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CONTENTS

RESEARCH PAPERS

1. Abdul-Azeez Adeniyi Alao,
   Wasiu Abiodun Sanyaolu
   Effect of Leverage on the Profitability
   of Nigerian Consumer Goods Manufacturing Firms ........................................... 5

2. Rasaki O. Kareem,
   Rukayat A. Arije,
   Amoo O. Zakariyah,
   Yusuf H. Avovome
   Natural Resources Endowment, Human Capital Development
   and Economic Growth in Nigeria ................................................................. 26

3. Evelyn Nwamaka Ogbeide-Osaretin,
   Bright Orhewere
   Population Growth, Gender Inequality
   and Economic Development in Nigeria .......................................................... 47

4. Yusuf Oke Lawal,
   Emmanuel Oladapo George,
   Isiaq Olasunkanmi Oseni,
   Babatunde Okuneye
   The Effect of Corruption on Economic Growth in Nigeria .............................. 65

REVIEW PAPERS

5. Horatiu Dan
   Culture, Environmental Consciousness and Consumption – an Exploration
   of the Underlying Mechanisms of a Complex Relation .................................... 79

6. Ruslan Imranovich Khasbulatov,
   Evgeny Ivanovich German
   Strengthening Economic Cooperation of the CIS Countries ............................ 96
EFFECT OF LEVERAGE ON THE PROFITABILITY OF NIGERIAN CONSUMER GOODS MANUFACTURING FIRMS

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Abstract
This study examined the effect of leverage on the profitability of Nigerian manufacturing firms based on the data of seventeen (17) Nigerian consumer goods firms listed on the Nigerian Stock Exchange for the period of 2012 to 2017. The study adopted the dynamic panel model. The main finding of the study revealed that leverage has a significant positive effect on profitability with p-value of 0.0000. The study therefore recommended that companies in the Nigerian consumer goods industry should take advantage of debts’ tax shield from the interest in their financial structure in order to improve their profitability level.

Key words:
Degree of operating leverage; Degree of financial leverage; Degree of combined leverage; Earnings per Share.

1. Introduction

Ideally, firms do take money from lenders to boost their operations in order to bring about higher earnings. Hence, such money borrowed from various sources indicates how leverage is associated with the firms. Leverage involves the use of borrowed money in order to make investments and returns on the said investments; for this reason, leverage is used in various situations as a way of varying the cash flow and financial structure of a firm (Smith, 2002) cited in (Acheampong, Agalega & Shibu, 2014). The nexus between
the capital structure and investment choices of enterprises is a key area of attention in the field of corporate finance (Thi Bich Ngoc, Ichihashi, & Kakinaka, 2019). The profitability of a firm for a particular period can be conceptualised as the final results of its investing and operating activities as well as the ability of the management to increase the firms’ profit via debt (Gatsi, Gadzo & Akoto, 2013). Hence, many researchers have argued that leverage is the top most factor among the other factors that can affect firms’ profitability (Ahmad, Salman & Shamsi, 2015).

Modigliani and Miller (1958) in their seminal paper were of the opinion that the capital structure of a firm is not related to the firm’s value while Jensen and Meckling (1976) argued that leverage has impact on the corporate performance of a firm and also influence financial decisions. Ordinarily, an excellent capital structure framework is expected to bring about minimisation of overall cost of capital, maximisation of organisations’ value and enjoying the advantage of corporate leverage with the presence of corporate taxes. Leverage is the proportion of fixed interest capital (that is, debt and preference share capital) in financing the operations of a firm. Ordinarily the higher the degree of leverage, the higher the risk involved in meeting fixed payment obligations (Akinsulire, 2011).

Various researchers have in the past worked on the relationship between leverage and profitability however, while there are differences in the proxy for the independent variable (leverage), contradictory results have also been reported. Some authors (Onuora, 2019; Dalcì, 2018; Moghaddam and Abbaspour, 2017; Nwanna and Ivie, 2017; Adenugba, Ige and Kesinro, 2016; Ahmad, Salman and Shamsi, 2015; Raheel and Shah, 2015; Enekwe, Agu and Eziedo, 2014; Alaghì, 2012) only considered financial leverage in their studies while others (Ahmad, Salman and Shamsi, 2015; Raheel and Shah, 2015; Titman and Wessels, 1988; Sheel, 1994; Wald, 1999; Eunju and Soocheong, 2005; Ahmad, Salman and Shamsi, 2015) in their works reported that financial leverage has a significant negative relationship with profitability.

On the other hand, others (Nwanna and Ivie, 2017; Moghaddam and Abbaspour, 2017; Larry and Stulz, 1995) reported a significant positive relationship / effect between leverage and profitability. However, Nwanna and Ivie (2017) in their work on financial leverage and firms’ performance; debt ratio, debt-equity ratio and interest coverage ratio were used to proxy financial leverage while the authors used profitability, size, liquidity, managerial efficiency and market capitalisation value to measure firms’ performance. Therefore, due to such contradictory findings and proxies observed from the literature, it becomes unclear as to whether leverage really influences profitability especially in developing economy like Nigeria.
Furthermore, notwithstanding the fact that Nigeria is the largest consumer market in sub-Saharan Africa, investment in the Fast-Moving Consumer Goods (FMCG) sector has been laudable in line with the massive potential for growth given the fascinating demographic configuration. In essence, FMCG sector in Nigeria remains fundamentally attractive to investors across countries. Therefore, there is the need to examine the effect of leverage (degree of operating leverage, degree of financial leverage and degree of combined leverage) on the profitability (Earnings per Share) of Nigerian FMCG firms.

The main objective of this study is to empirically ascertain the effect of leverage on the profitability of Nigerian consumer goods manufacturing firms. Specifically, and in line with what is obtainable in previous studies, the effect of three (3) proxies of leverage – degree of operating leverage, degree of financial leverage and degree of combined leverage were examined. Above all, the present study tries to improve on the gaps identified in previous studies of Dalci (2018), Raheel and Shah (2015) and others by increasing the number of samples involved as well as the scope covered to ten (10) years in order to give room for acceptable generalisation. Furthermore, the present study included firm size (SIZE) as control variable while the dynamic panel model was used to analyse the data.

