs cannot produce any material above-market return, as the majority of the individual alpha estimates are not statistically different from zero. The risk-adjusted return measures verify that bond ETFs cannot beat the market benchmarks over the study period, even though there are cases or years during the study period where a significant number of bond ETFs can do so. Finally, when it comes to performance persistence, the findings indicate that daily returns slightly persist. However, weekly and monthly returns display a reverting behavior. A similar reverting behavior is presented by the annual rankings of bond ETFs' performance.

This study has been motivated by the growing interest in fixed-income ESG investments and it contributes to the ESG literature in several ways. To the best of our knowledge, this is the first study to examine socially responsible bond ETFs. First of all, our findings show that bond ETFs cannot beat the market. However, they can do so on an occasional basis. Therefore, our results could be somehow encouraging to investors, and not only to those who are mainly interested in the ESG aspects of their investments. In particular, the occasional outperformance of bond ESG ETFs in the USA implies that ESG investing is not an a priori lost cause from a financial perspective, as it is frequently considered to be.

Furthermore, the research methodology applied, even being standard in the literature, it gives us the opportunity to assess performance of the responsible bond ETFs from several angles. Finally, we believe that the patterns of persistence found in daily returns and of the reverting behavior observed in weekly and monthly raw returns could be exploitable, especially by short-run traders. This is also the case with the annual rankings of performance. To our view, this is a significant contribution to the relevant literature.

The remainder of this paper is structured as follows: Section 2 includes the literature review. Section 3 develops the research methodology applied in our study and describes the sample of the study. The empirical findings are provide in Section 4. Conclusions are offered in Section 5.

## 2. LITERATURE REVIEW

The literature on socially responsible investing with stocks and mutual funds is voluminous. Several studies have shown that the socially responsible funds do not offer investors any return advantage in comparison to traditional funds. This inference is supported by the papers of Hamilton et al. (1993), DiBartolomeo and Kurtz (1996), DiBartolomeo and Kurtz (2011). Statman (2000) finds some evidence of SR funds outperformance in the United Sates, but this outperformance is not significant in statistical terms. Goldreyer and Dlitz (1999) measure the performance of a USA sample of SR and conventional mutual funds using the Jensen's alpha, the Sharpe Ratio and the Treynor ratio. No clear advantage of one group over the other is revealed by the empirical analysis.

Similar results have been obtained by Kreander et al. (2005) who examined the performance of 60 ethical funds from the UK, Sweden, Germany and the Netherlands over 1995-2001. Halbritter and Dorfleitner (2015) construct a high and low portfolio of stocks including ESG out- and underperformers. The results show that there is no significant difference in performance between firms with high and low ESG ratings. Moreover, Dolvin et al. (2019) examine the correlation between the sustainability ratings awarded to mutual funds by Morningstar and their performance and show that funds with high sustainability scores do not outperform funds with low sustainability scores. Chang et al. (2020) verify this inference. Additional studies that support the neutrality of SR funds' performance over their traditional peers are those of Niblock et al. (2020), Plagge et al. (2020), and Yue et al. (2020).

Other studies which find that sustainable investing can also be beneficial in financial terms. In this respect, Kempf and Osthoff (2007) assess the return of a strategy which buys stocks with high SR ratings and sells stocks with low SR ratings and find that this strategy can offer material after-transaction-costs annual abnormal returns up to 8.7%. Gil-Bazo et al. (2010) show that SR funds in the USA performed better than comparable conventional mutual funds during the period 1997-2005. Some other studies supporting the return advantage of socially responsible portfolios over non-socially responsible peers are those of Derwall et al. (2005), Nofsinger and Varma (2014), Chong and Phillips (2016), and Filbeck et al. (2019).

Contrary to the findings above, many studies provide evidence on a negative effect of SR investing strategies on financial performance. Bauer et al. (2006) report that ethical funds in Australia underperformed their conventional peers during 1992-1996. Renneboog et al. (2008) show that responsible funds in the USA, the UK and in many other European and Asian-Pacific countries underperform their domestic benchmarks by a rate between 2.2% and 6.5%. Other studies reaching similar inferences are those of Girard et al. (2007), Lee et al. (2010), Capelle-Blancard and Monjon (2014), and Silva and Cortez (2016).

When it comes to ETFs, the relevant ESG literature is rather poor and focused exclusively on equity ETFs. In this respect, studies such as those of Marozva (2014), Meziani (2014 & 2020), Rompotis (2016 & 2022), Kanuri (2020), and Plagge and Grim (2020), Milonas et al. (2022), have shown that, with some exceptions, ESG ETFs cannot achieve above market returns.

## 3. METHODOLOGY

The research methodology and the sample used to assess the performance of the bond ETFs in the USA are discussed in this section.

### 3.1 Empirical Research

In this section, we develop the methodology that is used in our empirical analysis on the performance of bond ETFs. First, we compute the raw returns of ETFs. A single-factor

regression analysis of ETFs' performance follows. Then, the risk-adjusted return of ETFs is calculated. Finally, the persistence in returns and performance rankings is assessed.

*3.1.1 Raw Returns*

We compute the raw return of bond ETFs in percentage terms over the period 2018-2021 with daily data found on www.nasdaq.com. Return is calculated with formula (1):

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \tag{1}$$

where $R_{i,t}$ refers to the percentage daily return of the *ith* ETF on the trade day $t$ and $P_{i,t}$ refers to the close trade price of the ETF on day $t$.[1] Formula (1) is also used for the calculation of market performance. We use the Bloomberg US Aggregate Bond Index as a proxy for the market.[2] We also use the S&P 500 Index as a benchmark to make comparisons with the equity market. In addition, formula (1) is used for the calculation of total (or cumulative) return of ETFs and market over the entire period under study. Finally, the risk of ETFs and the market indexes is calculated as the standard deviation in daily returns.

*3.1.2 Performance Regression Analysis*

The regression model used to examine the performance of bond ETFs is the following:

$$R_i - R_f = \alpha_i + \beta_i(R_m - R_f) + \varepsilon_i \tag{2}$$

where $R_i$ denotes the daily return of bond ETFs, $R_m$ represents the return of the Bloomberg US Aggregate Bond Index, as well as the S&P 500 Index, and $R_f$ is the risk-free rate expressed by the one-month US Treasury bill rate (found on the website of Kenneth French).

Alpha represents the above-market return that can be achieved by an ETF. If ETFs can achieve above-market returns, alpha estimates will be positive and statistically significant. Beta measures the part of risk that cannot be mitigated by diversification techniques and indicates the systematic risk of bond ETFs.

*3.1.3 Risk-Adjusted Returns*

We employ two standard risk-adjusted return measures to rate the performance of socially responsible bond ETFs. The first evaluation method used is the Sharpe ratio shown in formula (3):

$$S_i = \frac{R_i - R_f}{\sigma_i} \tag{3}$$

where $R_i$ and $R_f$ are defined as above and $\sigma_i$ is the standard deviation of ETF excess return, that is ETF return minus the risk-free rate. The Sharpe ratio is used to determine how well an ETF

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[1] We have also calculated the absolute returns with dividend-adjusted trade price data without returns differing significantly from the dividend-free returns. For simplicity purposes, we only report the returns which are not adjusted for dividends.

[2] The Bloomberg Aggregate Bond Index is a broad-based fixed-income index used by bond traders and the managers of mutual funds and ETFs as a benchmark. The index includes government Treasury securities, corporate bonds, mortgage-backed securities MBS, asset-backed securities ABS, and munis to simulate the universe of bonds in the market. It tracks bonds that are of investment-grade quality or better (refer to https://www.investopedia.com/terms/l/lehmanaggregatebondindex.asp).

compensates its investors for the per unit risk they take. The higher he Sharpe ratio is, the better the performance of the ETF is too.

The second risk-adjusted return metric used in the Information ratio (IR) shown in formula (4):

$$IR_i \quad = \quad \frac{R_i - R_m}{TE_i} \tag{4}$$

where $R_i$ is defined as above, $R_m$ is the successively return of the Bloomberg US Aggregate Bond Index and S&P 500 Index, and $TE_i$ is tracking error, that is, the standard deviation in return differences between the bond ETFs and the market index. The IR is used as a measure of an ETF's excess return against the market return. Thus, positive IRs will indicate that the respective bond ETFs outperform the market.

*3.1.4 Performance Persistence*

The persistence in raw returns of bond ETFs is assessed via the following time-series regression model (5):

$$R_i = \lambda_0 + \lambda_1 R_{t-1,i} + u \tag{5}$$

where $R_i$ is defined as above. Persistence in returns will be assessed by the slope of the model. Statistically significant slopes approximating unity will indicate a high degree of performance persistence.

In addition to the time-series regression analysis of daily, weekly and monthly returns, we also perform a cross-sectional regression analysis on annual performance rankings based on the average daily return, the cumulative return, the Sharpe Ratio and the Information Ratios calculated against the Bloomberg US Aggregate Bond Index and the S&P 500 Index, respectively. We classify the annual return measures of bond ETFs in four groups; the top group receives four stars, the second-top group receives three stars, the third group receives two stars and the bottom group receives one star. After this classification, we run the following regression model (6):

$$Rank_t = \lambda_0 + \lambda_1 Rank_{t-1} + u \tag{6}$$

where $Rank_t$ is the ranking of bond ETFs' performance in year *t*. Persistence in performance rankings will be assessed by the slope of the model. Statistically significant slopes approximating unity will indicate a high degree of persistence in performance rankings.

**3.2 Sample**

According to etfdb.com, there are 483 fixed-income ETFs traded on the US market today but this study focuses on socially responsible bond ETFs. In order for a bond ETF to be considered as socially responsible in our study, it must have been awarded a MSCI ESG score equal or higher than 7 (the absolute ESG score is 10/10). This choice leaves us with 113 bond ETFs potential to be examined. However, several of these 113 ETFs have been launched over the last two years (2020-2021). In our analysis, we need sufficient return data to apply substantive testing on performance. Thus, we decided that a period spanning from 1/1/2018 to 31/12/2021 is decent enough for the purposes of our analysis. No other selection criterion has been applied. As a result, our sample is limited to these 62 bond ESG ETFs.

Table 1 presents the profiles of ESG ETFs, which include their ticker, name, inception date, age as of 31/12/2021 (in years), expense ratio, average daily volume over the period 1/1/2018-31/12/2021, average trading frequency, as the fraction of the days with no zero volume to the entire to total trade days over the period 1/1/2018-31/12/2021, average intraday volatility, computed as (Daily Highest Price-Daily Lowest Price)/Daily Close Price, assets under management as of 31/12/2021, MSCI ESG score as of 31/12/2021 and carbon intensity measure (Tons of $CO_2$e / $M Sales) as of 31/12/2021.[3]

The mean age of bond ETFs approximates 8.5 years while the oldest ETF in the sample is about 20 years old. The mean expense ratio of bond ETFs is equal to 20 basis points (bps). The minimum expense ratio is 3 bps, which is comparable or lower to the expense ratios of several popular traditional equity ETFs. The maximum expense record in the sample is 53 bps.

When it comes to trading activity, the mean daily volume in Table 1 amounts to 576 th. shares. It is notable that the gap between the minimum and maximum volumes in the sample is huge amounting to 11.3 million shares. If we focus on the median term of volumes, we can see that the daily trading activity for most of bond ETFs in the sample just exceeds 62 th. shares per day. This is not a might trading activity relative to the popular traditional equity ETF products.

The mean trading frequency is high at 97%. This indicates that, on average, bond ETFs present only a few days of zero trading activity. The minimum trading frequency in the sample just exceeds 57%. Therefore, there are bond ETFs whose trading activity is lower than the mean term in the sample. Lower trading activity might imply liquidity issues for the corresponding ETFs.

With respect to intraday volatility, the respective mean term in Table 1 amounts to 30 bps. The median term is slightly lower at 28 bps. These low measures indicate that the period under study has been a smooth era for the bond ETF market.

In regard to assets, Table 1 shows that the averagr bond ETF in the sample managed about $4.3 billion at the end of 2021. The largest ETF in the sample is the Vanguard Intermediate-Term Corporate Bond ETF, with assets exceeding $46 billion. On the other hand, the bottom record of assets in the sample is just $4 million. Overall, only some of the assets figures can be somehow compared to the hundreds of billions managed by several successful traditional equity ETFs.

Finally, when it comes to ESG metrics, the mean (median) MSCI ESG score of the sample's bond ETFs is 8.26/10 (8.25/10). Four ETFs receive the absolute ESG scores (10/10). The mean carbon intensity measure is 267 Tons of $CO_2$e per $M of sales. Overall, the ESC scores verify that the selected bond ETFs can be treated as socially responsible ones.

## 4. RESULTS

The empirical results of our study are presented in this section.

### 4.1 Raw Returns

The descriptive statistics of returns are provided in Table 2. The Table presents the average daily return of the sample, the cumulative daily return, the risk, the daily excess return, excess cumulative return and excess risk against the Bloomberg US Aggregate Bond Index, and the daily excess return, excess cumulative return and excess risk against the S&P 500 Index. The statistics are presented on an annual and an aggregate basis over the period 2018-2021.

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[3] Tickers, names, inception dates, expense ratios, assets under management, ESG scores and carbon intensity measures as of 31/12/2021 have been found on www.etfdb.com. Volumes have been found on www.nasdaq.com.

The mean daily return of bond ETFs over the entire period under study is not different from zero. However, the majority of ETFs present a positive return (51 out of 62 funds). At the annual level, the mean returns were slightly negative in 2018 and 2021 and positive in 2019 and 2020. Cumulative returns are in line with daily returns. Overall, the mean bond ETF offered a cumulative return of about 3% over the period under study. Moreover, the mean bond ETF did not achieve any above-market return. On the contrary, the mean excess return of the sample against the Bloomberg US Aggregate Bond Index is negative (-12% in cumulative terms) and very negative against the S&P 500 Index (-74%).

These figures indicate that the bond ETFs underperform the broad fixed-income market index but also the equity market. This is an inference that can be drawn by referring to overall returns in the period 2018-2021. However, if we examine annual returns, we can identify bond ETFs that actually perform better than the market indexes. For instance, in 2018 the majority of bond ETFs performed better than the S&P 500 Index (56 out of 62 cases at the cumulative level). In years 2019 to 2021 a sufficient number of bond ETFs outperformed the Bloomberg US Aggregate Bond Index.

Overall, the analysis of annual returns shows that fixed-income investors can have socially responsible ETF choices that can actually beat the broad fixed-income market - even the equity market, at least at the raw return level.

The mean risk estimate of bond ETFs over the period 2018-2021 is 0.37, which is rather low. Moreover, the mean bond ETF is slightly more risky than the Bloomberg US Aggregate Bond Index. This is the case over the entire period under study and in 2018 and 2020 but not in 2019 and 2021. At the fund level, 49 bond ETFs present higher risk than the bond market index over the period 2018-2021. On the annul basis, there is a wide dispersion in excess risk estimates.

Not surprisingly, when compared to the S&P 500 Index, the socially responsible bond ETFs are significantly less risky than the equity market index. With no exceptions, all the annual and overall excess risk calculations against the S&P 500 Index are negative. By combining this finding with the cases in which bond ETFs performed better than the equity market index, we may conclude that fixed-income investors can select bond ETFs that stand good chances of beating the equity market without undertaking high risk to do so.

## 4.2 Performance Regression Analysis

The results of model (2) are reported in Table 3. The table includes the alpha and beta estimates along with t-tests on the statistical significance of estimates and R-squared on the explanatory power of the model. The number of significantly and insignificantly positive and negative alphas are provided too along with the number of betas which are significantly higher and lower than unity, respectively.

The mean alpha estimate of bond ETFs against the fixed-income market index is slightly negative amounting to -1 bps. Moreover, all the individual alphas are negative but the majority of them are statistically insignificant (53 out 62 estimates). On the one hand, these results show that bond ETFs in the US cannot produce any material alpha relative to the broad fixed-income market performance. On the other hand, the insignificant alphas also indicate that the performance of ETFs is quite aligned to the performance of the Bloomberg US Aggregate Bond Index. When considering the S&P 500 Index, the majority of alphas are insignificantly negative, even though there are 5 ETFs that present positive but insignificant alpha coefficients.

When it comes to systematic risk, Table 3 reports a mean beta against the Bloomberg US Aggregate Bond Index of 0.77. The median beta is over lower at 0.64. Furthermore, at the fund level, just 19 ETFs present betas that are higher than unity. These results may indicate a

conservatism of bond ETFs relative to the market index. However, these results might be viewed as if the bond ETFs in the sample invest in securities and markets which are not absolutely comparable to the constitutes of the Bloomberg US Aggregate Bond Index. Finally, the betas obtained over the S&P 500 Index are all very low (0.23 at a maximum). This finding is in line with the total risk figures computed with raw daily returns.

## 4.3 Risk-Adjusted Returns

The estimates of risk-adjusted returns are provided in Table 4. The table reports the three alternative types of risk-adjusted returns computed, that is the Sharpe ratio, the Information ratio calculated against the fixed-income market index and the Information ratio calculated against the equity market index. The ratios are presented on an annual basis and over the entire period under study.