2. Literature Review

Discussions on leverage and profitability have been based on various propositions by different scholars in the past. Some of those theories comprise pecking order theory, trade-off theory as well as the famous agency theory. The pecking order theory posits that firms prefer internal financing if it proves to be sufficient but resort to borrowing where the internal financing proves to be insufficient and relied on external financing through equity as a last option. Hence, the theory is based on the idea that the order of resources prevails over their size. However, for developed countries, a new pecking order theory has been considered and it is characterised by a reassessment of the financing preference thus; retained earnings, equity and lastly long-term debt. On its submission, the trade-off theory posits that firms mark out their optimal financial structure by maintaining a balance between the costs of taking additional and the benefits derivable. Jensen (1986) stressed that the benefits of leverage include tax deductibility of interest and improved cash flow. Therefore, the theory postulates that a firm borrows up to the point that the marginal value of the tax advantage of debt is balanced by the increase in the present value of bankruptcy costs. The agency theory describes the relationship between principals (shareholders) and agents (managers) where the agents are expected to act in the interest of the principals but seek several personal benefits at the expense of the owners.
Empirically, several works have been conducted in the past to investigate the nature of relationship and or effects of leverage on the profitability of firms all over the world. These include but not limited to the works of Thi Bich Ngoc et al (2019) which investigated the relationship between financial leverage and investment decisions in Vietnam’s small and medium-sized enterprises in 2011, 2013 and 2015. The authors relied on quantitative data gathered from the survey of two thousand five hundred (2500) SMEs in Vietnam. Using logistic regression, the study revealed a positive relationship between financial leverage and investment decision. Furthermore, it was reported that firms with higher financial leverage are more expected to select external financing sources than internal ones.

Onuora (2019) examined the link between financial leverage and financial performance of eight (8) Deposit Money Banks in Nigeria from 2005 to 2017. The study used Debt- Equity Ratio (DER) and Debt Ratio (DR) as proxies for financial leverage, Return on Equity (ROE) as proxy for financial performance while size of the banks (represented by total assets) are used as control variable. The data was analysed via correlation analysis and OLS regression. The results revealed a significant negative relationship between ROE and DER. Furthermore, an insignificant negative relationship was reported between ROE and DR while the size produced a significant positive relationship with ROE.

Mulyana, Zuraida and Saputra (2018) where the influence of liquidity, profitability and leverage on earnings management and its impact on the value of one hundred and fifty (150) manufacturing companies listed on the Indonesia Stock Exchange from 2011 to 2015 was investigated. The study’s results revealed that liquidity, profitability and leverage collectively and individually have effect on both the firms’ earnings management as well as the value.

In the same vein, Sidhu (2018) studied the impact of leverage on stock market liquidity of one hundred and eight-seven (187) Indian firms from 2009 to 2013. The multiple regression models were used in testing the hypotheses. The results revealed a negative relationship between stock market liquidity and firms’ leverage. Hence, a low level of debt is likely to resort to high stock market liquidity. Similarly, Dalci (2018) examined the impact of financial leverage on profitability of one thousand five hundred and three (1,503) listed manufacturing firms in China from 2008 to 2016. The study used regression analyses for the panel data obtained. The results revealed that the impact of leverage on profitability is inverted U-shaped. Furthermore, it was reported that the positive impact of financial leverage on profitability is attributed to tax shield while the negative impact is caused by bankruptcy cost, financial distress, agency problems as well as information asymmetry.
Edem (2017) examined the impact of liquidity management (liquidity ratio, loan to deposit ratio and cash reserve ratio) and performance (Return on Equity) of twenty-four (24) Deposit Money Banks (DMBs) in Nigeria from 1986 to 2011. The study used multiple linear regression and correlation coefficient models in testing the study’s hypotheses. The regression results revealed that there is a significant relationship between liquidity management measures and return on equity of (DMBs) in Nigeria. The correlation results reported a positive impact of liquidity management measures (liquidity and cash reserve ratios) on return on equity of (DMBs) in Nigeria while loan to deposit ratio revealed a negative impact. Nabeel and Hussain (2017) studied the effect of liquidity management (current, quick, cash, interest coverage and capital adequacy ratios) on banks’ profitability [Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS)] in Pakistan. The study sampled ten (10) banks in Pakistan from 2006 to 2015. The study adopted both the correlation and regression techniques in testing the hypotheses. The study reported that interest coverage, capital adequacy and quick ratios have positive while cash and current ratios have a negative relationship with banks’ profitability proxy with ROA, ROE and EPS.

Moghaddam and Abaspour (2017) studied the effect of leverage and liquidity ratios on earnings management and capital of fourteen (14) banks listed on the Tehran Stock Exchange from 2010 to 2015. The study adopted the multivariate linear regression models via panel data. The results revealed that degree of financial leverage and liquidity ratios have positive and significant effect on earnings management of banks. Nwanna and Ivie (2017) investigated the effect of financial leverage (debt ratio, debt-equity ratio and interest coverage ratio) on firms’ performance (profitability, size, liquidity, managerial efficiency and market capitalisation value) of thirteen (13) quoted banks in Nigeria from 2006 to 2015. The study employed the multiple regression models to test the effect of the independent variables on the dependent variables. After the analysis, it was reported that financial leverage has a positive effect on both profitability and managerial efficiency while on the other hand; financial leverage has no significant effect on liquidity, size and market capitalisation value.

Ghasemi and Ab Razak (2016) examined the effect of liquidity (current and quick ratios) on the capital structure (debt-equity and debt-asset ratios) among three hundred (300) listed companies listed on the Main Market of Bursa, Malaysia from 2005 to 2013. The pooled ordinary least square regression was adopted. The results revealed that the study’s liquidity measures have significant effect on the study’s measures of leverage. However, it was further reported that quick ratio has a positive effect on leverage while current ratio is negatively related to leverage. Similarly, Ah-
mad (2016) studied the relationship between liquidity management (current ratio, quick ratio and net working capital) and profitability (gross profit and net profit) of Standard Chartered Bank, Pakistan from 2004 to 2013. The correlation coefficient model was adopted in the study. The results revealed a weak positive relationship between almost all the liquidity ratios and profitability. That is, current ratio has a weak negative relationship with profitability; quick ratio has a moderate relationship with profitability while net working capital has a very weak positive relationship with profitability.

Adenuga et al (2016) investigated the relationship between financial leverage and firms’ value among five (5) selected firms listed on the Nigerian Stock Exchange from 2007 to 2012. The study used Ordinary Least Square (OLS) statistical technique to test the hypotheses. The study revealed that there is significant relationship between financial leverage and firms’ value. Above all, financial leverage is seen as a better source of finance than equity when there is the need to finance long term projects. On the other hand, Gombola, Ho and Huang (2016) examined the effect of leverage and liquidity on earnings and capital management of U.S. commercial banks from 1999 to 2003. The result of the study showed a negative relationship between earnings management and liquidity measures if all other things being equal, aggressive earnings management behaviour metamorphosed into aggressive leverage and liquidity policies.

Hussan (2016) examined the impact of leverage on risk of selected companies in Bangladesh via the use of regression analysis in testing the hypotheses. The study revealed that leverage has positive impact on the risk of companies in Bangladesh while Ahmad, Salman and Shamsi (2015) examined the impact of financial leverage on firms’ profitability in the cement sector of Pakistan. The study considered eighteen (18) cement firms and reported that financial leverage has a statistically significant inverse impact on profitability. Also, Hiadlovsky, Rybovicova and Vinczeova (2016) studied the importance of liquidity analysis in the process of financial management of one hundred and eighty-eight (188) companies operating in the tourism sector in Slovakia from 2011 to 2014. The results revealed that there is a weak relationship between liquidity management and profitability of selected companies.

Ahmad and Alghusin (2015) investigated the impact of financial leverage, companies’ growth and firms’ size on profitability of twenty-five (25) Jordanian industrial companies listed on the Amman Stock Exchange from 1995 to 2005 with the use of the pooled regression type of panel data analysis. The study revealed that financial leverage has significant effect on the profitability of industrial companies. In the same vein, Raheel and Shah (2015) studied the relationship between the financial leverage
and firms’ profitability of five (5) oil and gas marketing companies listed on Karachi Stock Exchange from 2007 to 2012. The study adopted Correlation coefficient and linear regression models to test the hypotheses. The results revealed that DFL, DOL and DCL have no significant relationship with EPS. Just like the present research, the authors used Degree of Financial Leverage (DFL), Degree of Operating Leverage (DOL) and Degree of Combined Leverage (DCL) to proxy the independent variable, leverage while the dependent variable, profitability was measured via Earnings per Share (EPS). However, in our own case, the number of samples involved as well as the scope (years) were increased to ten (10) to give room for acceptable generalisation. Furthermore, the present study used firm size (SIZE) as control variable.

Onofrei, Tudose, Durdureanu and Anton (2015) examined the determinant factors of three hundred and eight-five (385) micro and small enterprises in Romania from 2008 to 2010. It was reported that leverage is negatively related to profitability while Goel, Chadha and Sharma (2015) examined the effect of operating liquidity and financial leverage on the performance of one hundred and fifty-one (151) machinery firms in Indian from 2004 to 2013. The study adopted both ratio analysis and panel data regression model. It was reported that there is significant impact between financial leverage and different measures of operating liquidity. Moghadam and Jafari (2015) described the role of financial leverage in the performance of one hundred and fifteen (115) companies listed on the Tehran Stock Exchange from 2007 to 2012. The study revealed that financial leverage has a positive significant relationship with the performance of companies listed on the Tehran Stock Exchange. More so, it was reported that companies with higher debt ratio are more profitable.

Alzorqan (2014) examined the relationship between bank liquidity risk (current ratio and loans to deposit ratio) and performance (return on investment and return on equity) of two (2) banks in Jordan from 2008 to 2012. The study adopted regression analysis to test the hypotheses. The results revealed that current ratio has significant effect on return on investment as well as return on equity while loans to deposit ratio also has significant effect on return on investment and return on equity. Patel (2014) studied the relationship between leverage (operating leverage, financial leverage and total leverage) on profitability [Return on Capital Employed (ROCE), Return on Equity (ROE), Return on Assets (ROA) and Earnings per Share (EPS)] of Sabar Dairy, a milk processing firm based in Gujarat State, India from 1986 to 2014. The regression models were employed to test the hypotheses. The findings revealed that leverage has an insignificant positive effect on ROCE, ROE and EPS while for ROA, degree of operating leverage has a significant positive effect; degree of financial leverage has an insignificant negative effect and degree of total leverage has an insignificant positive effect.
Acheampong, Agalega and Shibu (2014) examined the effect of financial leverage and market size of selected stocks on stock returns of five (5) manufacturing firms listed on Ghana Stock Exchange from 2006 to 2010. The study adopted Ordinary Least Square (OLS) regression methods. The results established a negative and significant relationship between leverage and stock return for the industrial data. In the same vein, Enekwe, Agu and Eziedo (2014) examined the effect of financial leverage on financial performance of three (3) quoted pharmaceutical companies in Nigeria from 2001 to 2012. The study used both Pearson correlation and regression model to the hypotheses. The study reported debt ratio and debt-equity ratio (financial leverage) have negative relationship with return on assets (financial performance) in the Nigerian pharmaceutical industry.

Kaya (2014) examined the impact of leverage on U.S trade firms’ profitability and liquidity measures from 2000 to 2005. The study revealed that highly levered retail and wholesale trade firms have a tendency to suffer from liquidity problem while highly levered retail firms have a tendency to suffer from profitability problem. However, the results for highly levered wholesale firms are mixed. Above all, it was reported that higher return on equity for highly levered wholesale firms was as a result of severely depressed equity values. However, Ibe (2013) examined the impact of liquidity management (cash and short-term fund, bank balances and treasury bills and certificate) on the profitability (profit after tax) of three (3) selected banks in Nigeria from 1995 to 2010. The study used regression models to test the hypotheses. The results revealed a significant relationship between liquidity and banks’ profitability. Also, Gatsi, Gadzo and Akoto (2013) examined the relationship between working capital management and leverage on one hand and the profitability of eighteen (18) insurance firms in Ghana using the panel data methodology. The study revealed that degree of financial leverage and liquidity are inversely related to profitability while it was reported that degree of operating leverage is positively related to profitability.

Lartey, Antwi and Boadi (2013) investigated the relationship between liquidity (temporary investment ratios) and profitability (return on assets) of seven (7) banks listed on Ghana Stock Exchange for the period from 2005 to 2010. The results revealed a weak positive relationship between liquidity and profitability of the listed banks in Ghana. Alaghi (2012) examined the effect of operating leverage on the systematic risk of fifty-eight (58) listed companies on Tehran Stock Exchange from 2006 to 2009. The linear regression technique was adopted in testing the study’s hypotheses. After the analysis, the results revealed that operating leverage has no effect whatsoever on the systematic risk of companies. Alkhatib (2012) investigated the determinants of leverage among one hundred and twenty-one (121) listed companies (from
industrial and services sectors) on the Jordanian Stock Exchange (JSC) from 2007 to 2010. The study used regression model to test the hypotheses. The results revealed that liquidity has significant relationship with leverage for the industrial and service sectors of Jordan. Above all, the study confirmed that there is a nexus between firm and economic variable on one hand and leverage on the other hand.

Bei and Wijewardana (2012) made an attempt to investigate whether financial leverage influences either negatively or positively on signaling the firm’s growth. The study considered sixty-two (62) firms in Sri Lanka from 2000 to 2009. The study revealed that financial leverage is positively related to firms’ growth and financial strength in Sri Lanka’s firms. Sarlija and Harc (2012) investigated the impact of liquidity on the capital structure of one thousand and fifty-eight (1058) Croatian firms for year 2009. The study employed Pearson correlation coefficient to examine the connection among liquidity ratios and debt ratios; the share of retained earnings to capital and liquidity ratios on one hand, and the relationship between the compositions of current assets and leverage on the other hand. Finally, it was reported that liquidity ratios and leverage ratios as well as leverage ratios and the compositions of current assets are significantly correlated. Furthermore, the study revealed that the connection between liquidity ratios and short-term leverage is stronger than the kind of connection between liquidity ratios and the long-term leverage.