The mean Sharpe ratio of the period 2018-2021 is slightly negative but it was positive in 2019 and 2020 (as the raw returns were). In addition, the majority of single Sharpe ratios over the study period are negative (37 out of 62 cases). At the annual level, all Sharpe ratios are negative in 2018, while the majority of them are positive in 2019 and 2020 but negative in 2021.

The mean Information ratios against the Bloomberg US Aggregate Bond Index are slightly negative (both at the annual and the overall level). In 2018, all the single ratios are negative. In years 2019 to 2021, the majority of single Information ratios are negative. However, a sufficient number of ETFs present a positive Information ratio in these years (as it was the case with excess raw returns).

In the case of the Information ratio obtained against the S&P 500 Index, the results in Table present a behavior similar to that of the corresponding excess raw returns in Table 2. At the mean level, these ratios are positive in 2018 but negative in 2019 to 2021 and over the entire period under study. In addition, at the fud level, the ratios are sufficiently positive only in 2018.

Overall, the analysis of risk-adjusted returns verify the inferences drawn via analyzing raw returns in a previous section. In particular, based on these results, we may conclude that conservative socially responsible investors choosing less risky bond ETFs compared to equity investments can find ETF choices that can actually offer above-(fixed-income and equity) market returns.

## 4.4 Performance Persistence

The outcomes of model (5) on performance persistence are provided in Table 5. The Table includes the estimates of the model's constant and slope along with t-tests on their statistical significance. R-squared on the explanatory power of the model are reported too along with the number of significantly and insignificantly positive and negative estimates.

Panel A in Table 5 reports the results on daily returns. The majority of intercepts (52 out of 62 cases) are positive. However, all slopes are statistically insignificant. With respect to the slopes of the model, the mean estimate is positive at 0.11 (0.16 in median terms). This number implies that after a positive return on day *t*, a positive return follows on day *t+1*. Moreover, the majority of the individual slopes in the sample are positive (50 cases) with 43 of them being statistically significant. Overall, the regression results on daily returns accentuate that lagged returns can bear an impact on concurrent returns. This impact is positive and could possibly be exploited by short-term traders.

In addition to the persistence in daily returns, we wanted to examine whether the positive relationship among daily returns just established applies to longer investment windows, that is,

over weekly and monthly return periods. In doing so, we run model (5) again with weekly and monthly returns. The results of these regressions are provided in Panels B and C in Table 5.

In the case of weekly returns, 52 constant estimates are positive but statistically insignificant. Furthermore, 50 slopes are negative, with 35 of them being significant, while just 5 slopes are significantly positive. Contrary to the results on daily returns, we may conclude that a negative correlation exists between the concurrent and lagged weekly returns for the majority of the examined bond ETFs. This trend could also be exploitable by investors with very short-term horizons.

When it comes to monthly returns, the results resemble those obtained with weekly returns. More specifically, the mean intercept is positive. The majority of the single intercepts (46 cases) are positive but insignificant. The rest 16 constant estimates are insignificantly negative. Going further, the mean slope is negative at -0.12. At the fund level, 48 slopes are significantly negative. The rest slopes are insignificant. Based on these results, we may conclude that the negative relationship between concurrent and lagged weekly returns apply to monthly returns too.

The results of model (6) are provided in Table (6). The Table presents the estimates of the model's constants and slopes, the relevant t-tests and R-squared. All intercepts are positive and statistically significant at 10% or better. When it comes to slopes, a specific pattern is detected in all return measures used. In particular, all the slopes obtained when years 2018 and 2019 are taken into consideration are negative and significant. Slopes become positive in 2019-2020 and return to a negative territory in 2020-2021. These slope estimates reveal a, possibly exploitable, reverting pattern in performance rankings among the socially responsible bond ETFs.

## 5. DISCUSSION AND CONCLUSION

This study offers new empirical insights on the performance of fixed-income ETFs traded in the US market. Standard research issues are examined for a sample of 62 socially responsible bond ETFs over the four-year period 2018-2021. The issues investigated concern the performance of these funds and their ability to beat the broad fixed-income and equity market indices. Performance persistence is evaluated too.

The results obtained are very interesting. The various return measures employed indicate that the examined ETFs achieved slightly positive cumulative returns over the entire period under study. However, this mean performance is lower than the return of the Bloomberg US Aggregate Bond Index, which has been used as a proxy for the entire fixed-income market in the US. This is also the case when the return of bond ETFs is compared to the return of the S&P 500 Index. Besides this general inference, our analysis identified bond ETFs that can actually beat the broad fixed-income market or the equity market.

Furthermore, the bond ETFs under examination cannot produce any significant above-market return, as the majority of the individual alpha estimates against Bloomberg US Aggregate Bond Index and the S&P 500 Index are not statistically different from zero. The risk-adjusted return measures verify that, overall, bond ETFs cannot beat the market benchmarks over the study period. However, there are cases or years in which a sufficient number of bond ETFs can do so.

Finally, when it comes to performance persistence, the findings indicate that daily returns slightly persist. However, weekly and monthly returns display a reverting behavior. A similar reverting behavior is presented by the annual rankings of bond ETFs' performance. Profitable investment strategies could possibly be built on the basis of these relationships among the daily, weekly and monthly returns of socially responsible bond ETFs, especially by traders with very-short investment horizons. This is also the case for annual performance rankings.

Overall, our results are in line with those studies in the literature on mutual funds and equity ETFs which show that the socially and environmentally responsible investment portfolios cannot beat their non- ESG peers or the stock market indices on a consistent basis. However, the fact that some bond ETFs in our sample can actually do so is quite encouraging. Thus, responsible fixed-income investors can search for relevant ESG bond ETFs that will offer enhanced returns along with helping them fulfil their environmental and social goals.

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## Appendices

**Table 1:** Profiles of ETFs

This Table presents the profiles of ETFs, which include their ticker, name, inception date, age in years as of 31/12/2021, expense ratio, average daily volume over the period 1/1/2018-31/12/2021, average trading frequency, as the fraction of the days with no zero volume to the entire to total trade days over the period 1/1/2018-31/12/2021, average intraday volatility, computed as (Daily Highest Price-Daily Lowest Price)/Daily Close Price, assets under management (AUM) as of 31/12/2021, the ESG score as of 31/12/2021 and the carbon intensity (Tons of CO2e / $M Sales) as of 31/12/2021.

| Ticker[1] | Name[1] | Inception[1] | Age | Exp. Ratio[1] | Volume[2] | Trade Freq. | Intr. Vol. | AUM ($ M)[1] | ESG Score[1] | Carbon Intensity[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| FLTR | VanEck Investment Grade Floating Rate ETF | Apr 25, 2011 | 10.69 | 0.0014 | 173,256 | 100.00% | 0.21 | 967 | 10.00 | 75.44 |
| FLOT | iShares Floating Rate Bond ETF | Jun 14, 2011 | 10.56 | 0.15% | 1,371,267 | 100.00% | 0.13 | 8,622 | 10.00 | 103.19 |
| FLRN | SPDR Bloomberg Investment Grade Floating Rate ETF | Nov 30, 2011 | 10.09 | 0.15% | 963,656 | 100.00% | 0.15 | 2,676 | 10.00 | 112.33 |
| SUSB | iShares ESG Aware 1-5 Year USD Corporate Bond ETF | Jul 11, 2017 | 4.48 | 0.12% | 104,899 | 100.00% | 0.29 | 1,032 | 10.00 | 143.20 |
| IBND | SPDR Bloomberg International Corporate Bond ETF | May 19, 2010 | 11.63 | 0.50% | 58,725 | 100.00% | 0.65 | 133 | 9.75 | 92.34 |
| ESCR | Xtrackers Bloomberg US Investment Grade Corporate ESG ETF | Mar 03, 2015 | 6.84 | 0.15% | 2,174 | 88.47% | 0.33 | 7 | 9.54 | 122.50 |
| PICB | Invesco International Corporate Bond ETF | Jun 03, 2010 | 11.59 | 0.50% | 23,801 | 100.00% | 0.77 | 156 | 9.53 | 125.06 |
| SPSB | SPDR Portfolio Short Term Corporate Bond ETF | Dec 16, 2009 | 12.05 | 0.07% | 1,382,880 | 100.00% | 0.15 | 7,629 | 9.41 | 193.54 |
| SLQD | iShares 0-5 Year Investment Grade Corporate Bond ETF | Oct 15, 2013 | 8.22 | 0.06% | 252,493 | 100.00% | 0.15 | 2,340 | 9.21 | 175.85 |
| VCSH | Vanguard Short-Term Corporate Bond ETF | Nov 19, 2009 | 12.12 | 0.04% | 2,512,793 | 100.00% | 0.16 | 42,701 | 9.14 | 198.83 |
| ICSH | BlackRock Ultra Short-Term Bond ETF | Dec 11, 2013 | 8.06 | 0.08% | 577,123 | 100.00% | 0.07 | 6,241 | 8.95 | 298.18 |
| QLTA | iShares Aaa – A Rated Corporate Bond ETF | Feb 14, 2012 | 9.88 | 0.15% | 129,107 | 100.00% | 0.37 | 1,091 | 8.86 | 241.45 |
| IBDN | iShares iBonds Dec 2022 Term Corporate ETF | Mar 12, 2015 | 6.81 | 0.10% | 173,322 | 100.00% | 0.23 | 1,572 | 8.84 | 169.93 |
| IBDO | iShares iBonds Dec 2023 Term Corporate ETF | Mar 12, 2015 | 6.81 | 0.10% | 163,493 | 100.00% | 0.29 | 1,680 | 8.81 | 235.70 |
| IBDP | iShares iBonds Dec 2024 Term | Mar 11, 2015 | 6.81 | 0.10% | 132,191 | 100.00% | 0.34 | 1,604 | 8.78 | 229.39 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Corporate ETF | | | | | | | | |
| JPST | JPMorgan Ultra-Short Income ETF | May 17, 2017 | 4.63 | 0.18% | 2,074,924 | 100.00% | 0.08 | 18,390 | 8.74 | 126.21 |
| RAVI | FlexShares Ready Access Variable Income Fund | Oct 09, 2012 | 9.23 | 0.25% | 30,478 | 99.80% | 0.08 | 495 | 8.73 | 265.41 |
| IBDD | iShares iBonds Mar 2023 Term Corporate ETF | Jul 09, 2013 | 8.48 | 0.10% | 7,817 | 99.11% | 0.32 | 65 | 8.73 | 210.04 |
| SUSC | iShares ESG Aware USD Corporate Bond ETF | Jul 11, 2017 | 4.48 | 0.18% | 100,262 | 99.20% | 0.42 | 888 | 8.72 | 177.37 |
| IGSB | iShares 1-5 Year Investment Grade Corporate Bond ETF | Jan 05, 2007 | 15.00 | 0.06% | 2,049,876 | 100.00% | 0.17 | 22,569 | 8.71 | 236.04 |
| GIGB | Goldman Sachs Access Investment Grade Corporate Bond ETF | Jun 06, 2017 | 4.57 | 0.14% | 47,592 | 99.90% | 0.36 | 754 | 8.68 | 128.12 |
| SPIB | SPDR Portfolio Intermediate Term Corporate Bond ETF | Feb 10, 2009 | 12.90 | 0.04% | 1,764,243 | 100.00% | 0.28 | 5,323 | 8.65 | 237.81 |
| VNLA | Janus Henderson Short Duration Income ETF | Nov 16, 2016 | 5.13 | 0.26% | 278,184 | 100.00% | 0.12 | 2,586 | 8.64 | 116.30 |
| SKOR | FlexShares Credit-Scored US Corporate Bond Index Fund | Nov 12, 2014 | 7.14 | 0.22% | 13,552 | 92.64% | 0.16 | 303 | 8.51 | 254.68 |
| IGHG | ProShares Investment Grade-Interest Rate Hedged | Nov 05, 2013 | 8.16 | 0.30% | 58,011 | 100.00% | 0.75 | 939 | 8.51 | 145.08 |
| IBDQ | iShares iBonds Dec 2025 Term Corporate ETF | Mar 12, 2015 | 6.81 | 0.10% | 117,277 | 100.00% | 0.39 | 1,291 | 8.44 | 231.17 |
| ARCM | Arrow Reserve Capital Management ETF | Mar 31, 2017 | 4.76 | 0.50% | 993 | 57.26% | 0.04 | 51 | 8.42 | 216.33 |
| SFIG | WisdomTree U.S. Short Term Corporate Bond Fund | Apr 27, 2016 | 5.68 | 0.18% | 2,453 | 83.90% | 0.11 | 40 | 8.37 | 261.23 |
| IBDR | iShares iBonds Dec 2026 Term Corporate ETF | Sep 13, 2016 | 5.30 | 0.10% | 93,167 | 100.00% | 0.43 | 1,037 | 8.31 | 225.15 |
| LQD | iShares iBoxx $ Investment Grade Corporate Bond ETF | Jul 22, 2002 | 19.54 | 0.14% | 11,271,072 | 100.00% | 0.44 | 32,637 | 8.30 | 160.64 |
| VCIT | Vanguard Intermediate-Term Corporate Bond ETF | Nov 19, 2009 | 12.12 | 0.04% | 2,514,686 | 100.00% | 0.31 | 46,426 | 8.29 | 261.15 |
| LQDH | iShares Interest Rate Hedged Corporate Bond ETF | May 27, 2014 | 7.60 | 0.24% | 37,471 | 100.00% | 0.36 | 1,238 | 8.20 | 160.64 |
| IBD | Inspire Corporate Bond Impact ETF | Jul 10, 2017 | 4.48 | 0.49% | 36,134 | 99.80% | 1.00 | 227 | 8.18 | 303.79 |
| VTC | Vanguard Total Corporate Bond ETF | Nov 07, 2017 | 4.15 | 0.04% | 36,803 | 100.00% | 0.40 | 642 | 8.17 | 316.03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SPBO | SPDR Portfolio Corporate Bond ETF | Apr 06, 2011 | 10.75 | 0.03% | 49,723 | 97.61% | 0.41 | 367 | 8.13 | 309.62 |
| IBCE | iShares iBonds Mar 2023 Term Corporate ex-Financials ETF | Apr 17, 2013 | 8.71 | 0.10% | 2,804 | 91.25% | 0.20 | 31 | 8.12 | 306.53 |
| FTSM | First Trust Enhanced Short Maturity ETF | Aug 05, 2014 | 7.41 | 0.25% | 732,912 | 100.00% | 0.08 | 4,066 | 7.99 | 273.18 |
| IGIB | iShares 5-10 Year Investment Grade Corporate Bond ETF | Jan 05, 2007 | 15.00 | 0.06% | 1,235,484 | 100.00% | 0.30 | 11,137 | 7.91 | 299.17 |
| FLCO | Franklin Liberty Investment Grade Corporate ETF | Oct 03, 2016 | 5.25 | 0.35% | 64,382 | 92.25% | 0.27 | 961 | 7.85 | 466.45 |
| IBDS | iShares iBonds Dec 2027 Term Corporate ETF | Sep 12, 2017 | 4.30 | 0.10% | 57,273 | 100.00% | 0.54 | 541 | 7.83 | 244.55 |
| USIG | iShares Broad USD Investment Grade Corporate Bond ETF | Jan 05, 2007 | 15.00 | 0.04% | 624,540 | 100.00% | 0.36 | 6,464 | 7.77 | 360.68 |
| VRIG | Invesco Variable Rate Investment Grade ETF | Sep 22, 2016 | 5.28 | 0.30% | 112,683 | 100.00% | 0.19 | 558 | 7.74 | 156.91 |
| AGZ | iShares Agency Bond ETF | Nov 05, 2008 | 13.16 | 0.20% | 60,443 | 100.00% | 0.19 | 717 | 7.72 | 605.76 |
| WFIG | WisdomTree U.S. Corporate Bond Fund | Apr 27, 2016 | 5.68 | 0.18% | 4,030 | 86.38% | 0.22 | 45 | 7.72 | 338.57 |
| PFIG | Invesco Fundamental Investment Grade Corporate Bond ETF | Sep 15, 2011 | 10.30 | 0.22% | 24,574 | 100.00% | 0.38 | 41 | 7.65 | 276.64 |
| GSY | Invesco Ultra Short Duration ETF | Feb 12, 2008 | 13.89 | 0.22% | 485,788 | 100.00% | 0.07 | 2,629 | 7.64 | 328.70 |
| NEAR | BlackRock Short Maturity Bond ETF | Sep 25, 2013 | 8.27 | 0.25% | 1,009,338 | 100.00% | 0.09 | 4,681 | 7.59 | 172.39 |
| MINT | PIMCO Enhanced Short Maturity Active ETF | Nov 16, 2009 | 12.13 | 0.35% | 1,092,380 | 100.00% | 0.04 | 14,026 | 7.47 | 174.46 |
| FLTB | Fidelity Limited Term Bond ETF | Oct 06, 2014 | 7.24 | 0.36% | 48,623 | 100.00% | 0.25 | 282 | 7.45 | 301.51 |
| FCOR | Fidelity Corporate Bond ETF | Oct 06, 2014 | 7.24 | 0.36% | 28,073 | 100.00% | 0.51 | 254 | 7.38 | 351.10 |
| CORP | PIMCO Investment Grade Corporate Bond Index ETF | Sep 20, 2010 | 11.29 | 0.20% | 54,110 | 100.00% | 0.49 | 734 | 7.34 | 361.17 |
| BNDC | FlexShares Core Select Bond Fund | Nov 18, 2016 | 5.12 | 0.35% | 13,845 | 90.95% | 0.27 | 135 | 7.32 | 294.29 |
| SPLB | SPDR Portfolio Long Term Corporate Bond ETF | Mar 10, 2009 | 12.82 | 0.04% | 770,995 | 100.00% | 0.67 | 987 | 7.30 | 453.87 |
| VCLT | Vanguard Long-Term Corporate Bond ETF | Nov 19, 2009 | 12.12 | 0.04% | 580,952 | 100.00% | 0.72 | 4,639 | 7.29 | 458.80 |
| GRNB | VanEck Green Bond ETF | Mar 03, 2017 | 4.83 | 0.20% | 8,565 | 99.01% | 0.26 | 101 | 7.25 | 873.38 |
| NUSA | Nuveen Enhanced Yield 1-5 Year U.S. Aggregate Bond | Mar 31, 2017 | 4.76 | 0.20% | 7,191 | 91.35% | 0.13 | 39 | 7.24 | 731.05 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ETF | | | | | | | | | |
| LKOR | FlexShares Credit-Scored U.S. Long Corporate Bond Index Fund | Sep 24, 2015 | 6.27 | 0.22% | 5,142 | 88.07% | 0.38 | 53 | 7.23 | 481.05 |
| FFIU | UVA Unconstrained Medium-Term Fixed Income ETF | Aug 21, 2017 | 4.36 | 0.53% | 4,015 | 80.42% | 0.19 | 78 | 7.15 | 120.47 |
| IGEB | iShares Investment Grade Bond Factor ETF | Jul 11, 2017 | 4.48 | 0.18% | 16,903 | 95.43% | 0.28 | 161 | 7.08 | 403.96 |
| NUBD | Nuveen ESG U.S. Aggregate Bond ETF | Sep 29, 2017 | 4.26 | 0.15% | 29,044 | 99.50% | 0.29 | 262 | 7.06 | 296.38 |
| HOLD | AdvisorShares North Square McKee Core Reserves ETF | Jan 14, 2014 | 7.97 | 0.35% | 3,118 | 79.52% | 0.05 | 38 | 7.05 | 364.18 |
| MENV | AdvisorShares North Square McKee ESG Core Bond ETF | Jun 20, 2011 | 10.54 | 0.47% | 1,852 | 87.67% | 0.26 | 4 | 7.01 | 187.68 |
| Mean | | | 8.47 | 0.20% | 575,564 | 96.77% | 0.30 | 4,329 | 8.26 | 266.82 |
| Median | | | 7.78 | 0.18% | 62,413 | 100.00% | 0.28 | 914 | 8.25 | 239.63 |
| Min | | | 4.15 | 0.03% | 993 | 57.26% | 0.04 | 4 | 7.01 | 75.44 |
| Max | | | 19.54 | 0.53% | 11,271,072 | 100.00% | 1.00 | 46,426 | 10.00 | 873.38 |
| [1] Source: www.etfdb.com | | | | | | | | | | |
| [2] Source: www.nasdaq.com | | | | | | | | | | |