Akinlo and Asaolu (2012) investigated the profit profile of Nigerian firms and also analysed the impact of leverage on profitability of sixty-six (66) non-financial firms listed on the Nigerian Stock Exchange from 1999 to 2007. The data were analysed via chi-square and pooled Ordinary Least Squares (OLS). The findings revealed that leverage was negatively related to profitability; hence, firms need to reduce their debt ratio in order to boost their profit level. Oduol (2011) examined the relationship between liquidity and leverage of companies quoted at the Nairobi Stock Exchange (NSE). The study focused on thirty (30) quoted firms on the NSE from 2006 to 2010. Secondary data were sourced and analysed via multivariate regression analysis. The finding revealed that there is a negative and insignificant relationship between liquidity and leverage. Hence, it was suggested that organisations should put in place good working capital management practice as well as short cash conversion cycles.

Accordingly, Titman and Safieddine (1999) examined the effect of leverage on corporate performance of five hundred and seventy-three (573) unsuccessful takeover attempts from 1982 to 1991. It was reported in the study that higher leverage assists firms to remain independent not just because of its management’s entrenchment but for the fact that it allows managers to improve on their operations. The study further revealed a negative relationship between changes in investment expenditures and
changes in leverage while it was also disclosed that increases in leverage after failed takeovers are correlated with decreases in investment. Myers and Rajan (1998) in their paper titled “The paradox of liquidity” considered the dark side of liquidity. They posited that the more liquid firms’ assets are, the higher their value in liquidation. Hence, higher assets liquidity has the tendency to reduce the firms’ capacity to raise external finance.

In conclusion, the above reviews have shown that there is no doubt to the fact that the literature is replete in terms of researches on leverage and profitability. In fact, majority of the studies reviewed so far have examined the relationship of the two (2) variables. However, as stated in the introductory section of this study, it is still blurred as to whether leverage really influences profitability especially in developing economy like Nigeria due to the contradictory findings and proxies observed from the literature. Also, to the best of our knowledge, much research has not been conducted on Nigerian FMCG hence, the need for a study of this kind.

3. Methodology

The paper adopted ex-post factо research design as the data used were readily available and obtained from the annual reports and accounts of the selected seventeen (17) consumer goods firms [out of twenty-eight (28)] listed on the Nigerian Stock Exchange as at 31st December, 2018 via purposive sampling technique. The study covered a period of 2012 to 2017. The selected FMCG are Nigerian Breweries Plc, Guinness Nigeria Plc, 7up Bottling Company Plc, Nigeria Enamelware Plc, Flour Mills of Nigeria Plc, Vitafoam Nigeria Plc, PZ Cussons Nigeria Plc, NASCON, Honeywell Flour Mills, Dangote Sugar, Dangote Flour Mills, Cadbury Nigeria Plc, Unilever Nigeria Plc, Nestle Nigeria Plc, Northern Nigeria Flour Mills, Champion Brewery and MC Nicos Nigeria Plc. The multiple regression method was adopted which comprises Ordinary Least Square (OLS), Fixed Effect Least Square and Random Effect Generalised Method). These are consistent with some prior studies (see Akinlo and Asaolu (2012); Ibe (2013); Goel, Chadha and Sharma 2015; Adenugba, Ige and Kesinro 2016; Ghasemi and Ab Razak 2016)

3.1. Variable Description and Development of Hypotheses

3.1.1. Dependent variable

Earnings per Share (EPS): This is the only dependent variable adopted by the study. It is one of the variants for measuring the efficiency of the management in using the shareholders ordinary share capital to create and maximise their wealth. It has been used in prior literature as a proxy for profitability (see Nabeel and Hussain
2017; Kwarbai, Olayinka, Ajibade and Ogundajo, 2016; Raheel and Shah 2015; Patel 2014). Furthermore, EPS is a good yardstick that can be used as an indicator to measure a company’s profitability condition and it is a key driver of share prices (Islam, Khan, Choudhury & Adnan, 2014). The study used basic EPS because it considers only the existing shareholders. However, unlike diluted EPS, basic EPS does not account for any dilution in companies’ shareholdings.

3.1.2. Independent variables

Three independent variables were used to proxy leverage. They include: Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL). These have also been used in prior studies (see Raheel and Shah 2015; Patel 2014). In addition, Size of the firm (SIZE) was used as a control variable.

3.2. Model specification

Dynamic Model:

\[
EPS_{it} = \beta_0 + \beta_1 EPS_{-1} + \beta_2 DOL_{it} + \beta_3 DFL_{it} + \beta_4 DCL_{it} + \beta_5 SIZE_{it} + e_{it}
\]

Where:
- \(EPS_{-1}\) = Previous year Earnings per Share of firm i in period t
- \(EPS_{it}\) = Earnings per Share of firm in period t
- \(DOL_{it}\) = Degree of Operating Leverage of firm in period t
- \(DFL_{it}\) = Degree of Financial Leverage of firm in period t
- \(DCL_{it}\) = Degree of Combined Leverage of firm in period t
- \(SIZE_{it}\) = Size of firm i in period t
- \(e_{it}\) = Error Term of firm in period t

3.3. Measurement of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Acronym</th>
<th>Measure</th>
<th>Expected effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings per Share</td>
<td>EPS</td>
<td>Total earnings after interest and tax</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of ordinary share capital</td>
<td></td>
</tr>
<tr>
<td>Independent variables:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Previous EPS</td>
<td>EPS (-1)</td>
<td>A period year lag EPS</td>
<td>+</td>
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</tbody>
</table>
4. Results and Discussion

4.1. Descriptive Statistics

Table 2 below shows the descriptive statistics of the data used for the study. It shows that the average EPS is 3.7% and this ranges between minimum values of -2.5% to a maximum value of 42.5%. The average degree of operating leverage is 20% and it has a minimum of -109.2% and 1293.1% as maximum value. Degree of financial leverage is averaged 65.9% and ranges between -147.8% and 3886.4%. Finally, degree of combined leverage shows an average value of 37.9% and ranges from -109% to 770%.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>3.7097</td>
<td>-2.510000</td>
<td>42.50000</td>
<td>6.961280</td>
<td>3.233931</td>
<td>14.94815</td>
</tr>
<tr>
<td>DOL</td>
<td>20.03580</td>
<td>-109.2188</td>
<td>1293.101</td>
<td>138.1748</td>
<td>8.191359</td>
<td>73.52135</td>
</tr>
<tr>
<td>DFL</td>
<td>65.86991</td>
<td>-147.7980</td>
<td>3886.371</td>
<td>407.1527</td>
<td>8.401370</td>
<td>77.91062</td>
</tr>
<tr>
<td>DCL</td>
<td>37.93521</td>
<td>-109.0000</td>
<td>769.9610</td>
<td>117.5940</td>
<td>4.144132</td>
<td>22.11926</td>
</tr>
<tr>
<td>LSIZE</td>
<td>17.60089</td>
<td>14.2661</td>
<td>22.39647</td>
<td>1.575751</td>
<td>-0.193004</td>
<td>2.776820</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.