**Table 2:** Descriptive Statistics of Returns

This Table presents the descriptive statistics of ETF's return and risk, that is the average daily return, the cumulative daily return, the risk (in standard deviation terms of daily returns), the daily excess return, the excess cumulative return and the excess risk against the Bloomberg US Aggregate Bond Index, and the daily excess return, the excess cumulative return and excess risk against the S&P 500 Index. The statistics are presented on an annual and an aggregate basis over the period 2018-2021.

| Stat | Aver. | Cumul. | StDev | Benchmark: Bloomberg US Aggregate Bond Index | | | Benchmark: S&P 500 Index | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Daily Exc.Ret | Cum.Exc.Ret. | Exc. Risk | Daily Exc.Ret. | Cum.Exc.Ret. | Exc. Risk |
| Period: 1/1-31/12/2018 | | | | | | | | | |
| Mean | -0.02 | -3.78 | 0.22 | -0.02 | -4.58 | 0.04 | 0.01 | 3.22 | -0.86 |
| Median | -0.01 | -3.39 | 0.20 | -0.02 | -4.19 | 0.02 | 0.01 | 3.62 | -0.88 |
| Min | -0.04 | -10.44 | 0.04 | -0.05 | -11.24 | -0.14 | -0.02 | -3.44 | -1.04 |
| Max | 0.00 | 0.16 | 0.67 | 0.00 | -0.64 | 0.49 | 0.02 | 7.17 | -0.41 |
| No of Pos. | 2 | 2 | 62 | 0 | 0 | 34 | 47 | 56 | 0 |
| No of Neg. | 60 | 60 | N/A | 62 | 62 | 28 | 15 | 6 | 62 |
| Period: 1/1-31/12/2019 | | | | | | | | | |
| Mean | 0.02 | 6.29 | 0.19 | -0.01 | -1.89 | -0.02 | -0.08 | -22.59 | -0.59 |
| Median | 0.02 | 5.65 | 0.19 | -0.01 | -2.53 | -0.02 | -0.08 | -23.22 | -0.59 |
| Min | 0.00 | 0.30 | 0.04 | -0.03 | -7.88 | -0.17 | -0.10 | -28.58 | -0.74 |
| Max | 0.07 | 19.15 | 0.49 | 0.04 | 10.97 | 0.27 | -0.03 | -9.72 | -0.30 |
| No of Pos. | 62 | 62 | 62 | 21 | 22 | 28 | 0 | 0 | 0 |
| No of Neg. | 0 | 0 | N/A | 41 | 40 | 34 | 62 | 62 | 62 |
| Period: 1/1-31/12/2020 | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mean | 0.02 | 3.69 | 0.64 | -0.01 | -3.81 | 0.34 | -0.07 | -12.57 | -1.53 |
| Median | 0.02 | 3.32 | 0.64 | -0.01 | -4.19 | 0.35 | -0.07 | -12.94 | -1.53 |
| Min | -0.01 | -4.30 | 0.11 | -0.04 | -11.80 | -0.18 | -0.10 | -20.55 | -2.06 |
| Max | 0.05 | 11.37 | 1.56 | 0.02 | 3.87 | 1.26 | -0.03 | -4.89 | -0.61 |
| No of Pos. | 58 | 52 | 62 | 12 | 7 | 51 | 0 | 0 | 0 |
| No of Neg. | 4 | 10 | N/A | 50 | 55 | 11 | 62 | 62 | 62 |
| **Period: 1/1-31/12/2021** | | | | | | | | | |
| Mean | -0.01 | -2.64 | 0.20 | -0.01 | -1.10 | -0.02 | -0.11 | -29.53 | -0.63 |
| Median | -0.01 | -2.86 | 0.17 | -0.01 | -1.32 | -0.05 | -0.11 | -29.76 | -0.66 |
| Min | -0.04 | -8.88 | 0.02 | -0.03 | -7.34 | -0.20 | -0.13 | -35.77 | -0.81 |
| Max | 0.00 | 0.93 | 0.65 | 0.01 | 2.47 | 0.43 | -0.10 | -25.96 | -0.17 |
| No of Pos. | 4 | 2 | 62 | 15 | 16 | 25 | 0 | 0 | 0 |
| No of Neg. | 58 | 60 | N/A | 47 | 46 | 37 | 62 | 62 | 62 |
| **Period: 1/1/2018-31/12/2021** | | | | | | | | | |
| Mean | 0.00 | 3.11 | 0.37 | -0.01 | -12.31 | 0.14 | -0.06 | -73.69 | -0.97 |
| Median | 0.00 | 2.73 | 0.37 | -0.01 | -12.69 | 0.14 | -0.06 | -74.06 | -0.97 |
| Min | -0.01 | -9.37 | 0.08 | -0.02 | -24.79 | -0.15 | -0.07 | -86.17 | -1.26 |
| Max | 0.01 | 11.60 | 0.92 | 0.00 | -3.82 | 0.69 | -0.05 | -65.20 | -0.42 |
| No of Pos. | 51 | 45 | 62 | 2 | 0 | 49 | 0 | 0 | 0 |
| No of Neg. | 11 | 17 | N/A | 60 | 62 | 13 | 62 | 62 | 62 |

**Table 3:** Performance Regression Results

This Table presents the results of the single-factor performance regression model via which the daily excess return (return minus risk free rate) of each ETF is regressed on the excess return of the Bloomberg US Aggregate Bond Index and the S&P 500 Index, respectively. Alpha reflects the above-market return that can be achieved by an ETF. Beta counts for the systematic risk of ETFs. The study period spans from 1/1/2018 to 31/12/2021.

| Benchmark: Bloomberg US Aggregate Bond Index | | | | | |
|---|---|---|---|---|---|
| **Stat** | **alpha** | **T-test** | **beta** | **T-test** | **R2** |
| Mean | -0.01 | -0.95 | 0.77 | 16.49 | 0.30 |
| Median | -0.01 | -0.81 | 0.64 | 15.89 | 0.32 |
| Min | -0.02 | -2.05 | 0.14 | 1.15 | 0.01 |
| Max | 0.00 | -0.19 | 2.60 | 42.05 | 0.64 |
| Sig. Pos. | 0 | | 62 | | |
| Sig. Pos.>1 | N/A | | 19 | | |
| Sig. Pos.<1 | N/A | | 43 | | |
| Ins. Pos. | 0 | | 0 | | |
| Sig. Neg. | 9 | | 0 | | |
| Ins. Neg. | 53 | | 0 | | |
| Benchmark: S&P 500 Index | | | | | |
| | alpha | T-test | beta | T-test | R2 |
| Mean | 0.00 | -0.57 | 0.14 | 7.54 | 0.16 |
| Median | 0.00 | -0.35 | 0.14 | 7.74 | 0.16 |
| Min | -0.02 | -2.41 | 0.04 | 0.50 | 0.10 |
| Max | 0.00 | 0.43 | 0.23 | 20.64 | 0.40 |
| Sig. Pos. | 0 | | 62 | | |
| Sig. Pos.>1 | N/A | | 0 | | |
| Sig. Pos.<1 | N/A | | 62 | | |
| Ins. Pos. | 5 | | 0 | | |
| Sig. Neg. | 6 | | 0 | | |
| Ins. Neg. | 51 | | 0 | | |

**Table 4**: Risk-Adjusted Returns

This Table presents the risk-adjusted returns of ETFs, that is, the Sharpe ratio and the Information ratio calculated against the Bloomberg US Aggregate Bond Index and the S&P 500 Index. The ratios are presented on an annual and an aggregate basis over the period 2018-2021.

| Stat | Sharpe Ratio18 | Sharpe Ratio19 | Sharpe Ratio20 | Sharpe Ratio21 | Sharpe Ratio18-21 |
|---|---|---|---|---|---|
| Mean | -0.12 | 0.05 | 0.02 | -0.07 | -0.01 |
| No of Pos. | 0 | 49 | 55 | 4 | 25 |
| No of Neg. | 62 | 13 | 7 | 58 | 37 |
| Median | -0.12 | 0.07 | 0.03 | -0.07 | 0.00 |
| Min | -0.22 | -0.16 | -0.03 | -0.15 | -0.05 |
| Max | -0.04 | 0.14 | 0.07 | 0.03 | 0.01 |
| Benchmark: Bloomberg US Aggregate Bond Index | | | | | |
| Stat | Informat. Ratio18 | Informat. Ratio19 | Informat. Ratio20 | Informat. Ratio21 | Informat. Ratio18-21 |
| Mean | -0.08 | -0.04 | -0.03 | -0.03 | -0.04 |
| No of Pos. | 0 | 21 | 12 | 15 | 2 |
| No of Neg. | 62 | 41 | 50 | 47 | 60 |
| Median | -0.07 | -0.04 | -0.03 | -0.02 | -0.03 |
| Min | -0.19 | -0.18 | -0.11 | -0.12 | -0.08 |
| Max | -0.01 | 0.11 | 0.02 | 0.03 | 0.00 |
| Benchmark: S&P 500 Index | | | | | |
| Stat | Informat. Ratio18 | Informat. Ratio19 | Informat. Ratio20 | Informat. Ratio21 | Informat. Ratio18-21 |
| Mean | 0.01 | -0.10 | -0.03 | -0.13 | -0.05 |
| No of Pos. | 47 | 0 | 0 | 0 | 0 |
| No of Neg. | 15 | 62 | 62 | 62 | 62 |
| Median | 0.01 | -0.10 | -0.03 | -0.13 | -0.05 |
| Min | -0.02 | -0.13 | -0.05 | -0.17 | -0.06 |
| Max | 0.02 | -0.03 | -0.01 | -0.12 | -0.04 |

**Table 5:** Performance Persistence Regression Results

This Table presents the results of a single-factor regression model via which the daily return of each ETF is regressed on its one-day lagged return. Similar regressions are performed for weekly and monthly returns. The study period spans from 1/1/2018 to 31/12/2021.

| Panel A: Daily Returns | | | | | |
|---|---|---|---|---|---|
| Stat | $\lambda_0$ | T-test | $\lambda_1$ | T-test | $R^2$ |
| Mean | 0.00 | 0.24 | 0.11 | 3.46 | 0.14 |
| Median | 0.00 | 0.27 | 0.16 | 4.98 | 0.13 |
| Min | -0.01 | -0.54 | -0.36 | -12.08 | 0.10 |
| Max | 0.01 | 0.78 | 0.34 | 11.42 | 0.23 |
| Sig. Pos. | 0 | | 43 | | |
| Ins. Pos. | 52 | | 7 | | |
| Sig. Neg. | 0 | | 7 | | |
| Ins. Neg. | 10 | | 5 | | |
| Panel B: Weekly Returns | | | | | |
| | alpha | T-test | beta | T-test | $R^2$ |
| Mean | 0.02 | 0.28 | -0.09 | -1.34 | 0.13 |
| Median | 0.02 | 0.32 | -0.13 | -1.86 | 0.12 |
| Min | -0.04 | -0.40 | -0.36 | -5.58 | 0.10 |
| Max | 0.10 | 0.84 | 0.36 | 5.51 | 0.23 |
| Sig. Pos. | 0 | | 5 | | |

| | | | | | |
|---|---|---|---|---|---|
| Ins. Pos. | 52 | | 7 | | |
| Sig. Neg. | 0 | | 35 | | |
| Ins. Neg. | 10 | | 15 | | |
| **Panel C: Monthly Returns** | | | | | |
| | **alpha** | **T-test** | **beta** | **T-test** | **R²** |
| Mean | 0.09 | 0.41 | -0.12 | -0.85 | 0.12 |
| Median | 0.08 | 0.60 | -0.12 | -0.81 | 0.11 |
| Min | -0.23 | -0.65 | -0.34 | -2.41 | 0.10 |
| Max | 0.32 | 0.91 | 0.10 | 0.70 | 0.21 |
| Sig. Pos. | 0 | | 0 | | |
| Ins. Pos. | 46 | | 6 | | |
| Sig. Neg. | 0 | | 48 | | |
| Ins. Neg. | 16 | | 8 | | |

**Table 6:** Performance Ranking Persistence Regression Results

| **Panel A: Average Return** | | | | | |
|---|---|---|---|---|---|
| **Period** | $\lambda_0$ | **T-test** | $\lambda_1$ | **T-test** | **R²** |
| 2018-2019 | 4.59[a] | 23.65 | -0.84[a] | -11.82 | 0.70 |
| 2019-2020 | 0.60[b] | 2.60 | 0.76[a] | 9.09 | 0.58 |
| 2020-2021 | 4.53[c] | 21.86 | -0.81[a] | -10.75 | 0.66 |
| **Panel B: Cumulative Return** | | | | | |
| **Period** | $\lambda_0$ | **T-test** | $\lambda_1$ | **T-test** | **R²** |
| 2018-2019 | 4.59[a] | 23.65 | -0.84[a] | -11.82 | 0.70 |
| 2019-2020 | 0.53[b] | 2.44 | 0.79[a] | 9.85 | 0.62 |
| 2020-2021 | 4.53[a] | 21.86 | -0.81[a] | -10.75 | 0.66 |
| **Panel C: Sharpe Ratio** | | | | | |
| **Period** | $\lambda_0$ | **T-test** | $\lambda_1$ | **T-test** | **R²** |
| 2018-2019 | 1.92[a] | 5.57 | -0.23[c] | -1.85 | 0.42 |
| 2019-2020 | 1.07[a] | 3.68 | 0.57[a] | 5.41 | 0.33 |
| 2020-2021 | 2.52[a] | 7.10 | -0.01 | -0.05 | 0.00 |
| **Panel D: Information Ratio (against Bloomberg US Aggregate Bond Index)** | | | | | |
| **Period** | $\lambda_0$ | **T-test** | $\lambda_1$ | **T-test** | **R²** |
| 2018-2019 | 4.37[a] | 18.60 | -0.75[a] | -8.74 | 0.56 |
| 2019-2020 | 0.50[b] | 2.36 | 0.80[a] | 10.28 | 0.64 |
| 2020-2021 | 4.06[a] | 14.63 | -0.62[a] | -6.16 | 0.39 |
| **Panel E: Information Ratio (against S&P 500 Index)** | | | | | |
| **Period** | $\lambda_0$ | **T-test** | $\lambda_1$ | **T-test** | **R²** |
| 2018-2019 | 4.34[a] | 18.09 | -0.74[a] | -8.42 | 0.54 |
| 2019-2020 | 0.28[c] | 1.73 | 0.89[a] | 14.86 | 0.79 |
| 2020-2021 | 3.90[a] | 13.28 | -0.56[a] | -5.23 | 0.31 |
| a: Statistically significant at 1%; b: Statistically significant at 5%; c: Statistically significant at 10%. | | | | | |

This Table presents the results of a cross-sectional regression model via which the ranking ETFs' return in year t is regressed on the corresponding ranking in year t-1. ETFs are classified in four groups; the top group receives four stars, the second-top group receives three stars, and so on. The return measures used are the average daily return, the cumulative return, the Sharpe Ratio and the Information Ratio calculated against the Bloomberg US Aggregate Bond Index and the S&P 500 Index, respectively. The study period spans from 1/1/2018 to 31/12/2021

**JOMAES**

# Government Size and Economic Growth in Nigeria: An Assessment

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**Abstract**

As the size of the federal government expands in tandem with debt, economic growth rather looks gloomy despite the country's emergence from two recessions in four years. Although the situation provokes studies with robust outcomes, however, there is no convergence in findings. As such, in the attempt to contribute to the empirics, this paper assesses the relationship between government size and economic growth using the Johansen co-integration technique on time series data covering the period 1981-2020. A long-run relationship is affirmed as expenditure on transfers Granger-causes economic growth while economic growth Granger-causes social and community services, and a no-causality is established between economic growth and every other component of expenditure. Nonetheless, expenditure on social and community services impact economic growth negatively even as economic services and transfers promote growth. Thus, with disaggregated recurrent expenditure, government size exhibits both positive and negative relationships with economic growth in Nigeria. In effect, more budgetary allocation is suggested for economic services.