4.2. Correlation

The correlation coefficients of the dependent and independent variables are shown in table 3 below. Degree of operating and degree of financial leverage have negative coefficient with EPS and they are found not to be significant at 5% level. This implies that increase in degree of operating and financial leverage translates to lower profitability. The relationship between combined leverage and profitability is positive and signif-
icant at 1% level of significance. This implies that unique combination of leverage translates to higher profit in Nigerian consumer goods manufacturing firms.

Table 3

Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>EPS</th>
<th>EPS (-1)</th>
<th>DOL</th>
<th>DFL</th>
<th>DCL</th>
<th>LSIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS (-1)</td>
<td>0.6836</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOL</td>
<td>-0.1062</td>
<td>-0.0771</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFL</td>
<td>0.1484</td>
<td>0.0882</td>
<td>-0.0260</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCL</td>
<td>0.3743</td>
<td>0.3604</td>
<td>0.5618</td>
<td>0.0032</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>LSIZE</td>
<td>0.3996</td>
<td>0.4408</td>
<td>-0.0593</td>
<td>0.1112</td>
<td>0.1615</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.

4.3. Multicollinearity Test

Variance Inflation Factor (VIF) approach was used in testing for the existence of multicollinearity between the explanatory variables. The major advantage of VIF is that it has the ability to filter from the model the variable (s) that may distort the regression result (Gujarati & Sangeetha, 2008). Table 4 depicts the multicollinearity test result. The acceptable maximum VIF value of any explanatory variable according to Gujarati (2003), Rumsey (2007), Gujarati and Porter (2009) and Wooldridge (2009) is 10 as any figure above this means the existence of multicollinearity which can distort the inferences to be made from the analysis. Hence, as shown in Table 4, none of the independent variables has VIF of at least 10. It ranges from 1.048 to 1.048 and with average value of 1.032. This shows that there is no problem of multicollinearity among the explanatory variables.

Table 4

Collinearity test

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOL</td>
<td>1.048</td>
<td>.954</td>
</tr>
<tr>
<td>DFL</td>
<td>1.001</td>
<td>.999</td>
</tr>
<tr>
<td>DCL</td>
<td>1.048</td>
<td>.954</td>
</tr>
<tr>
<td>Average</td>
<td>1.048</td>
<td>0.969</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.
4.4. Regression Results

Regression results using pooled Ordinary Least Squares (OLS) technique for the models are presented in Table 5 thus;

**Table 5**

Model Estimation Results Summary

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Pooled</th>
<th>Fixed</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant C</td>
<td>-7.4858</td>
<td>7.0297</td>
<td>-1.0648</td>
</tr>
<tr>
<td>EPS (-1)</td>
<td>0.6084</td>
<td>0.1165</td>
<td>5.2229</td>
</tr>
<tr>
<td>DOL</td>
<td>-0.0294</td>
<td>0.0127</td>
<td>-2.3092</td>
</tr>
<tr>
<td>DFL</td>
<td>0.0014</td>
<td>0.0013</td>
<td>1.0988</td>
</tr>
<tr>
<td>DCL</td>
<td>0.0179</td>
<td>0.0062</td>
<td>2.8628</td>
</tr>
<tr>
<td>LSIZE</td>
<td>0.4983</td>
<td>0.4049</td>
<td>1.2306</td>
</tr>
<tr>
<td>Adj. R-Squared</td>
<td>0.50708</td>
<td>0.79051</td>
<td>0.50708</td>
</tr>
<tr>
<td>F – Stat (Prob.)</td>
<td>18.0770</td>
<td>15.9146</td>
<td>18.0770</td>
</tr>
<tr>
<td>Prob. (F – Stat)</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
</tr>
<tr>
<td>Durbin – Watson (Prob.)</td>
<td>1.76193</td>
<td>2.3854</td>
<td>1.76193</td>
</tr>
<tr>
<td>Hausman Test (Prob.)</td>
<td>0.00000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Researchers’ computation, 2019.*
From table 5, the F-statistic values for the models are significant at 1% level (prob value = 0.000). It depicts that each of the models as a whole is fit. The Durbin-Watson values of 1.76, 2.39 and 1.76 for the OLS fixed effect and random effect respectively are within the acceptable threshold of 1 to 3 (Gujarati, 2003, Asaeeed, 2005 and Gujarati and Porter, 2009) and it shows that the model has no serial autocorrelation issues. Also, the adjusted $R^2$ (79.1%) indicates that EPS (-1), DOL, DFL and DCL accounted for up to 79.1% percent variations in the dependent variable, profitability (EPS).

4.5. Robustness check

In order to validate the result of pooled OLS technique as shown in table 4.4 above, two other analytical techniques mostly used in the literature, Fixed effects least squares and Random effects GLS regressions were conducted and the result was as presented in the table. Therefore, from the table, the summary of Hausman (1978) specification test indicates Chi square value of a prob value of 0.000 ($p < 0.05$), thereby supporting fixed effects ordinary least square for valid inference. Although, the results of both models (fixed effects and random effects) are similar, inference was made using fixed effects.

4.6. Discussions

From the above analysis, the fixed effect regression result indicates previous year EPS has a significant negative effect on current year EPS. This indicates that previous year EPS reduces current year EPS. Degree of Operating Leverage (DOL) has a negative insignificant effect on profitability (EPS) at 5% level. This suggests that the higher the degree of operating leverage the lower the profit. Hence, degree of operating leverage has an insignificant negative effect on profitability. This is in line with a priori expectation of the study. The result of this finding is in tandem with the works of Raheel and Shah (2015); Onofrei et al (2015). However, in contrary to our study’s findings, Patel (2014) reported that leverage has a positive but insignificant effect on EPS. Gatsi et al (2013) who examined the relationship between leverage and the profitability of firms in Ghana reported that DOL is positively related to profitability.

The Degree of Financial Leverage (DFL) was found to have a positive significant effect on profitability (EPS) at 10% level. It suggests that high debt in the overall capital structure of a company impact positively on profitability because of the tax shield and low cost of issuing debt capital. The positive coefficient is in conformity with a priori expectation; hence as more debts are used in financing firms’ operation,
the tax shield from the interest helps in reducing companies’ income tax and thereby increase profit after tax. Some prior empirical studies like (Moghaddam and Abbaspour 2017; Nwanna and Ivie 2017; Gatsi, et al 2013) have found similar results. Thus, financial leverage exerts positive significant effect on profitability of consumer goods manufacturing firms in Nigeria. However, Ahmad, Salman and Shamsi (2015) who worked on the cement sector of Pakistan reported that financial leverage has a statistically significant inverse impact on profitability while Raheel and Shah (2015) who studied the relationship between the financial leverage and firms’ profitability of oil and gas marketing companies listed on Karachi Stock Exchange reported that DFL has no significant relationship with EPS, though; these might be a reflection of industry and / or economy involved.

Findings regarding Degree of Combined Leverage (DCL) as a proxy for leverage show that it exerts significant positive effect on profitability (EPS) at 5% level. This finding is in line with a priori expectation. However, Raheel and Shah (2015) in their study reported that DCL has no significant relationship with EPS. Although, this might be a manifestation of the sector and / or economy involved.