**Keywords**

Causality, Co-Integration, Economic Growth, Government Size, Recurrent Expenditure

## 1. INTRODUCTION

The size of the Nigerian government vis-à-vis economic growth and development is drawing concerns. The concerns stem from the behaviour of macroeconomic indicators in which, among others, headline inflation rises from 7.8% in 2013 to 11.37% in 2019 and 15.75% in 2020 as food inflation reaches 39.5% between 1996 and 2021. Although government spends to develop the economy, however, in the past three years, despite reaching around 13% of gross domestic product (GDP), public spending is predicated on debt and average deficit of about 29.4 and 4.9% of GDP, respectively (Heritage Foundation, 2021). Moreover, being the cause of the deficit, government spending ought to stimulate demand and boost output through job creation (Amadeo, 2019). Incidentally, a key indicator reflecting the effect of government spending as necessitated by deficit is unemployment. Unemployment rate, however, rises from 14.2% in 2016 to 23.1% and 27.1% in 2018 and 2020, respectively (National Bureau of Statistics [NBS], 2021). Nonetheless, while tax serves as a source of income, the overall revenue performance of 2018 budget stands at only 53% with 67% expenditure performance (Udoma, 2019) as overheads eat around 70% of total revenue. Also, despite the expenditure performance, the recurrent aspect increases steadily over the years even as the rate of economic growth fluctuates between -13.1 and 15.3% in 1986 and 2002, respectively. As it stands, however, while recurrent expenditure climbs from NGN7.5 billion in 1985 to NGN1,110.6 billion in 2004 and NGN8,121 billion in 2020, growth rather trends respectively from 5.9% to 9.2% and 1.9% (Central Bank of Nigeria [CBN], 2020; World Bank, 2021), thereby raising question on the relationship between government size and economic growth in the country.

Meanwhile, as a multi-ethnic and culturally diverse entity, Nigeria operates a federal system of government with a bi-cameral legislative structure consisting 469 national assembly (NASS) members. The NASS is made up of 360 members in the house of representatives and 109 senators, both of which are elected across 36 states and a federal capital territory (FCT) with 774 local councils. In the country's national account, total recurrent expenditure is decomposed into four main headings: administration, social and community services, economic services, and transfers.
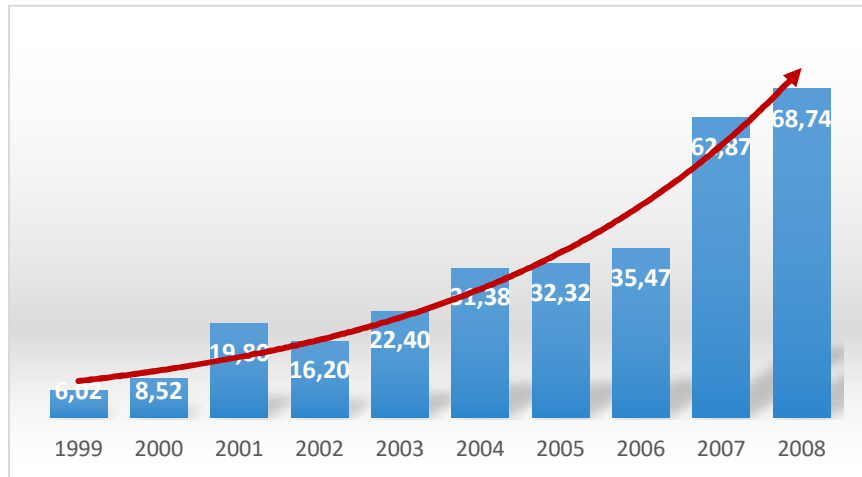


**Figure 1:** Trend of Expenditure On National Assembly In NGN'billion, 1999-2008.

Source: Author's representation with data from CBN (2020).

Incidentally over the years, total recurrent expenditure increases substantially from NGN4.85 billion in 1981 to NGN8,121 billion in 2020 as against mild rise in total capital expenditure from NGN6.57 billion to NGN1,614 billion and nominal output/GDP from NGN144.83 billion to NGN144,210.49 billion, respectively in the same periods (CBN, 2020).
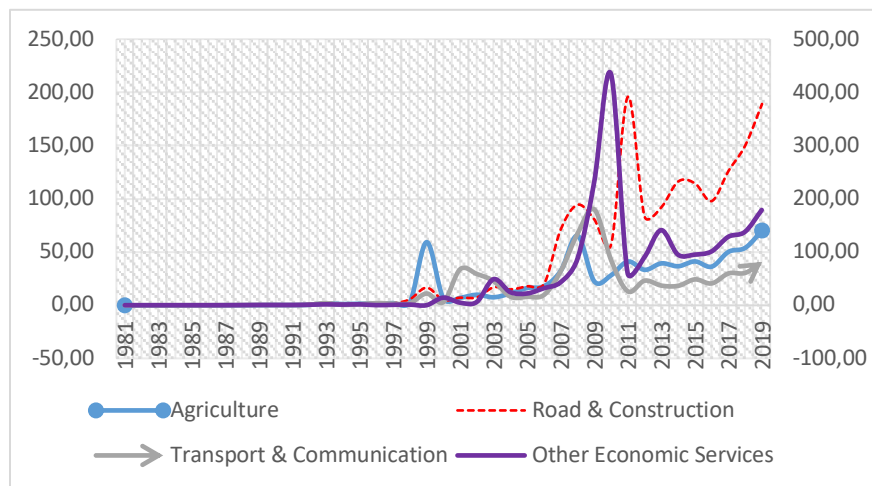


**Figure 2:** Trends of Expenditure on Economic Services, 1981-2019.

Source: Author's representation with data from CBN (2020).

Moreover, the World Bank (2021) publication shows that annual rate of growth of the economy fluctuates between -13.1% in 1981 and 2.2% in 2019. Meanwhile, as the main headings of the recurrent expenditure are further split into different cost centres, the administration and

transfers headings constitute the larger parts of the size of government. For example, being the least in cost, economic services reach NGN479.03 billion in 2019 followed by the social and community services with NGN1,393.56 billion, and administration and transfers with NGN2,105.20 billion and NGN3,019.61 billion, respectively. Even then, as economic services bear the least cost, the amount that goes into road & construction is not comparable to what is spent by the NASS between 2004 and 2008 as embedded in Figures 1 and 2. In a similar analysis, Figure 3 depicts trends in the components of social and community services in the country.
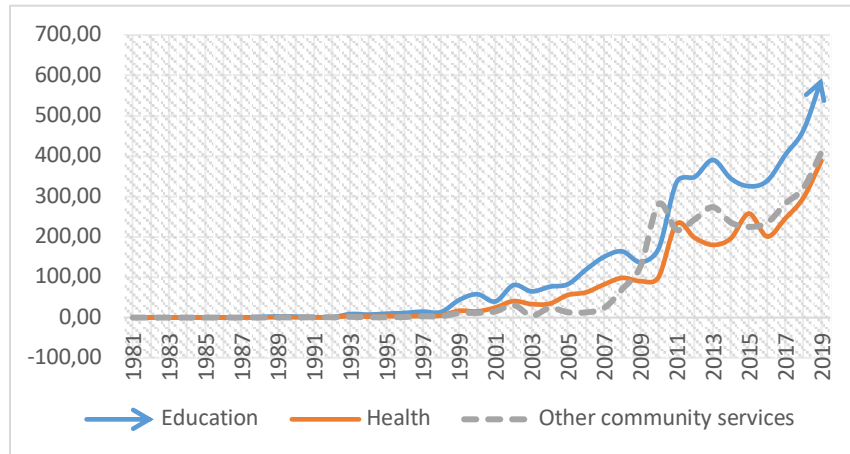


**Figure 3:** Trends of Expenditure on Social And Community Services, 1981-2019.

Source: Author's representation with data from CBN (2020).

Basically, a government is bound to produce certain economic goods which the private sector would not be willing to undertake for the reason of profit. And aside growth in the traditional functions of allocation and distribution, government activities are also expanding as regard subsidy payments and welfare programmes. Thus, while successive governments increase spending, discussion is provoked regarding government size and the Nigerian economy. The discussion, however, splits into studies whose findings are rather conflicting than convergent. For instance, while Nurudeen and Usman (2010) find an inconsistent relationship between growth and the size of government, Olawole, Adebayo and Idowu (2018) rather report a negative relationship. Although it is not out of place to arrive at divergent opinions on the relationships between growth and government size, however, such opinions should align with any of growth causing government size (Samudram, Nair & Vaithiligam, 2009), government size causing growth (Loizides & Vamvoukas, 2005), a feedback causality (Abu-Eideh, 2015), negative relationship (Fall & Fournier, 2015), positive relationship (Myles, 2009; Teles & Mussolini, 2014), and no relationship (Agell, Lindh & Ohlsson, 1995). More importantly, as an economy grows, there is the need for government activities in order to ensure and sustain operational efficiency. In effect, government can utilize its size, through spending ability, to stimulate aggregate demand necessary for job creation and long-run growth. Although government can increase in size, its existence should, however, facilitate efficiency in the private sector rather than replacing it. The idea is that a too large government might be detrimental to growth if the cost of financing public spending is such that crowds-out private firms through business stifling taxes and interest rates. Similarly, a large government might drag growth when public investment and production are relatively less productive than that of the private sector. Even then, growth can also be stifled if the size of government is too small to

the extent that basic infrastructural facilities are not provided. As such, a balancing approach to the use of government size might be more appropriate (Fournier & Johansson, 2016; Johansson, 2016; Africa Economic Outlook [AEO], 2021). It is on this premise this paper assesses the relationships between government size and economic growth in Nigeria.

The rest of the paper is sectioned into four as section two reviews the literature, section three provides the methodology while section four presents and discusses the empirical results. Section five concludes with recommendations.

## 2. LITERATURE REVIEW

Baring consensus in the definition and measure of government size, the review of literature follows existing theories and empirical opinions on the subject matter in relation to economic growth and other macroeconomic variables. Thus, after the theoretical underpinning, the empirical review concentrates on country-based studies as follows.

## 2.1 Theoretical Underpinning and Framework

The framework rests on two theories of government size and growth: the citizen-over-state and state-over-citizen (Garrett & Rhine, 2006). As such, on the premise that the size of government grows due to increase in demand for public programme, the citizen-over-state theory opines on the evidence that demand can emanate either from individual citizens or collection of citizens. The discussion thus follows three approaches: the first is government as a provider of goods and a reducer of externalities; the second sees government as a redistributor of income and wealth; and the third is the interest groups. As a benevolent provider of goods and reducer of externalities, the government in this approach responds to the median voter who determines the public good to demand as a function of taste, income, and the relative prices of public and private goods. Thus, whether, or not, government grows or contracts, is determined by both the price of government good and the price elasticity of demand for government good. That is, government spending increases if the price of government goods and services increases more than proportionate decrease in the quantity demanded of the goods and services. However, in the case of government being redistributor of income and wealth, every programme of the government is perceived to be a redistributive mechanism. In this light, the theory models a situation in which government collects, through tax, more from high income group in order to redistribute income evenly by providing public goods and services to the society, especially to the low-income group. But then, the interest groups theory states that government size can increase by the organized activities of interest groups of voters or businesses than individual citizens. In effect, using focused lobbying, the group can win policy that has direct benefit for its members but whose cost is spread across taxpayers. As regard state-over-citizen theory, the approach sees government size as supply driven in the absence of effective citizen demand on the basis of bureaucracy theory and monopoly leviathan government. Specifically, the bureaucracy theory describes the situation in which government output results not only from citizen demand but also from the preferences and demands of government bureaucrats who can present greater budget in excess of what the citizens demand. The monopoly government represents an ideology in which the political party controlling the legislature practices the objectives of reelection, personal ideals and pecuniary gains. Such that, in the provision of public goods and services, the government achieves its objectives by bundling issues that are beneficial to its members along with public goods and services being provided. In essence, however, while facing constitutional constraints, the sole objective of a leviathan monopoly government is revenue maximization (Brennan & Buchanan, 1980).

## 2.2 Empirics

There are scanty empirical discussions on the subject matter. Even then, among the available few, the relevant ones are contradicting in findings. For instance, while acknowledging opposing opinions on the relationship between government size and economic growth, Salih (2012) uses the cointegration, causality, and ECM techniques to test Wagner's hypothesis for Sudan over the period from 1970 to 2010. The data-set employed affirms Wagner's hypothesis for the country. Also, in an attempt to validate Wagner's law in Nigeria, Dogo et al (2013) adopt the fully modified ordinary least squares (FMOLS) technique to analyse quarterly data over the period 1982-2012. Aside the support for Wagner's hypothesis, the study further affirms the existence of a long-run association between government expenditure and economic activity in the country. Thus, while corroborating Goffman's version of Wagner's law, the study suggests the creation of fiscal space for increasing revenue. However, Awomuse, Olorunleke and Alimi (2013) use the Toda-Yamamoto technique to confirm whether, or not, there is statistical causality between government expenditure and growth in per capita real GDP in Nigeria during the period 1961-2011. While it reveals that long-run relationship does not exist between the variables, the causality test also affirms that Wagner's law does not hold over the period considered.

Moreover, the validity of the postulations of Barro (1990) on nonlinear relationship between government size and economic growth is tested by Alimi (2014) for the period 1970-2012 in Nigeria. The study affirms the existence of a U-shaped curve and optimal government size for the country. But while gauging the correlation between government size and developments in consumer price index (CPI) during the period 1981-2013 in Nigeria, BigBen (2014) establishes the existence of long-run relationship between the variables. However, as a component of government size, government expenditure does not have causal relationship with CPI in the short and long run, thereby implying that government size does not cause inflation in Nigeria. In addition, Olawole, Adebayo and Idowu (2018) examine the link among openness, government size and economic growth in Nigeria over the period 1986-2015. Findings reveal that government size impacts negatively on growth in both short and long runs. In effect, the study concludes that the desired benefits have not been yielded despite increase in government size in the country.

Meanwhile, using the highlights of theoretical and empirical evidences, Nyasha and Odhiambo (2019) survey the causal relationship between government size and economic growth in developed and developing countries. The study establishes four outcomes regarding the causality between the variables in which the prominent appears to be unidirectional causality running from economic growth to government size while the next being bidirectional causality between the variables. Nonetheless, Nwosa and Akinbobola (2020) examine the compensation hypothesis by analysing the relationship between globalization and government size in Nigeria during the period 1981-2018. As measure of government size, government expenditure is disaggregated into economic services, social and community services, and transfers, the study concludes that compensation hypothesis does not hold in Nigeria if data for government expenditure are aggregated.

## 3. METHODOLOGY

The process for assessing the relationships between government size and economic growth adopts the OLS technique. Thus, GDP at 2010 constant US dollar is proxy for economic growth, the dependent variable. The independent variable is government size which can be measured by indexes which include government expenditure as percentage of GDP, average tax rate or tax as percentage of GDP, the number of government administrative agencies, and ratio of civil

servants to total employment (Chen, 2020). However, for the reasons of non-availability of data and the fact that government spending on social resources is mostly reflected in the proportion of expenditure in GDP, this study measures government size by government recurrent expenditure-GDP ratio which is decomposed into administration-GDP ratio, social and community services-GDP ratio, economic services-GDP ratio, and transfers-GDP ratio, as well as real general government final consumption expenditure-GDP ratio. Moreover, due to the nominal nature of all the data, the variables are necessarily transformed to natural logarithms in order to obtain uniform scale of measurement and ease the interpretation of estimation coefficients. Also, in order to capture the movement of growth and expenditure pattern of the government after the oil boom and before the advent of corona virus disease, the paper covers the period 1981-2020. Nonetheless, aside the data for real general government final consumption expenditure which are gathered from World Bank (2021), all data are collated from CBN (2020).

Essentially, there are inherent tendencies for the activities of government to increase both intensively and extensively. Such that, there is a functional relationship between the growth of an economy and the growth of the government activities. However, following the Keynesian advocacy that, for aggregate demand to increase, government spending must increase to the level that private-spending is offset and tax raise is avoided. Thus, in line with state-over-citizen theory, as well as Barro (2015), and empirical works of Herath (2012) and Olawole, Adebayo and Idowu (2018), the basic relationship between government size and economic growth is functionally expressed as,

$$Y_t = f(Gvz_t) \tag{1}$$

where, at time $t$, $Y$ is economic growth and, $Gvz$ is government size.

But then, since the independent variable is decomposed, therefore, following Barro (2015), expression (1) modifies to,

$$Y_t = f(LAdm_t, LScs_t, LEcs_t, LTrf_t, LGfc_t) \tag{2}$$

where, $L$ is logarithm, $Adm$ is administrative expenditure-GDP ratio, $Scs$ is social and community services-GDP ratio, $Ecs$ is economic services-GDP ratio, $Trn$ is transfers-GDP ratio, and $Gfc$ is general government final consumption expenditure-GDP ratio. The linear transformation becomes,

$$lY_t = \beta_0 + \beta_1 lAdm_t + \beta_2 lScs_t + \beta_3 lEcs_t + \beta_4 lTrn_t + \beta_5 lGfc_t + u_t \tag{3}$$

where, $\beta_0$ is constant, while $\beta_{1,...,5}$ are parameters to be estimated and $u$ is error term.

### 3.1 Pre-estimation Tests

Very imperative is the need for pre-estimation tests to ascertain the behaviour of the data series, as well as whether, or not, long-run relationship exists between or among variables of interest. Such tests include the unit root, causality, and co-integration tests as presented one-after-the-other as follows.

### 3.1.1 The Unit Root Tests

Several studies are of the opinion that majority of time series data are non-stationary because of unit root (Nelson & Polsser, 1982; Stock & Watson, 1988; Campbell & Perron, 1991). Such that, a spurious regression is obtained when non-stationary time series are employed. Thus, Perron (1989) affirms the use of tests to establish the existence of unit root if a time series exhibits stationary fluctuations around a trend. In this regard, the Augmented Dickey-Fuller (ADF) of Dickey and Fuller (1979), Phillips-Perron (PP) of Phillips and Perron (1988), and the technique

of Kwiatkowski, Phillips, Schmidt and Shin (KPSS) (1992) are adopted to test for unit root as follows.

Considering a simple AR(1) process of the form,

$$y_t = \rho y_{t-1} + x_t' \delta + \epsilon_t \tag{4}$$

Upon subtracting $y_{t-1}$ from both sides of equation (4), the ADF test is conducted by estimating,

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \epsilon_t \tag{5}$$

where, $\alpha = \rho - 1$. The null and alternative hypotheses may be written as,

$$H_0 : \alpha = 0 \quad H_1 : \alpha < 0 \tag{6}$$

However, if the series is correlated at higher order lags, the assumption of white noise disturbances is violated. Thus, it is assumed that $y$ series is an AR(p) process of the test regression,

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \beta_1 \Delta y_{t-1} + \beta_2 \Delta y_{t-2} + \ldots + \beta_p \Delta y_{t-p} + v_t \tag{7}$$

which is then used to test equation (6) using the t-ratio, $t_\alpha = \alpha / (se(\hat{\alpha}))$, where $\hat{\alpha}$ is the estimate of $\alpha$, and $se(\hat{\alpha})$ is the coefficient standard error (Dickey & Fuller, 1979).

The PP test, on the other hand, is based on the statistic,

$$t_\alpha = t_\alpha \left( \frac{\gamma_0}{f_0} \right)^{1/2} - \frac{T(f_0 - \gamma_0)(se(\hat{\alpha}))}{2 f_0^{1/2} s} \tag{8}$$

where, $s$ is the standard error of the test regression, $\gamma_0$ is a constant estimate of the error variance in equation (4), and $f_0$ is an estimator of the residual at frequency zero (Phillips & Perron, 1988).

Meanwhile, the KPSS test is different from the ADF and PP unit root tests in that the series $y_t$ is assumed to be (trend-) stationary under the null. As such, based on the residuals from the OLS regression of $y_t$, the statistic is,

$$y_t = x_t' \delta + u_t \tag{9}$$

and the Lagrange Multiplier (LM) is defined as,

$$LM = \sum_t s(t)^2 / (T^2 f_0) \tag{10}$$

where, s($t$) is a cumulative residual function of the form, s($t$) = $\sum_{r=1}^{t} u_r$ based on the residuals $u_t = y_t - x_t' \delta(0)$ (KPSS, 1992).

*3.1.2 The Co-integration Tests*

Imperatively, the appropriate technique for a co-integration test is predicated on the unit root results. If the results indicate that the variables are integrated at both I(0) and I(1), or fractionally, then the auto-regressive distributed lag (ARDL) bound test may be appropriate (Harris & Sollis, 2003). But where the variables integrate at higher order like I(2), the Engle and Granger (1987) technique is relevant as against the Johansen (1988) approach which is suitable strictly for I(1) variables. Thus, assuming the Johansen co-integration technique is to be used, the process starts with a simple vector auto-regressive (VAR) of order *p*,

$$y_t = A_1 y_{t-1} + \ldots + A_p y_{t-p} + \beta x_t + \epsilon_t \tag{11}$$

where, at time *t*, *y* is a $k$ – vector of I(1) variables, *x* is a $d$ – vector of deterministic variables, and $\epsilon$ is a vector of n x 1 residuals. The VAR may be re-specified as,

$$\Delta y_t = \Pi y_{t-1} + \sum_{r=1}^{p-1} \Gamma_t \Delta y_{t-i} + \beta x_t + \epsilon_t \tag{12}$$

where, $\Pi = \sum_{i=1}^{p-1} A_t - I$, and $\Gamma_i = -\sum_{j=i+1}^{p} A_j$.

Meanwhile, based on likelihood ratio (LR) test, Johansen and Juselius (1990) propose the trace and maximum eigenvalue statistics to test for the number of co-integration vectors in long-run relationship. The statistics are defined as,

$$\theta_{Trace} = -T \sum_{i-r+1}^{n} \log (1 - \theta_i) \tag{13}$$

and

$$\vartheta_{Max} = -T log(1 - \theta_{r+1}) \tag{14}$$

Moreover, and consequent upon establishing a long-run equilibrium among the variables, the short-run adjustment can be analyzed using the error-correction model (ECM) as follows.

$$\Delta x_t = \delta_0 + \delta_1 e_{t-1} + \sum_{i=1}^{m} \delta_i \Delta x_{t-1} + \sum_{j=i}^{n} \delta_j \Delta y_{t-j} + e_t \tag{15}$$

$$\Delta y_t = \rho_0 + \rho_1 u_{t-1} + \sum_{i=1}^{m} \rho_i \Delta y_{t-1} + \sum_{j=i}^{n} \rho_j \Delta x_{t-j} + u_t \tag{16}$$

where, using OLS technique, $e$ is residual from regressing $x$ on $y$ while $u$ is the residual from regressing $y$ on $x$ as $e_{t-1}$ and $u_{t-1}$ are the residuals error-correction terms. Essentially, for all $i$, if $\delta_0 = 0$ and $\delta_i = 0$, $x$ does not Granger-cause $y$ just as $y$ does not Granger-cause $x$ if $\rho_o = 0$ and $\rho_i = 0$ (Granger, 1988).

## 4. RESULTS

The empirical results are partitioned into pre-estimation and estimation as presented and discussed as follows.

### 4.1 Pre-estimation Results

The summary statistics, in Table 1, shows that average GDP reached NGN30560 billion in the period. Similarly, average recurrent expenditure on administration, social and community services, economic services, and transfer is approximately NGN458 billion, NGN276 billion, NGN125 billion, and NGN570 billion, respectively.

**Table 1:** Summary Statistics

|  | GDP | ADM | SCS | ECS | TRF | GFC |
|---|---|---|---|---|---|---|
| Mean | 30560.17 | 457.9618 | 276.0577 | 124.7751 | 569.5151 | 1.11E+10 |
| Median | 6897.480 | 180.8000 | 79.63000 | 52.95000 | 203.6900 | 2.00E+09 |
| Maximum | 144210.5 | 2105.200 | 1393.560 | 562.7500 | 3019.610 | 3.34E+10 |
| Minimum | 144.8300 | 0.900000 | 0.290000 | 0.170000 | 3.390000 | 1.45E+09 |
| Std. Dev. | 41656.94 | 569.4265 | 382.4576 | 160.8990 | 772.2601 | 1.23E+10 |
| Skewness | 1.292677 | 1.087101 | 1.280082 | 1.102257 | 1.656491 | 0.706222 |
| Kurtosis | 3.429367 | 3.129757 | 3.437040 | 3.021917 | 5.077370 | 1.727378 |
| Jarque-Bera | 11.16117 | 7.708987 | 10.96135 | 7.898095 | 24.84839 | 5.873671 |
| Probability | 0.003770 | 0.021184 | 0.004167 | 0.019273 | 0.000004 | 0.053033 |
| Sum | 1191846. | 17860.51 | 10766.25 | 4866.230 | 22211.09 | 4.34E+11 |
| Sum Sq. Dev. | 6.59E+10 | 12321370 | 5558406. | 983763.1 | 22662654 | 5.74E+21 |
| Observations | 39 | 39 | 39 | 39 | 39 | 39 |

Source: Author's computation.

More so, the output from the unit root tests, as presented in Table 2, reveals that all the series integrate at first difference, that is, I(1).

**Table 2:** Results of Unit-Root Tests

| Variable | ADF | | | PP | | | KPSS | | |
|---|---|---|---|---|---|---|---|---|---|
| | Level | 1st Diff | Order | Level | 1st Diff | Order | Level | 1st Diff | Order |
| lGdp | -1.048 | -3.208 | I(1) | -0.795 | -3.122 | I(1) | 0.745 | 0.200 | I(1) |
| lAdm | -2.253 | -8.070 | I(1) | -1.457 | -8.300 | I(1) | 0.736 | 0.223 | I(1) |
| lScs | -2.165 | -8.072 | I(1) | -1.514 | -12.370 | I(1) | 0.738 | 0.500 | I(1) |
| lEcs | -1.180 | -7.466 | I(1) | -1.587 | -8.242 | I(1) | 0.732 | 0.243 | I(1) |
| lTrf | -1.092 | -8.529 | I(1) | -0.984 | -8.396 | I(1) | 0.748 | 0.123 | I(1) |
| lGfc | -0.317 | -4.426 | I(1) | -0.671 | -4.511 | I(1) | 0.586 | 0.108 | I(1) |

Note: Statistical decisions are based on 5% level of significance.
Source: Author's computation.

Meanwhile, given the result in Table 2, and following Perron (1989) and Kolawole (2020; 2021), Table 3 presents the result of Bai and Perron (2003) tests which confirms that the non-stationarity of the series is actually due to breaks.

**Table 3.** Result Extract from Bai-Perron Tests

| Series | Break Dates | F-stat(1) | Critical value(1) | F-stat(2) | Critical value(2) |
|---|---|---|---|---|---|
| LGdp | 1993 | 2417.301 | 9.13 | - | - |
| LAdm | 1999, 2009 | 2191.166 | 9.01 | 58.9917 | 10.48 |
| LScs | 2003 | 2562.772 | 9.16 | - | - |
| LEcs | 2011 | 2517.333 | 9.14 | - | - |
| LTrf | 2009 | 2351.109 | 9.11 | - | - |
| LGfc | 2005 | 2343.224 | 9.11 | - | - |

Source: Author's computation.

Thus, the F-statistics affirm the presence of single break in 1993, 2003, 2005, 2009 and 2011 for *Gdp*, *Scs*, *Gfc*, *Trf* and *Ecs*, respectively, as against multiple breaks in 1999 and 2009 for *Adm* series. It is, however, important to note that if the possibility of structural break is ignored in analysis spanning over thirty years, it may generate misleading inference (Zivot & Andrews, 1992).

Moreover, for the reason to capture the effects of breaks in the respective dates, the comparable equations in Table 4 are estimated. As such, in each equation, *C* is constant term, *T* is time as trend variable, *D* is dummy variable which starts as 1 for the break date as well as the subsequent years, and 0 for the years before the break. Thus, the 1993 dummy is 0 from 1981 to 1992 and 1 from 1993 to 2020; the 1999 dummy is 0 from 1981 to 1998 and 1 from 1999 to 2020; the 2003 dummy is 0 from 1981 to 2002 and 1 from 2003 to 2020; the 2005 dummy is 0 from 1981 to 2004 and 1 from 2005 to 2020; the 2009 dummy is 0 from 1981 to 2008, and 1 from 2009 to 2020; just as the 2011 dummy is 0 from 1981 to 2010, and 1 from 2011 to 2020.

**Table 4:** Relationship to be Estimated Based Upon Bai-Perron Results

| Series | Equations | Break Dates |
|---|---|---|
| LGdp | $LGdp_t = C + D_{1993} + T + D_{1993}T + \mu_t$ | 1993 |
| LAdm | $LAdm_t = C + D_{1999} + D_{2009} + T + D_{1999}T + D_{2009}T + \mu_t$ | 1999, 2009 |
| LScs | $LScs_t = C + D_{2003} + T + D_{2003} + \mu_t$ | 2003 |
| LEcs | $LEcs_t = C + D_{2009} + T + D_{2009} + \mu_t$ | 2011 |
| LTrf | $LTrf_t = C + D_{2009} + T + D_{2009} + \mu_t$ | 2009 |
| LGfc | $LGfc_t = C + D_{2005} + T + D_{2005} + \mu_t$ | 2005 |

Source: Author's representation.

Incidentally, the break in *Gdp* is ascribed to economic fluctuations which slides output from approximately USD150.6 billion in 1992 to USD147.6 billion in 1993 with rate of growth slowing from 4.6% to negative 2%, respectively (World Bank, 2021). As regard the breaks in *Adm*, there is actually a spike in 1999 which results mainly from the addition of NGN6.02 billion as NASS spending along with NGN85.79 billion, NGN53.6 billion, and NGN38.66 billion from general administration, defence, and internal security components, respectively. As such, a spike of NGN183.64 billion in 1999 from a mere NGN50.68 billion in 1998 triggers the break. The 2009 break in *Adm* is, however, traced to sudden disappearance of NASS spending which momentarily causes a reduction from NGN731.02 billion in 2008 to NGN714.42 billion in 2009. Moreover, the 2003 break in *Scs* is linked to the sudden drop in recurrent expenditure allocation to this category from NGN152.19 in 2002 to NGN102.61 billion in 2003. Imperatively, the breaks in *Ecs* results from recovery from huge election spending which causes allocation to slide to NGN310.5 billion in 2011 from NGN562.75 billion in 2010. Nonetheless, the break in *Trf* in 2009 is ascribed to the reduction in spending from NGN739.66 billion in 2008 to NGN635.75 billion in 2009 despite the first-time inclusion of the transfer of NGN214.54 billion and NGN37.25 billion to the domestic and foreign units, respectively (CBN, 2020).

**Table 5:** Unrestricted Co-integration Rank Test (Trace).

| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.821256 | 146.1842 | 95.75366 | 0.0000 |
| At most 1 * | 0.689665 | 82.47761 | 69.81889 | 0.0035 |
| At most 2 | 0.433777 | 39.18378 | 47.85613 | 0.2530 |

Note: CE = co-integrating equation.
Source: Author's computation.

Meanwhile, the Johansen co-integration trace and maximum eigenvalue results in Tables 5 and 6 affirm long-run relationship among the variables with two co-integrating equations.

**Table 6:** Unrestricted Co-integration Rank Test (Maximum Eigenvalue).

| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.821256 | 63.70654 | 40.07757 | 0.0000 |
| At most 1 * | 0.689665 | 43.29382 | 33.87687 | 0.0028 |
| At most 2 | 0.433777 | 21.04442 | 27.58434 | 0.2735 |

Note: CE = co-integrating equation.
Source: Author's computation.

Also, towards ascertaining the causal relationship between a respective pair of the variables, majority of the lag length selection criteria choose 2, as presented in Table 7.

**Table 7:** Lag Order Selection Criteria.

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -158.5811 | NA | 0.000294 | 8.896278 | 9.157508 | 8.988373 |
| 1 | 25.58851 | 298.6535 | 1.01e-07 | 0.887107 | 2.715717* | 1.531778 |
| 2 | 73.23708 | 61.81435* | 6.29e-08* | 0.257455* | 3.653444 | 1.454700* |

Source: Author's computation.