Finally, firm size as a control variable was found to have negative but no significant effect on profitability. This means that larger firms in the sector are associated with lower profit. This may be a reflection of increased overhead costs that are attributable to size.

5. Conclusion / Recommendation

The study investigated the effect of leverage on profitability using regression analysis technique involving fixed effect on data of seventeen (17) consumer goods manufacturing firms in Nigeria from 2012 to 2017. The study’s findings revealed that previous year profitability exert significant negative effect on current year profitability. Degree Operating Leverage was found to an insignificant negative effect on profitability. Furthermore, it was discovered that DFL has a significant positive effect on profitability and that DCL exerts significant positive effect on profitability. Firm size as a control variable was found to exert negative but no significant effect on profitability. Therefore, the attributed low cost of issuing debt as against equity is also one of the issues which can make debt financing to exert a significant positive effect on profitability. Hence, owing to these findings, it is imperative for companies in the Nigerian consumer goods industry to take advantage of debts’ tax shield from the interest in their financial structure in order to improve their profitability level.
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NATURAL RESOURCES ENDOWMENT, HUMAN CAPITAL DEVELOPMENT AND ECONOMIC GROWTH IN NIGERIA

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JEL Q, E24, O47, E58, 32

Abstract

This project work examined the impact of natural resources endowment, human capital development and economic growth in Nigeria using time series data from 1982 to 2016. Secondary data sourced from the Nigerian Bureau of Statistics (NBS), the Central Bank of Nigeria (CBN) and World Bank’s World Development Index were used in the study. The data properties were tested using Augmented Dickey Fuller test for Stationarity while co-integration was used to test for long run relationship between the variables and Regression analysis was also used to determine the relationship between variables. The result showed that the R-square was 0.467314 which showed that about 47% of the changes in D(LOGRGDP) was explained by the independent variables D(LOGNR), D(LOGGEH) and D(LOGGED) respectively. The value of the Durbin Watson was 2.168293 which indicated that there was no serial correlation in the model. The value of the F-statistic was 6.140959 with probability of 0.001117 which was significant at 5% critical level. It is therefore concluded that natural resources endowment and human capital development had significant effect on economic growth.

Key words:

Natural Resources, Human capital, Economic growth, Dutch disease, Ordinary Least Square Regression.

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1. Introduction

Natural resources are phenomena often researched by economists concerned with economics of mineral resources for national development. Mineral reserves in the economy are the scarce resources which constitute one form of wealth to the nation. Kovářová, (2015), opined that reserves of mineral wealth also attract foreign direct investment to underdeveloped countries especially in sub-Saharan Africa. An important number of both theoretical and empirical studies have tried to reveal why natural resources are a “curse” rather than a “blessing” for economic development. Gylfason (2001) considered that natural capital crowds out other forms of capital (human, institutional, physical, and foreign).

Nigeria poor economic development is believed to have resulted from untapped natural resources as well as undeveloped human capacity. According to the report of NBS (2016), the fact that the country occupies the sixth position as oil exporter in the world, it is believed that its poverty and unemployment levels are getting higher. Moreso opined that little economic growth has been witnessed over the years and that the economy has not reflected the true income earned from our natural resources especially oil. This was argued that it might not be unconnected to dearth of human capital with desired technical know-how to manage these resources and their income effectively.

Natural Resources are the raw materials supplied by the earth and its processes which are categorized into three: perpetual, renewable and non-renewable: (i) Perpetual resources are those expected to last many billions of years without being depleted, such as solar energy, wind, or ocean tides; (ii) Renewable resources are those that have the potential to be renewed through natural processes and/or human processes. Trees are an example of a renewable resource because, although trees die naturally or are harvested, new trees can be replanted or allowed to reseed naturally and (iii) Non-renewable resources are exhaustible and can be depleted. There is a limited quantity and once used, cannot be replaced in this geologic age. Fossil fuels are an example of a resource formed over millions of years, and it will be millions of years before it is again available. Other natural resources with finite amounts include copper, gold, aluminum and many minerals and gems.

The driving forces, which explain the economic transition towards higher growth paths, are technical progress and the process of physical and human capital accumulation. Human capital accumulation is a crucial driver of economic development in any country. OECD, (2001), however, refers Human capital as the stock of competencies, skills, knowledge and personalities attribute embodies in individuals which facilitate their ability to perform labour for the creation of personal, economic and social vale. Human capital as defined by Schutz (1993) is the key
element in improving firms’ asset and employees in order to improve productivity as well as sustain competitive advantage. Human capital becomes a tool for competitive advantage since it involves the process of training, knowledge acquisition (education), initiatives and so on, all these are geared towards skill acquisition. Human capital development is human centered because its major concern is on human empowerment which would lead to active participation. In order to achieve positive economic growth in Nigeria, human capital development should be considered as an integral and important factor for economic growth. A major challenge facing the global community and Nigeria at large is how to achieve sustainable development. The three pillars of sustainable development cannot be achieved if human capital development does not come to play as an integral part.

Mainstream neoclassical economists assumed that economic growth is primarily and positively linked with capital accumulation, labour productivity and the level of technological advancement in an economy. Thus, conventional growth models like the Cobb-Douglas and the Harrod-Domar model seek to explain growth dynamics as a function of only these three factors. Recent researchers have however held a divergent view on this above notion on the ground that two additional factors play significant roles in explaining the differences in economic performance among countries. These factors are: (1) the variations in the stock of natural resources capital (Sachs and Warner, 1999) and (2) the stock of social capital, which includes education (Acemoglu, et al., 2002; Auty 2007).

Based on the previous studies in the field of natural resources, human capital and their impact on economic growth have been reported to have negative relationship. This negative effect of natural resources is most frequently explained either by Dutch disease or by resource curse but some authors also offered other mechanisms of natural resources harming the economic performance and identify their negative impact on other economic, political and social indicators.

There seems to be divergent views among scholars on natural resources and human capital endowment of a nation, largely due to their different perspectives of analysis on the subject matter with respect to their impact on the growth and development of the economy. It is also observed that in spite of the abundant natural resources and human assets of Nigeria, the country still remains under developed. Interestingly, Fidel, (1993) and Akinwale (2012) perceived the Dutch disease as one of the resource curse symptoms and accept its existence in Nigeria without evaluation. Nigeria is often cited as an example of an economy negatively affected by natural resources, whether in the context of the Dutch disease or resource curse. Despite the fact that Nigeria has the largest oil reserves in sub-Saharan Africa, its per capita income grew only mildly.
A major challenge facing the global community and Nigeria at large is how to achieve sustainable development. As a result of the above, this study examined the effect of natural resources and human capital development on Economic growth in Nigeria as well as the joint effect (interactive) of natural resources endowment and human capital development on the growth of the economy in Nigeria.