Furthermore, the pairwise Granger-causality output, in Table 8, shows the rejection of the null hypothesis that expenditure on transfers does not Granger cause economic growth. This, in line with the Keynesians view, implies that government size regarding recurrent expenditure on transfers Granger-causes economic growth. On the contrary, economic growth appears to Granger-cause recurrent expenditure on social and community services, thereby affirming the Wagner's law and corroborating Nyasha and Odhiambo (2019). Nonetheless, a no-causal

relationship is established between the pairs of growth and recurrent expenditure on administration; growth and recurrent expenditure on economic services; and growth and government final consumption expenditure. This conforms to the view of Agell, Lindh and Ohlsson (1995) and Taban (2010), among others, who find a no-relationship between government size and economic growth.

**Table 8:** Pairwise Granger-causality Between Government Size and Economic Growth.

| Null Hypothesis: | F-Statistic | Prob | Decision |
|---|---|---|---|
| LADM does not Granger Cause LGDP | 3.10196 | 0.0587 | Cannot reject |
| LGDP does not Granger Cause LADM | 2.41874 | 0.1051 | Cannot reject |
| LSCS does not Granger Cause LGDP | 1.36641 | 0.2695 | Cannot reject |
| LGDP does not Granger Cause LSCS | 9.14665 | 0.0007 | Reject |
| LECS does not Granger Cause LGDP | 2.87811 | 0.0709 | Cannot reject |
| LGDP does not Granger Cause LECS | 1.75253 | 0.1896 | Cannot reject |
| LTRF does not Granger Cause LGDP | 15.8854 | 2.E-05 | Reject |
| LGDP does not Granger Cause LTRF | 0.00523 | 0.9948 | Cannot reject |
| LGFC does not Granger Cause LGDP | 0.61783 | 0.5454 | Cannot reject |
| LGDP does not Granger Cause LGFC | 2.03638 | 0.1471 | Cannot reject |

Note: Statistical decisions are based on 5% level of significance.
Source: Author's computation.

## 4.2 Estimation Results

Consequent upon the co-integration test, the error correction (ECM) estimation output is presented in Table 9.

**Table 9:** The Relationship Between Government Size and Economic Growth: The ECM.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.015509 | 0.027673 | 0.560442 | 0.5796 |
| D(LGDP(-1)) | 0.482535 | 0.130155 | 3.707377 | 0.0009 |
| D(LGDP(-2)) | 0.237068 | 0.139205 | 1.703013 | 0.0996 |
| D(LADM(-2)) | 0.057819 | 0.039071 | 1.479856 | 0.1501 |
| D(LSCS(-1)) | -0.050099 | 0.022257 | -2.250977 | 0.0324 |
| D(LECS(-1)) | 0.082738 | 0.025910 | 3.193352 | 0.0035 |
| D(LTRF(-2)) | 0.139663 | 0.046536 | 3.001167 | 0.0056 |
| ECM(-1) | -0.282235 | 0.126408 | -2.232735 | 0.0337 |

Note: Statistical decisions are based on 5% level of significance.
Source: Author's computation.

Thus, as a short-run dynamic analysis, the immediate past value of economic growth significantly propels the current year growth positively as expected. In essence, the parsimonious results show that the immediate past year recurrent expenditure on social and community services significantly impacts negatively on economic growth in the current year. That is, as government size increases with 100% spending on social and community services last year, economic growth reduces this year by 5 percentage point. Essentially, at the empirical front, the result supports Fall and Fournier (2015) and Olawole, Adebayo and Idowu (2018) who find a negative relationship between government size and economic growth in OECD countries and Nigeria, respectively. However, as negative association is not causality, Johansson (2016) cautions that while reflecting automatic stabilisers, a negative relationship is expected between government size and growth in the short-run. On the contrary, however, a positive relationship is revealed between government kent size one year ago, as regard recurrent expenditures on economic services and transfers, and economic growth in the current year. This

finding, theoretically, follows Myles (2009) and corroborates the empirical view of Teles and Mussolini (2014), Kolawole and Odubunmi (2015) and Kolawole (2016) on the positive effects of productive spending on growth in developed and developing countries. As such, a 100% increase in recurrent expenditure on economic services in the preceding year brings about 8 percentage point improvement in economic growth in the current year.

Similarly, a 13-percentage point expansion in growth is achieved in the current year as a result of a 100% addition to recurrent expenditure meant for transfers in the immediate past year. Incidentally, however, the impact of recurrent expenditure on administration in the last two years would have been positive on growth in the current year, were it statistically significant. Nonetheless, the presence of shock to the system takes the model a short period with a speed of 28% to adjust back to long-run equilibrium given the coefficient of the ECM term.

**Table 10:** OLS Results from the Estimation of Equations in Table 4.

| Series | C | C-1993 | C-1999 | C-2003 | C-2005 | C-2009 | C-2011 | T | T-1993 | T-1999 | T-2003 | T-2005 | T-2009 | C-2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LGdp | 0.01 | 0.02** | - | - | - | - | - | -1.2 | 0.06* | - | - | - | - | - |
| LAdm | 0.01 | - | 0.11* | - | - | 0.04* | - | -1.2 | - | 0.21** | - | - | 0.31* | - |
| LScs | 0.01 | - | - | 0.14* | - | - | - | -1.2 | - | - | 0.03* | - | - | - |
| LEcs | 0.01 | - | - | - | - | - | 0.11** | -1.2 | - | - | - | - | - | 0.13* |
| LTrf | 0.01 | - | - | - | - | 0.01* | - | -1.2 | - | - | - | - | 0.02* | - |
| LGfc | 0.01 | - | - | - | 0.22* | - | - | -1.2 | - | - | - | 0.01** | - | - |

Note: * and ** denote significance at 1 and 5%, respectively.
Source: Author's computation.

Imperatively, in comparison with the baseline ECM results, the outcome of the estimation of equations in Table 4, as well as the effects of the breaks, are presented in Tables 10 and 11, respectively. As it stands in Table 10, the C and T columns show values of ECM estimates, while columns C- and T- for 1993, 1999, 2003, 2005, 2009 and 2011 indicate the statistically significant values as departure from the baseline. In effect, the departure from the baseline result shows in Table 11 that, despite the break, recurrent expenditure on transfers consistently impacts positive on economic growth. Also, general government final consumption expenditure appears significant over the break period relative to the baseline scenario. Furthermore, recurrent expenditure on social and community services appears positively significant at 1% during the break period. However, as the break effectively causes expenditure on administration to impact negatively, it rather makes economic services insignificant, on economic growth.

Meanwhile, in comparison with earlier studies, the negative relationship between government size and economic growth is consistent with the findings of Olawole, Adebayo and Idowu (2018). However, as economic growth causes expenditure on social and community services, it corroborates Nyasha and Odhiambo (2019) who claim unidirectional causality running from economic growth to government size. But then, the corroborating results notwithstanding, this study departs from other studies regarding the use of Bai-Perron structural break methodology. Unlike in the findings of previous studies, the Bai-Perron methodology helps reveal the consistent positive impact of transfer payment on economic growth.

**Table 11:** OLS Results of the Effect of Breaks

| Variable | Coefficient | Std Error | t-Statistic | Prob |
|---|---|---|---|---|
| *LGdp*(-1) | 598.4298 | 586.5686 | 1.020221 | 0.3153 |
| *LAdm* | -36.57902 | 12.70727 | -2.878591 | 0.0071 |
| *LScs* | 81.36567 | 12.06512 | 6.743874 | 0.0000 |
| *LEcs* | 13.29404 | 12.33137 | 1.078066 | 0.2891 |
| *LTrf* | 31.25147 | 4.146537 | 7.536764 | 0.0000 |
| *LGfc* | 4.34E-07 | 1.82E-07 | 2.386188 | 0.0231 |
| Adj $R^2$ | 0.79 | | | |
| F-stat | 652.02 | | | 0.000 |
| DW | 1.33 | | | |

Note: Statistical decisions are based on 5% level of significance.
Source: Author's computation.

## 5. DISCUSSION AND CONCLUSION

This study assesses the relationship subsisting between government size and economic growth in Nigeria using co-integration and ECM techniques on time series data covering the period 1981-2020. Findings reveal that federal government is over-burdened with responsibilities which could be handled by the states and local government authorities. For instance, as social and community services does not Granger-cause growth, it however impacts growth negatively in the ECM analysis. As such, the situation reflects the concerns about downsizing federal government's activities in the exclusive list. More so, findings show that expenditure allocations to ministries, departments and agencies (MDAs) are guided by the core objectives of restoring and sustaining growth, and building a globally competitive economy in relation to the reflationary & consolidation policies of the 2017, 2018 and 2019 budgets. Incidentally, transfer propels growth as 2019 budget allocations show that personnel costs, including pension and gratuities, gulp approximately 72% of recurrent non-debt expenditure. Therefore, while on the one hand a positive relationship is achieved from certain components of recurrent expenditure, on the other hand a negative relationship is established from some components to growth. Thus, it appears apparent that a mixed relationship subsists between government size and economic growth in Nigeria.

Nonetheless, given that social and community services impact negatively on economic growth, it implies that government recurrent expenditure on education, health and other community services drag growth backward. As such, in order to reverse the negative impact, federal government should concentrate more on education and health due to the fact that the two sub-sectors are basic growth and development indices. In addition, since recurrent expenditure on administration is not impactful, then efforts should be geared towards adoption of a unicameral legislature for cost and size reduction. Moreover, it is however, established that recurrent expenditure on economic services impact positively on growth thereby implying that public spending on agriculture, road & construction, transport & communication, and other economic services promote growth. Thus, the federal government should increase budgetary allocations to economic services in order to boost productivity and economic growth. Also, the positive impact of recurrent expenditure on transfers implies that the spending is productive. Government should, therefore, spend more on transfers so as to grow the economy.

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# The Effect of Remuneration Policies and Learning Organizations on Employee Satisfaction and Performance in Regional Development Banks of East Java

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**Abstract**

As a business organization, East Java Regional Development Bank (PT Bank Pembangunan Daerah Jawa Timur Tbk) has a clear landscape in improving its business by emphasizing on the development of its human capital. Therefore, the purpose of this study is to examine how the job satisfaction and performance of banking employees can increase in terms of the role of remuneration policy and learning organization. A total of 202 East Java Regional Development Bank employees who are in the middle managerial position are taken as respondents in this study. This study uses AMOS-based structural equation modeling in analyzing the collected data. The results show that all the effects between the observed variables are accepted. An important finding from this research is that remuneration policy is found to be the most important determinant of satisfaction and performance.

## 1. INTRODUCTION

The banking industry is a type of financial services industry that has an important role and contribution to economic growth in society (Bhegawati & Utama, 2020). Currently, the banking sector must always be in a 'changing' and 'learning' mode in order to survive and adapt to overcome very challenging market competition. As constant changes in the global economy happened, various industries are struggling and taking more proactive role in developing change management and organizational learning initiatives.

In the banking sector, the emphasis of HRM is on managing employees and maintaining the culture and environment of the organization. The importance of human resource management has multiplied due to the service-oriented nature of the banking industry (Junita et al., 2019). Human resource management is responsible for finding talented and enthusiastic new employees by placing them in the right department and function in the bank (Al-Sayegh et al., 2020). As an industry engaged in financial intermediation for the community, the role of the employees who work in organization is very important. However, the role of human resources is always needed for organizations to achieve strategic advantage and increase competitiveness (Carlson et al., 2006; Coulson-thomas, 2012).

The role of employees in supporting organizational success also applies to the banking industry, with a focus on efforts to build trust for customers as well as stakeholders and shareholders. HRM practices help connect people in the organization and manage people to achieve better performance. In the banking sector which focusing on financial intermediation, the importance of HRM is raising when banks are dealing with financial and economic risks by managing all the challenges within the given timeframe.

Nowadays, many organizations are struggling in order to achieve organizational goals in an environment of high competition and uncertainty for every organization. East Java Regional Development Bank (PT Bank Pembangunan Daerah Jawa Timur Tbk), as one of reputable bank in Indonesia must be able to adapt to any condition that may affect business performance. East Java Regional Development Bank has a vision to become a Regional Champion Bank has changed its vision to become the number one BPD in Indonesia so that it becomes more specific. To achieve this vision, organization focuses on efforts to increase the acceleration of performance growth driven by sustainable transformation so that it remains relevant as an effort to grow above the banking industry average through improving the performance and capabilities of human resources.

Based on effective human resource management, banking organizations need to manage job performance well (Bartel, 2004; Chowdhury, 2013). The importance of job performance in the banking sector is the main point for conceptual review in this study. Previous empirical result have shown that job performance in the banking sector has been widely recognized and tested before (Arif, 2019; Mardiani & Dewi, 2015; Yuniawan et al., 2020), with one of the most important antecedents being job satisfaction (Akbar et al., 2020; Cik et al., 2021; Hira and Waqas, 2012; Lovely et al., 2019; Sopiah, 2013). It has been well argued that greater job satisfaction will lead to greater job performance (Hira & Waqas, 2012; Mishra et al., 2020; Pham, 2016), with various studies have shown about the relationship between satisfaction and performance making it the most stable relationship in a research model.

As a result, an organization's learning capability considered as one important requirement for increasing organizational competitive advantages (Kiedrowski, 2006). According to Karim & Rahman (2018), three crucial points in organizational learning support an organization's adaptability: a conducive learning environment, transformational leadership, and appropriate learning processes and practices. The thorough application of organizational learning eventually develops the ability for members of the organization to think dynamically, which will encourage innovation and motivate each individual to support the achievement of goals and business continuity (Anwar & Niode, 2017; Chang and Lee, 2007).

Improving job performance is not always seen as result of satisfied employees. Employee performance can be viewed from other perspective than the theory of job satisfaction or expectations of the factors inherent in one's work. One of the things that can encourage employee performance is how well the organization applies existing learning to support the job (Garvin et al., 2008). It is widely known that implementing a learning organization in an organization can also support the competitiveness of the organization and business excellence (Senge, 1997). Organizations that implement learning organizations will provide opportunities for their employees to apply continuous learning that can increase satisfaction and encourage performance (Cik et al., 2021; Dekoulou & Trivellas, 2015; Hatane, 2015; Karim and Rahman, 2018). The ability to learn an organization can be source of greater organizational competitive advantages (Kiedrowski, 2006). Thus, as an effort to achieve organizational goals amid conditions of competition and business uncertainty, organizations are able to have the ability to adapt to all changes that can affect the climate and organizational performance.

Various studies on the relationship of remuneration and organizational learning on employee satisfaction in improving job performance both in banking and non-banking industries (Nur Agustiningsih, 2016; Sopiah, 2013; Vosloo et al., 2014). But in contrary, higher remuneration does not always have important effect on job satisfaction and performance among young bankers in Malaysia (Hussain et al., 2014). Furthermore, other research reveals that there is no significant effect of remuneration on employee performance (Mahmud et al., 2018). However, the influence of remuneration policy and learning organizations consisting of process and practice factors still requires proof and becomes an opportunity for further research and understanding.

The problem addressed by this study is the potential for incomplete understanding by scholars, practitioners and organizational leaders of the nature and possible relationship between remuneration policy, organizational learning, employee satisfaction and performance. There are inconsistencies in the previous findings about the relationship between remuneration policy, learning organization and performance irrespective of whether the study pertains to managerial pay. It is believed that new empirical evidence needs to be brought forward in order to provide a better understanding of the issue. The purpose of this study was to perform a quantitative assessment analyzing the relationships among remuneration policy, learning organization, job satisfaction, and job performance in regional development bank employees. Thus, another purpose of this study to determine to what extent, if any, the variables of remuneration policy, learning organization, can predict job satisfaction and performance.

## 2. LITERATURE REVIEW

The purpose of this section is to provide theoretical and empirical based in building conceptual framework related to this study. The literature review concludes with a theoretical framework and the formulated proposition for this study.

Meanwhile, employee performance in an organization is important to review because it shows the degree to which the achievements of existing individuals can contribute to organizational achievements. Employee performance has a significant impact on organizational management. Employee performance, in general, refers to an employee's contribution and performance concerning the organization's goals (Hatane, 2015; Yuniawan et al., 2020). Studies on the importance of employee performance in the banking sector have been studied previously with an emphasis on how the results can be achieved.

Study on remuneration focused more on managing remuneration for executives in companies, both banking and non-banking companies (Goobey, 2005; McCahery and Renneboog, 2001; Słomka-Gołębiowska, 2016), with its remuneration area have mostly focused on executive salaries in nonbank companies. Considering that the executive level should not only be on the board of directors, but also managerial at the middle level, the remuneration should be managed properly. While in the banking sector, there is growing conflicts of interest among stakeholders than in non-banking firms due to issue of debt ratios and asset-liability. This could lead to greater importance concerning the urgency to offer high rewards to directors and executives compared to the non-bank sector.

Previous studies have shown the important points of the existence of a remuneration policy in an organization and how it impacts on employee satisfaction (Jalal and Zaheer, 2017; McCahery and Renneboog, 2001; Sawitri et al., 2018). It is argued that better remuneration policy in banking organization could increase job satisfaction among respondents. It was clear that researchers and practitioners acknowledge that remuneration is important in managing human resources. Remuneration policy acted as a barrier or opportunity for organizations to

perform effectively and efficiently in order to enhance organizational performance and competitiveness.