Based on the above, the following research questions are formulated to guide this study: (i) What are the impacts of natural resources endowment and human capital development on economic growth of Nigeria? (iii) What are the joint interactive effects of natural resources endowment and human capital development on the economic growth of Nigeria?

The significant effect of human capital and natural resources on economic development continues to attract the attention of various researchers. This can be established by several studies that have been related to natural resources, human capital and economic development in the country. Hence, this study shall provide information to researchers who will like to work in this direction in the future. Similarly, in economic planning and development of the nation, it will serve as a policy guide to government and its agencies.

2. Literature Review

The empirical investigation of this paper is based on three theoretical underpinnings. The first is the assumption that technological progress based on human capital accumulated through education is the major source of economic growth (Lucas, 1988; Douangngeune, et al, 2005).

The second is the induced innovations hypothesis developed by Hayami and Ruttan (1971). Which emphasized that countries with abundant natural resources can easily increase output by increasing the exploitation of its natural resources. This assumption however, inhibits the tendency for such countries to develop new technologies for other economic activities through education and research.

The third concept is the vent-for-surplus development theory by Hla Myint (1965, 1971). According to this theory, a resource abundant country’s participation in international trade based on the sale of natural resources cannot lead to sustainable development, unless natural resource rents are effectively mobilized for physical and institutional infrastructure including education. That is, an effective use of natural resource rents have been identified as the bases for the successful shift in the economic growth momentum of Canada and the United States from exploitation to agricultural intensification and industrialization (Douangngeune, et al, 2005).
Stijns (2000) in his analysis of the link between natural resource abundance and economic growth in the United States of America with data on energy and mineral reserves between 1970 and 1989 used the Ordinary Least Squares (OLS) regression method. The results revealed that natural resource abundance has not been a significant structural determinant of economic growth.

Malik et al. (2009) examined natural resource management and economic growth in Pakistan. The study empirically explored the contribution of natural resources to economic growth for Pakistan for the period of 1975-2006 using time series econometric technique. Result revealed that countries having vast natural resources could not perform significantly compared with the countries deficient of natural capital.

Arezki and Ploeg (2010) equally investigated a cross-country empirical evidence for the effect of resources on income per capita. Using the Ordinary Least Squares (OLS) and the Instrumental Variable (IV) techniques, results showed that natural resource dependence (resource exports) had a significant negative effect on income per capita, especially in countries with bad rule of law or bad policies, but results weaken substantially after allowing for endogeneity. However, the more exogenous measure of resource abundance, the natural stock of capital has a significant negative effect on income per capita even after controlling for geography, rule of law and de facto or de jure trade openness.

Behbudi et al. (2010), examined the relationship between natural resource abundance, human capital and economic growth in two groups of petroleum exporting countries; first the major petroleum exporters and second the non-petroleum exporters. Using panel data from 1970 to 2004, it was found that physical investment and openness have positive effects on economic growth and resource abundance while government expenditure inversely related with growth. Human capital produced mixed effect on economic growth in each of the countries. The first group revealed that the relationship between human capital and growth was negative while it was positive in the second. The study concluded that slow growth in the resource-rich countries was caused by human capital.

In Adu (2011), the study investigated the relationship that exists between long run economic growth and natural resource abundance in Ghana with time series data from 1962 to 2008. Employing the Phillips-Hansen fully-modified least squares estimator which corrects for non-stationarity and endogeneity, and using nine different indicators that could proxy for resource abundance in nine alternative specifications, the results however rejected evidence of the resource-curse hypothesis.
Ji, et al. (2014) also investigated the link between resource abundance, institutional quality and economic growth in China. Panel data and cross-sectional data was collected from 1990–2008 at the provincial level. To capture the effects of a policy shock on the resource effect, they used a standard panel-data and time-varying coefficient model while the findings from the study revealed that resources abundance has a positive effect on economic growth at the provincial level in China between 1990 and 2008, an effect that depends nonlinearly on institutional quality.

Ewubare and Kakai (2017) investigated natural resources abundance and economic growth in Nigeria, using annual time series data from 1980 to 2015. The study employed Ordinary Least Squares (OLS), Co-integration and error correction methodology. Result revealed that the coefficient of petroleum (PR) is positively signed but statistically not significant with GDP. The coefficient of Natural Gas (NG) is positively signed but statistically not significant at 5% level with GDP. The coefficient of coal (CL) is positively signed and statistically significant at 5% level with GDP. The coefficient of limestone (LS) is positively signed but statistically not significant at 5% level with GDP.

In the study of Adeyemi and Ogunsola (2016), they examined the impact of human capital development on economic growth in Nigeria using time series data spanning from 1980-2013 of secondary school enrolment, life expectancy rate, government expenditure on education, gross capital formation and economic growth. The authors adopted the ARDL co-integration approach in their study and their study revealed a positive long-run relationship among secondary school enrolment, life expectancy rate, government expenditure on education, gross capital formation and economic growth. They therefore recommended that there should be more government financial commitment to education rather than health sector.

In Oladeji (2015), the study investigated the relationship between human capital (through education and effective health care services) and economic growth in Nigeria, using annual time series data from 1980 to 2012. The study employed OLS methodology and revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria. The author found that a long run relationship existed between education and economic growth in Nigeria. He therefore recommends that there is need to increase budgetary allocation to Human Capital which includes the educational sector and the health sector.

Hadir and Lahrech (2015) examined the relationship between human capital development and economic growth in Morocco using annual data from 1973 to 2011. The ordinary least square regression method was adopted using total government
expenditure on health and education, the enrolment data of tertiary, secondary and primary schools as proxy for human capital. The study revealed a positive relationship between total government expenditure on education, total government expenditure on health, primary school enrollment, secondary school enrollment and tertiary school enrolment. They therefore recommended that the effort of Government on increasing primary school enrolment through the free compulsory Universal Basic Education should be sustained and the government should invest more and more in health. Thus improvements in health may increase output not only through labor productivity, but also through the accumulation of capital.

Olalekan (2014) examined the impact of human capital on economic growth in Nigeria using annual data on health and education, from 1980 to 2011. Olalekan (2014) adopted Generalized Method of Moment (GMM) techniques in the analysis and the estimated results provided evidence of positive relationship between human capital and economic growth in Nigeria. They therefore, recommended that special attention should be given to health and education sectors simultaneously in Nigeria, such as increased budgetary allocation to the two sectors and to ensure proper implementation of programs in these two sectors in other to increase returns from these two sectors.

Obi and Obi (2014) studied the impact of education expenditure on economic growth as a means of achieving the desired socio-economic change needed in Nigeria using time series data from 1981 to 2012. The Johansen’s co-integration analysis and ordinary least square (OLS) econometric techniques were used to analyze the relationship between gross domestic product (GDP) and recurrent education expenditure. Findings indicate that though a positive relationship subsists between education expenditure and economic growth, but a long run relationship does not exist over the period under study. They suggest the improvement of the education system through efficient use of public resources through good governance, accountability and transparency. Also, efforts should be made by policy makers to come up with policies that would check, preserve and protect the plight of educational capital to other countries.