Organizations that are able to manage employee job satisfaction by paying attention to the factors that influence it will be able to encourage their employees to carry out their duties and contribute more to organizational performance. Employee satisfaction is the level of employee acceptance of the expectations and reality of work (Chang and Lee, 2007; Farooqui and Nagendra, 2014). Various studies on employee satisfaction in the banking industry that have been carried out state that the higher the employee satisfaction, the higher the employee performance in the organization (Hira & Waqas, 2012; Mishra et al., 2020; Pham, 2016).

In addition to remuneration, learning organization is considered as something that can encourage employee satisfaction (Dekoulou and Trivellas, 2015; Hatane, 2015) and performance (Awan & Asghar, 2014; Karim and Rahman, 2018; Pham, 2016). A learning organization is an organization where the people in it continue to develop their capacities with continuous learning through the development of mindsets and so on from all elements of the organization to achieve the goals that have been set (Senge, 2006), where new and expansive thinking patterns are fostered, where collective aspirations are freed, and where each individual is constantly learning to see the whole together. There are three important points in organizational learning that support adaptability, namely a conducive learning environment, transformational leadership, and appropriate learning processes and practices (Karim and Rahman, 2018). The application of organizational learning as a whole ultimately forms dynamic thinking skills for organizational members so that they are able to encourage the creation of innovation and motivate each individual who can support the achievement of goals and business continuity (Chang and Lee, 2007).

If a strong association among the four main factors of remuneration policy, learning organization, job satisfaction and job performance exists in banking organization, such finding could presents an opportunity for managers to create a better environment for employers, employees, and customers. Thus, the explanation above can be further explained according to the conceptual framework developed in this study.

## 2.1 Hypotheses Development
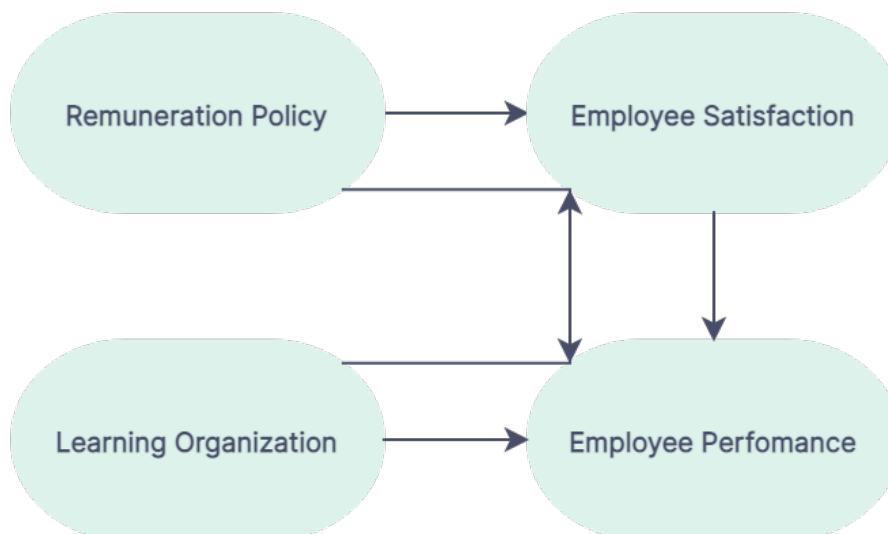


**Figure 1**. Conceptual Framework

Conceptual framework (Figure 1) develops an understanding for the main variables and the relationships between them which is effective for identifying the main findings in the context of

the research problem and also the gaps that need to be filled to address the problems undertaken in this study. Based on the conceptual framework presented above, the following hypotheses can be formulated:

Hypothesis 1   : The better remuneration policy and learning organization will make more employees satisfied with their work

Hypothesis 2   : The better remuneration policy and learning organization will make the performance of employees increase in their work.

Hypothesis 3   : The more satisfied employees are with their work, the more their performance will increase.

Hypothesis 4   : The better remuneration policy and learning organization will make more employees satisfied with their work and then increase their performance.

## 3. METHODOLOGY

In order to analyze the hypothesized relationships, the study used a cross sectional study with quantitative analysis. Subsequently, primary data concerning the individual perception about company's remuneration policy, learning organization, employee satisfaction and performance was collected using a electronic survey with a second, larger sample of middle managerial officers or executives in Regional Development Banks of East Java. This job category includes individuals who act as Division Leader, Sub Division Head, Branch Office Head, Sub-Branch Office Leader, and Senior Officer. In the process, 408 people who meet these criteria have been identified as the target sample in this study.

The questionnaire developed in this study uses a Likert scale of 1-5, in which ranging from 1 (disagree) to 5 (strongly agree) items to measure all variables. For each construct, the validity of each respondent's answers was assessed by examining mean scores, correlations, and reliability. Data collected and analyzed by using structural equation modelling (SEM), that is a a comprehensive statistical approach to test hypotheses about the relationship between observed variables and latent variables. The SEM approach is a more comprehensive and flexible approach to research design and data analysis than any other single statistical model in standard use by management and social scientists.

Therefore, the urgency of this research arises because the potential satisfactory and job performance by officers in banking industry. Based on the conceptual framework and hypotheses proposed in this study, structural equation modeling is used to answer research questions as well as to test each of the proposed hypotheses.

## 4. RESULT

**Table 1**. Mean, Standard Deviation, and Correlation Between Variables

|  | Mean | SD | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1. Remuneration Policy | 3.546 | 9.073 | (.874) | | | |
| 2. Learning Organization | 3.397 | 8.636 | .389** | (.875) | | |
| 3. Employee Satisfaction | 3.730 | 16,649 | .454** | .396** | (.913) | |
| 4. Employee Performance | 4.128 | 8.401 | .373** | .349** | .652** | (.808) |

Notes: **p , 0.01; *p , 0.05; Alpha Cronbach for each scale is italicized and shown diagonally.

Table 1 shows the average answers from respondents for each variable observed in this study, as well as the standard deviation value. The average value for the variables found ranged from 3.397 to 4.128. The mean value for remuneration policy is 3.546, which means that there is a tendency for moderate remuneration policy perceived by banking officers. Furthermore, the mean value of learning organization was found 3.397, which means that there is a tendency for learning organization values to be categorized as quite good. Meanwhile, the mean value of employee satisfaction was found to be 3.73, which means that employees perceive satisfaction in their job. While employee performance found to have highest mean value (4.128), which means that banking officers' performance in their job was good enough. The correlation value between variables can be seen with positive and negative correlation values, ranging from 0.373 to 0.652. Meanwhile, the value of Cronbach's alpha for each variable was found to be above the critical value (greater than 0.60) which ranged from 0.808 to 0.913. These results indicate that all the variables observed in this study have a reliability value that can be confirmed as acceptable.

The result of the goodness of fit test for the overall model are as follows:

**Table 2.** Overall Model Testing

| Criteria | Output | Critical Value | Result |
|----------|--------|----------------|--------|
| Chi-Square | 148,971 | ≤ 195,97 | Good |
| P-Value | 0,110 | ≥ 0,05 | Good |
| CMIN/DF | 1,155 | ≤ 2,00 | Good |
| RMSEA | 0,028 | ≤ 0,08 | Good |
| TLI | 0,992 | ≥ 0,95 | Good |
| GFI | 0,924 | ≥ 0,90 | Good |

Based on Table 2, it show that the structural model built in this study have been tested and could be used to describe the relationship between the variables observed. The model provides an acceptable level of fit for the data, such as Chi-Square, the root mean square error of approximation (RMSEA), the fit index (GFI) and the adjusted goodness. Model fit is achieved by testing the modification index. The GFI, RMSEA, and Chi-square statistics are the indices commonly used for a measure called the absolute fit measure.

**Table 3**. Beta Coefficient on The Effect Between Variables

| Relationship | Beta Coefficient | $t_{statistic}$ | Sign. | Remark |
|--------------|------------------|-----------------|-------|--------|
| Remuneration Policy → Employee Satisfaction | 0,490 | 6,390 | .009 | Significant |

| | | | | |
|---|---|---|---|---|
| Learning Organization → Employee Satisfaction | 0,310 | 4,367 | *** | Significant |
| Remuneration Policy → Employee Performance | 0,380 | 5,212 | *** | Significant |
| Learning Organization → Employee Performance | 0,200 | 3,123 | 0,002 | Significant |
| Employee Satisfaction → Employee Performance | 0,320 | 3,831 | *** | Significant |

The table above shows the beta coefficient values for each relationship between the variables observed in this study. The coefficients of the research are shown in the above Table 2. The Beta value of standardised coefficients is considered another most important value in the above critical value.

The effect of remuneration policy on employee satisfaction is significant with a value $\beta_1$ = 0.490, with a t-statistic value of 6.390. These results indicate that the better the remuneration policy perceived by employees will be able to encourage greater job satisfaction. The effect of learning organization on employee satisfaction is significant with a value of $\beta_2$ = 0.310, with a t-statistic value of 4.367. This finding is in line with previous studies indicating a positive relationship between learning organization and job performance in populations other than bank employees has found. These results indicate that the better the practice of learning organization in the Regional Development Banks of East Java, this will increase employee satisfaction. From the results of the analysis of data, it can be concluded that the first hypothesis in this study can well confirmed. There is a significant and significant effect of remuneration policy and learning organization on employee satisfaction.

The effect of remuneration policy on employee performance was found to be significant with a value of $\beta_3$ = 0.380, with a t-statistic value of 5.212. Therefore, it can be deduced that remuneration policy has significant impact on employee performance.This positive relationship has been supported by some studies, although previous findings were inconsistent. These results indicate that the better the practice of remuneration policy in the Regional Development Banks of East Java, this will increase employee performance. The effect of learning organization on employee performance is significant with a beta value of $\beta_4$ = 0.200, with a t-statistic value of 3.123. These results indicate that the better the practice of learning organization in the Regional Development Banks of East Java, this will increase employee performance. Based on findings, it can be concluded that the second hypothesis is accepted in this study. The effect of employee satisfaction on employee performance is significant with a value of $\beta_5$ = 0.320, with a t-statistic value of 3.831. These results show that when employees are more satisfied with their work, this will encourage their performance in the Regional Development Banks of East Java. These findings indicate that the third hypothesis in the study can be well confirmed. In a satisfying environment in organization, there were more than expected performance among individuals.

As for the indirect effect value in model, it can be seen that each path between remuneration policy and learning organization on employee satisfaction was found to be significant. Furthermore, the beta coefficient value between employee satisfaction on employee performance was found to be significant. The indirect effect for remuneration policy and learning organization on employee performance through employee satisfaction was found to be significant. So that the fourth hypothesis in this study can be well confirmed.

All of the coefficients of influence on the relationship between variables were found to be significant. This confirms the linearity between the relationships between variables described in the research model.

**5. DISCUSSION**
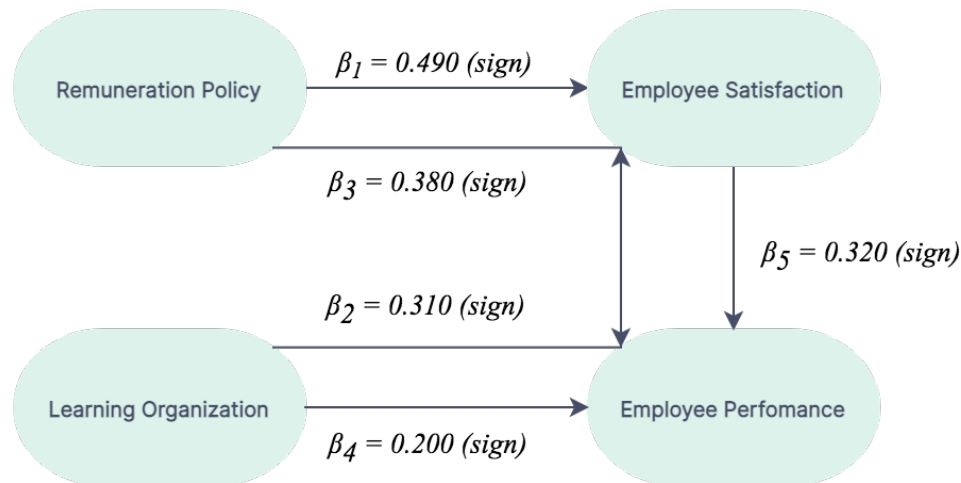


**Figure 2**. Beta Coefficient

The hypothesized relationships represented in the path model are presented in Table 3 and could be seen in Figure 2. As evidenced from an examination of the path coefficients and their corresponding significance levels, four of the hypotheses proposed in this study is well confirmed.

Research findings reveal that remuneration policy can increase employee satisfaction and performance. This is considered as a form of salary that is in accordance with the workload, employee needs, and is relatively the same as other companies. This form of remuneration is adjusted to the compensation policy that applies in the organization, taking into account that its application must be fair, reasonable, and can be a factor that motivates employees to work optimally. In addition, indirect forms of compensation such as remuneration are believed to increase discipline, commitment, and willingness to learn new things that support the effectiveness of achieving organizational performance. This findings is in line with previous empirical findings which emphasize that remuneration plays an important role in encouraging employee satisfaction (Białas et al., 2015; Jalal & Zaheer, 2017; Nur Agustiningsih, 2016; Sawitri et al., 2018).

For banking industry, learning organization believed to be able in supporting employee satisfaction and performance. The learning organization allows how organizations can apply new approaches to work, offer new products or services, have a clear formal process for creating and evaluating new opinions or ideas. Effectiveness in a learning organization can be seen from how appropriate training is for employees, how training and new forms of training models can be applied to the training. These various kinds of things become the theoretical basis of why it is important to build a learning organization in banking organizations which can further encourage increased employee satisfaction. The findings of this study are in line with some of the results from previous studies (Dirani, 2009; Erdem et al., 2014; Karim & Rahman, 2018) that explain the importance of learning organization in banking industry in increasing job satisfaction.

In banking industry, employee performance can contribute to organizational performance, which includes the quality of work where employees are able to carry out work efficiently, update knowledge about work, and improve job skills. The quantity of work is about employees who are willing to work more than the proper hours, are willing to take work home if it is not finished, and are willing to help other people who need help. The achievement of individual targets includes focusing on work results, taking on more responsibilities and new challenges. Meanwhile, employee satisfaction was found to be one of the most important things observed in the study. This is based on research findings which reveal that employee satisfaction can mediate the relationship between remuneration policy and organizational learning on employee performance. Employee satisfaction is important for the growth of any organization. Employee performance and motivation influences the specific employees' job satisfaction. From the research findings, it can be revealed that remuneration policy is an important matter to be managed (designed, determined, implemented and evaluated) in Regional Development Banks of East Java. Better remuneration policy proven to increase employee satisfaction, and henceforth can improve employee performance.

Fortunately, the results of this study will provide valuable information to the top managers and leaders in and encourage positive changes within Regional Development Banks of East Java. Top managers and leaders should prioritize how to increase employee work-related performance, especially by focusing on employee remuneration plans and build a better learning organization practice.

As a result, the growing body of knowledge is focused on developing insights into the fundamental impact of remuneration policies in the reward systems developed by banking organizations for employees. In this context, remuneration policy and learning organization are enforced as independent variables as determinants of perceived job satisfaction and performance displayed by employees working at the Bank. The systematic differences in how remuneration policies can be offered in different forms of cultural settings are reflected by how employees can provide intrinsic tips. For example, learning organizations that have collectivist characteristics have a significant focus on equality principles or have a high preference for them, whereas individualists focus on equality principles.

## 6. CONCLUSION

This study investigates the impact of the remuneration policy and learning organization on the level of satisfaction and performance among middle managerial officers in Regional Development Banks of East Java. Both remuneration policy and learning organization could affect employee satisfaction and performance. An important finding of this study is the role of remuneration policy in the banking industry, which is very important to increase both employee satisfaction and performance.

Remuneration policy can increase employee satisfaction and performance. This is considered as a form of salary that is in accordance with the workload, employee needs, and is relatively the same as other companies. Employee performance can contribute to organizational performance, which includes the quality of work where employees are able to carry out work efficiently.

Examining the results of this study is vital because if supervisors and administrators will understand better about the relationship between remuneration policy, learning organization and employee satisfaction, they could potentially know how it affects their employee performance. The overall results of this study show a need for attention in understanding the Regional Development Banks's supervisor's and administrator's thoughts and feelings in this area.

There is a time situation where competition in the banking world is getting tighter, and there is also an increase in financial services outside the banking world, it is advisable to carry out regular evaluations by paying attention to the implementation of remuneration policy, especially for managerial officers who are well competent and qualified. This study was limited to bank employees in the Regional Development Banks of East Java. Assessment of the constructs in this study were limited to the self-reported responses by the sample.

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JOMAES

# Testing 13 Variables Toward Buying Decision for the Collaboration of McDonald's Restaurant with BTS (Brand Ambassador) in Indonesia

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**Abstract**

The purpose of this research is identification of variables which may have positive or negative influence toward buying decision; measuring a goodness of fit of 13 variables toward buying decision; identification of which marketing mix 3 tane of var. plays the biggest role toward buying decision. The sample was 100 people, selected by purposive sampling technique. The variables measured were culture, demographics, social class, reference group, family, marketing activities, perceptions, learning, memory, motives, personality, emotions, and attitudes. The data was obtained through a Likert scale questionnaire. The data was processed by testing the validity, reliability, multiple linear regression analysis, T test, F test, and the coefficient of determination. The results indicated that social and family variables have a negative influence, but simultaneously, the 13 variables are able to encourage BTS menu buying decisions with an effect of 66.30% while the most important marketing mix factor is: Value to Marketer.

## 1. INTRODUCTION

Brand ambassadors are widely used by companies as a marketing strategy since brand ambassadors are able to offer benefits. The most effective ones are those who are able to provide customer service and act as spokespeople for the company. Then the most important thing is the ability to give a company brand a boost on social media, spread positive messages and influence consumer sales. Some examples of the use of this strategy in the world are Kai EXO for Gucci; Blackpink for BVLGARI (Anjani, 2020), and Dua Lipa for Puma (Anugranov, 2020).

In Indonesia, there are also companies including Uniqlo (Sobry, 2020) and McDonald's restaurants (Agmasari, 2021), that use the brand ambassador strategy. In 2020, McDonald's restaurants experienced 68% decline in profit corresponding to USD 483.8 million in the second quarter of 2020 (CNN Indonesia, 2020). This is the reason why McDonald's is ranked second after Kentucky Friend Chicken (KFC) in 2021 (Pusparisa, 2021). Even so, McDonald's restaurants are still trying to be the best in Indonesia. The restaurant management decided to use a brand ambassador. McDonald's uses a famous Korean band called Bangtan Sonyeondan or Bulletproof Boy Scouts (BTS) and issued a BTS menu. This strategy has been implemented since June 2021 (Agmasari, 2021) and has successfully increased profits to reach USD 2.1 billion in the next quarter (Arbar, 2021).

It seems that the ambassador has a credible brand and provides good ratings from consumers (Vashisht, 2020). In fact, the brand is not limited only to the quality of goods, but also involves

trust in the ingredients, the manufacturing process, the level of cleanliness and safety, as well as various other aspects of a product (Jyote and Dhritiparna, 2020). Several research results on brand ambassadors also show that, indeed, the use of brand ambassadors can increase buying decisions (Clemons, 2019; Selina and Philipp, 2018; Piehler et al., 2018). The combination of the company's brand and brand ambassador should be able to synergize and produce better brand equity and brand awareness among the consumers.

There are many variables that affect the success of using brand ambassadors to increase buying decision. Mothersbaugh (2019) divides of these variables into 2 major parts, namely social variables and personal variables. Iyer et al. (2018) inserted that brand orientation, strategic brand management and brand performance are also important variables in this success. In cyberspace, this success is also influenced by Word of Mouth sentiment (Lopez et al., 2020).

Another important factor in supporting the successful use of brand ambassadors is the marketing mix strategy used in cyberspace. Currently, there are 4 marketing mixes in the digital world, namely Valued Customers, Value To The Customers, Value To Society, and Value To Marketer (4V) (Steenkamp, 2014; Londhe, 2014). The mix is conveyed through various existing internet media such as websites, online shops, Facebook, Instagram, TikTok, YouTube, etc. (Unnava and Aravindakshan, 2021; Hassan and Shahzad, 2022; Shaw et al.,2022).

In light of all the facts and the flow of thought above, it can be said that the use of brand ambassadors can increase buying decision. Furthermore, the objectives of this study were three folds:

1. Identification of variables which have a positive or negative influence toward buying decision.

2. Measuring the goodness of fit of 13 variables toward buying decision.

3. Identification of which marketing mix plays the most role in buying decision.

## 2. METHOD

This research was conducted on consumers who had bought the BTS meal package at the McDonald's Lodaya restaurant, Bogor City, Indonesia. The population of this store's consumers was 29,569 people. The sample was 100 people which were selected by purposive sampling technique. The variables measured in this study used variables from Mothersbaugh (2019); namely cultured, demographics, social status, reference groups, family, marketing activities, perception, learning, memory, motivation, personality, emotion, and attitude. The instrument of each variable can be seen in table 1 and the research model in Figure 1. Data collection was carried out using a questionnaire that had a Likert scale with a scale of 1 to 5 where 1 indicated strongly disagree and 5 indicated strongly agree. Testing the validity of the data and its reliability was carried out before processing and analyzing. The data analysis was conducted by multiple linear regression, T-test, F-test, and coefficient determination.

**Table 1.** Instrument of Variables

| Variables | | Instruments |
|---|---|---|
| Cultured $X_1$ | 1 | Following trend |
| | 2 | South Korea cultured |
| Demographics X2 | 1 | Consumed by all ages |
| | 2 | Near customers domicile |
| | 3 | No gender related |
| Social Status $X_3$ | 1 | Prestige |
| | 2 | Social status |
| Reference $X_4$ | 1 | Friends |
| | 2 | Social media |

| Family $X_5$ | 1 | Main family influences |
| | 2 | Secondary family influences |
| Marketing Activities $X_6$ | 1 | BTS special edition effect |
| | 2 | Influence of Mc.Donald's advertising |
| Perception $X_7$ | 1 | Price suits to what is offered |
| | 2 | Guaranteed products |
| Learning $X_8$ | 1 | Previous shopping experience |
| | 2 | Other buyer reviewed |
| Memory $X_9$ | 1 | Remember to quality offered |
| | 2 | Remember to fast delivery services |
| Motivation $X_{10}$ | 1 | Menu is my favorite |
| | 2 | New menu raises curiosity |
| Personality $X_{11}$ | 1 | I am a BTS's fans |
| | 2 | I support BTS's products |
| Emotion $X_{12}$ | 1 | To enliven |
| | 2 | Suitable for me |
| Attitude $X_{13}$ | 1 | Used to fast foods |
| | 2 | Limited editions of BTS's menu |
| **Marketing Mix** | | |
| Value Customer | 1 | BTS menu's stock equal with residents around |
| | 2 | Buying because of limited edition |
| Value To Customers | 1 | Easier for buyer to buy online |
| | 2 | No need for a long queue |
| Value To Society | 1 | The ingredients are from domestic |
| | 2 | Eco-friendly packaging material |
| Value To Marketer | 1 | Quality products makes easier for marketers |
| | 2 | Product innovation in special days encourage spirit of marketers |
| **Buying Decision** | | |
| | 1 | I have explored the product |
| | 2 | I have evaluated the product |
| | 3 | Suits to my taste |
| | 4 | Suits to my prestige |
| | 5 | It is affordable |
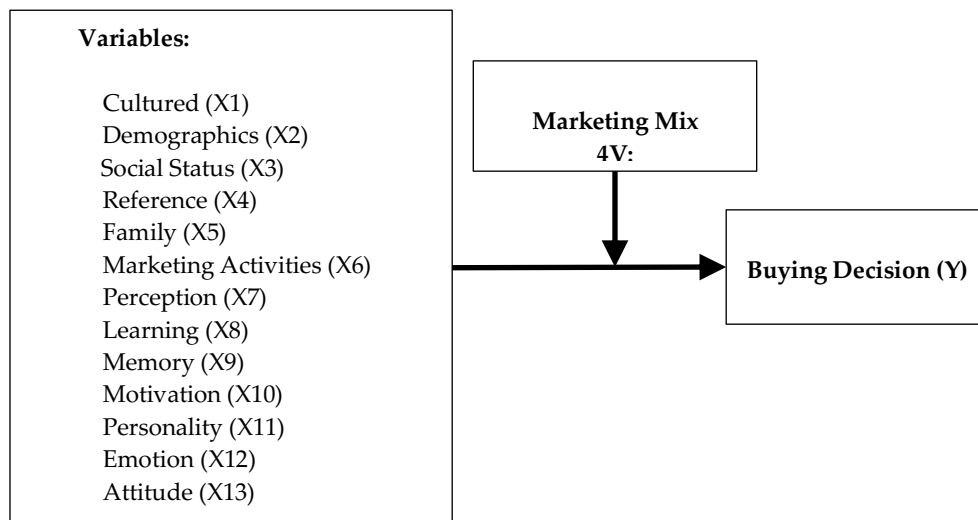


**Figure 1**. Research Model

## 3. RESULT
### 3.1. Respondents

Table 2. shows that most of the respondents are teenagers, 16-25 years old (90%), whose occupation is student (81%) with an income up to Rp.1,000,000 per month (68%) and most are women (92%).

**Table 2.** Profile of Respondents

| Variable | Percentage |
|---|---|
| **Gender** | |
| Male | 8 |
| Female | 92 |
| **Ages** | |
| 16-25 yo | 90 |
| 26-36 yo | 8 |
| > 36 yo | 2 |
| **Occupations** | |
| Student | 81 |
| Private Company | 10 |
| Businessman | 4 |
| Government Employee | 1 |
| **Incomes (Rp.)** | |
| < 500,000 | 41 |
| 500,000 – 1,000,000 | 27 |
| 1,000,000 – 1,500,000 | 10 |
| 1,500,000 – 2,000,000 | 8 |
| > 2,000,000 | 14 |

## 3.2. Validity and Reliability Test

Table 3. shows the results of the validity and reliability tests. It can be seen that the Cronbach's Alpha value is above 0.600 for all variables in the reliability test and the AVE value is above 0.195 for the validity test. These factors indicate that the research data is valid and reliable.

**Table 3.** Validity and Reliability Test

| Variables | Reliability | Validity |
|---|---|---|
| | Cronbach's Alpha | Average Variance Extracted (AVE) |
| $X_1$ | 0,742 | 0,732 |
| $X_2$ | 0,747 | 0,602 |
| $X_3$ | 0,746 | 0,621 |
| $X_4$ | 0,753 | 0,530 |
| $X_5$ | 0,753 | 0,505 |
| $X_6$ | 0,737 | 0,748 |
| $X_7$ | 0,748 | 0,561 |
| $X_8$ | 0,733 | 0,828 |
| $X_9$ | 0,736 | 0,788 |
| $X_{10}$ | 0,738 | 0,744 |
| $X_{11}$ | 0,737 | 0,756 |
| $X_{12}$ | 0,762 | 0,223 |
| $X_{13}$ | 0,750 | 0,542 |

## 3.3. Multiple Regression
The results of the multiple regression from the data can be seen in the following:

$$Y = 0,621 + (-0,318) X1 + 0,376 X2 + 0,044 X3 + 0,586 X4 + (-0,114) X5 + 0,411 X6 + 1,256 X7 + 0,643 X8 + 1,508 X9 + 0,926 X10 + 0,255 X11 + 1,060 X12 + 0,478 X13$$

Based on this equation, it can be seen that the constant value is 0.621. This means that if all variables are unchangeable, then the buying decision will have a value of 0.621. In this equation there are also several variables that have negative coefficients, namely X1 (cultured) and X5 (family), while the other variables are positive.

## 3.4. T-Test

The T-test in this study uses standard error ($\alpha$) = 5% and degree of freedom (df) = 87. Based on the $\alpha$ values and df, the $T_{table}$ value is 1.988.

**Table 4.** T-Test Result

| Variable | $T_{calculated}$ | Significant |
|---|---|---|
| $X_1$ | -0,767 | Not Significant |
| $X_2$ | 1,050 | Not Significant |
| $X_3$ | 0,114 | Not Significant |
| $X_4$ | 1,478 | Not Significant |
| $X_5$ | -0,301 | Not Significant |
| $X_6$ | 0,706 | Not Significant |
| $X_7$ | 2,277 | Significant |
| $X_8$ | 1,202 | Not Significant |
| $X_9$ | 2,587 | Significant |
| $X_{10}$ | 2,049 | Significant |
| $X_{11}$ | 0,659 | Not Significant |
| $X_{12}$ | 2,307 | Significant |
| $X_{13}$ | 0,818 | Not Significant |

Based on table 4. the variables that have influence individually on buying decisions are Perception (X7), Memory (X9), Motivation (X10), and Emotions (X12). While the variables that have no significant influence individually are culture, demographics, social status, reference group, family, marketing activities, learning, personality, and attitude.

## 3.5. F-Test

Based on table 5. the significance value is 0.000 <0.05 and the $F_{calculated}$ 15.967 > $F_{table}$ 1.83. Therefore, it can be deduced that there is a simultaneous influence between the variables of cultured, demographics, social status, reference group, family, marketing activities, perception, learning, memory, motivation, personality, emotions, and attitude towards buying decisions (Y) of BTS menu.

**Table 5.** F-Test Result

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 9319.744 | 13 | 716.903 | 15.967 | .000[b] |
| 1 | Residual | 3861.216 | 86 | 44.898 | | |
| | Total | 13180.960 | 99 | | | |

## 3.5. Coefficient Determination

Table 6. shows the adjusted R Square Value (goodness of fit) of 0.663. This means that all variables affect buying decisions for BTS menu by 66.30%.

**Table 6.** Coefficient Determination Result

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .841[a] | .707 | .663 | 6.701 |

### 3.6. Marketing Mix Score

Table 7. shows marketing mix score. The highest score is Value to Marketer (875) while the lowest score is Value to Customers (795).

**Table 7**. Marketing Mix Score

| Marketing Mix | Score |
| --- | --- |
| *Value To Marketer* | 875 |
| *Value To Society* | 824 |
| *Value To The Customer* | 863 |
| *Valued Customers* | 795 |

## 4. DISCUSSION AND CONCLUTION

### 4.1. Discussion

This profile of adolescent customers (sub-chapter 3.1) tends to be the same as previous research by Jian et al. (2021). In addition; number of women, which is more than number of men, is also similar to the results of research by Jian et al. (2021) and Zhe and Vanessa (2021). The profile indicated that this research has a similar respondent profile with previous research.

The results of the regression (sub-chapter 3.3), indicate that the higher value of cultural and family variables would affect buying decisions in the opposite way. Higher influence will keep consumers away from making a buying decision. The results of research by Dewi et al. (2017) show that, indeed, family damages shopping interests, even though according to Peter and Olson (2010), each family member can be the opposite of one another. While the research results of Syafirah et al. (2017) provide a positive coefficient on cultured variables, this is indeed highly dependent on the behavior or culture of the community that occurs in one's social environment, so that in a certain social environment, the response to buying decisions can be unidirectional and can also be opposite.

The results of the T-test analysis indicate that the buying decision process of McDonald's customers on the BTS menu is influenced individually by customer perceptions, motivation, memory and emotion. Several previous studies have also shown the same results, such as Widyasari et al. (2018), Bahrainizad and Rajabi (2018), and Qazzafi (2020) for the perception variable; Amron (2018) and Qazzafi (2020) for Memory variables; Auf et al. (2018), Herawati et al. (2019), Qazzafi (2020) for motivation variable; and Qazzafi (2020), Sungpo and Tun (2020), Jiseon and Jookyung (2022) for Emotion variable. Meanwhile, other 9 variables have no significant effect on buying decisions individually.

Simultaneously, all variables in this study, together, affected the buying decisions for the BTS menu through F-test result (Table 5). Then, based on the coefficient correlation analysis, all variables are able to encourage goodness of fit of at the rate of 66.30% (Table 6). This value indicates that the contribution of the independent variables on the dependent variable is 66.30%. While the rest of the other effects (33.70%) are caused by other variables, which are not examined in this study, such as product quality and price (Widyasari et al., 2018), work, lifestyle and psychology (Qazzafi, 2020).

The marketing mix of Valued Customers has the lowest score (795) compared to other marketing mix scores (Table 7). This shows that geographic and demographic factors are not an obstacle for customers of this restaurant to buy BTS menus. This is supported by the research results of Dominici et al. (2021) and Mah et al. (2019), which show that the distance between the store and customer does not affect purchases, especially with online buying process (Kwahk and Kim, 2016).

The Value to the Marketer in marketing mix has the highest score (875). This shows that brand image and brand equity, both the McDonald's brand and the BTS brand, have given the best contribution to the marketing mix of BTS meal products. Previous studies also support that brand equity and company image can make a good contribution to company's sales (Iglesias et al., 2019; Zia et al., 2021). In addition, BTS's role as a celebrity also helps increase in sales (Tran, 2019 and Delancy et al., 2020).

Thus, the use of BTS brand ambassadors by McDonald's restaurants to increase sales, such as the results of the researchs by Geurin (2020), Sawant et al (2019) and, Onyusheva and Salim (2022), is excellent decision.

## 4.2. Conclusion

The use of BTS as a brand ambassador by McDonald's restaurants in Indonesia to encourage buying decisions for the BTS menu has successfully increased sales through all variables. Cultural and family variables might have a negative effect, but the remaining variables have a positive effect. The variables studied simultaneously together have a goodness of fit at the rate of 66.30% on buying decisions through the best marketing mix factor: Value to the Marketer.

To further increase its sales, McDonald's needs to examine other variables which are outside the scope of this study that are influential and focus more on the marketing mix: Value to the Marketer to deliver its promotion materials.

This research was conducted on a large company that can pay for a well-known brand as a company ambassador. Considering the results of this study, for future research, it is necessary to research the use of appropriate brand ambassadors for Small Medium Enterprises.

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