Jaiyeoba (2015) carried out an empirical investigation on the relationship between investment in education, health and economic growth in Nigeria, using time series data from 1982 to 2011. He employed trend analysis, the Johansen co-integration and ordinary least square technique. Empirical findings however indicate that there is a long-run relationship between government expenditure on education, health and economic growth. The variables: health and education expenditure, secondary and tertiary enrolment rate and gross fixed capital formation appear with
the expected positive signs and are statistically significant (except government expenditure on education and primary enrolment rate). The findings of this work have strong implications on education and health policies and considering that they are of great debate in the country. Therefore, this study recommends that in order 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 education and health.

Sulaiman, et al. (2015) investigated the impact of human capital and technology on economic growth in Nigeria. They employed annual time series data for the period of 35 years (1975-2010) and applied Autoregressive Distributed Lag approach to co-integration to examine the relationship between human capital, technology, and economic growth. Two proxies of human capital (secondary and tertiary school enrollments) were used in two separate models. Their result revealed that all the variables in the two separate models were co-integrated. Furthermore, the results of the two estimated models showed that human capital in form of secondary and tertiary school enrollments have had significant positive impact on economic growth. More so, technology also shows significant positive impact on economic growth. In a nutshell, both human capital and technology are important determinants of growth in Nigeria. Therefore, improvement of the educational sector and more funding for research and development (R&D) to encourage innovations are needed to facilitate Nigeria’s sustained economic growth.

Borojo and Jiang (2015) analyzed the impact of education and health (human capital) on economic growth from 1980 to 2013 in Ethiopia. Human capital stock is measured by primary, secondary and tertiary school enrolment. Human capital investment is measured by expenditure on education and health. The Augmented Dickey Fuller test and Johansen’s Co-integration technique was used to test for the unit root to validate co-integration among variables, respectively.

Their study showed that public expenditure on health and education, primary and secondary school enrolment have positive statistically significant effect on economic growth both in long run and short run. In addition, physical capital has positive whilst inflation has negative effect on economic growth. However, tertiary school enrolment has insignificant effect on economic growth both in long run and short run. Based on their findings increasing primary and secondary school enrolment is recommended. In addition, substantial amount of government expenditure should be allocated towards health and education sectors to further increase contribution of the sectors to economic growth.

Lawanson (2015) investigated the relevance of educational and health components of human capital to economic growth, using a panel data from sixteen
West African countries over the period 1980 to 2013. He employed Diff-GMM dynamic panel technique. The empirical findings indicate that coefficients of both education and health have positive statistically significant effects on GDP per capita. The paper affirms the strong relevance of human capital to economic growth of West Africa. He recommended that increased resources and policy initiatives to motivate and enhance access to both health and education by the population should be pursued by policy makers.

Ehimare, et al. (2014) investigated the Nigerian Government Expenditure on Human Capital Development. The level of human capital development, which is a reflection of the level of health and education of a nation affect the level of economic activities in that nation. The unit root test was conducted to determine whether the variables are stationary or not using Phillip Peron test. In order to capture the efficiency of government expenditure on human capital development in Nigeria, the data analysis was conducted using Data Envelopment Analysis involving Input Oriented Variable Return to Scale. The findings of the study revealed that there has been significant reduction in the efficiency of government expenditure since 1990 up till 2011 which has been decreasing. This result therefore could be evidenced from the poor quality and output experienced in the Nigerian education sector. It is therefore recommended that efforts should be made to encourage, promote self-dedication, commitment and service delivery in order to improve on the quality of educational output in Nigeria in terms of quality of human capital and capacity building.

Ajadi and Adebakin (2014) both examined human capital development as correlate of economic growth in Nigeria, Descriptive survey research was adopted and multi–stage sampling technique was used to select a total of 200 respondents used for the study. An adopted questionnaire with 0.86 reliability index was used for data collection. Data collected were analyzed using the Pearson’s Product Moment Correlation Coefficient. The findings showed that education has a predictive ‘r’ value of 0.76 on individual personal income and the nature of job (employment) is related to individual personal income (r = 0.64). It, therefore, concluded that economic growth is a function of individual income level and recommended that government should develop appropriate educational policy to provide the human capital need of the society for economic growth.

3. Methodology and data

Data were collected on selected variables from 1982 to 2016 and proxied natural resource abundance using earnings from crude oil & natural gas, coal mining, metal
ores and quarry & other mining. Government expenditure on education and government expenditure on health within the research period were used to capture human capital development. This includes government expenditures on primary, secondary and tertiary education within the period under review.

Secondary data sourced from the Nigerian Bureau of Statistics (NBS), the Central Bank of Nigeria (CBN) and World Bank’s World Development Index were used in the study.

Adopted variables are Real Gross Domestic Product (RGDP), measure of Natural Resources (NR), Government Expenditure on Education (GED), Government Expenditure on Health (GEH).

3.1. Model specification

The models adopted for the study assumed an underlying relationship between the variables expressed in a functional form. Building on Gyfason (2001, 2011) and Barro (2001), we specified a system of two seemingly unrelated regressions (SUR) equations: (a) the resource-growth equation and (b) the interactive – growth equation respectively as implicitly stated below:

RGDP = f(NR, HC) 3.1

HC is implicitly disaggregated into GED and GEH, thus,

HC = f (GED, GEH), therefore implicitly stated in equation 3.3 3.2

RGDP = f(NR, GED, GEH) 3.3

Equation 3 is explicitly stated below as:

RGDP = β0 + β1NRt + β2GEDt + β3GEH + µt 3.4

The logarithm function of the above model becomes

LnGDPR = β0 + β1LnNRt + β2LnGEDt + β3LnGEHt + µt 3.5

3.2. Interactive model

The interactive model is explicitly stated in equations 3.6 and 3.7 respectively:

GDPR = β0 + Φ1INTER + µt 3.6

The logarithm function of the above model becomes

LnGDPR = β0 + Φ1LnINTER (NR*HC) + µt 3.7

Where;

GDPR is the growth rate of gross domestic product (₦’billion)
NR is a measure of natural resource abundance (₦’billion)
HC is Human capital endowment (₦’billion)
GED is government expenditure on education (₦’billion)
GEH is government expenditure on health (₦’billion)
INTER is the interaction (multiplication of natural resources with the sum of government expenditure on education and government expenditure on health)

\[ \beta_0, \beta_1, \beta_2, \beta_3 \text{ and } \Phi_0, \Phi_1 = \text{Coefficients to be estimated} \]

\[ u_t = \text{error term} \]

\( t \) is the trend and is 35 years

\( \ln \) is the natural logarithm

\( \text{₦} \) = Naira sign

Exchange rate 1USD = ₦306.00 (Official)

The model implies that economic growth (GDPR) depends on the stock of natural resources, federal government expenditure on education and federal government expenditure on health.

The Equation (3.3) implies that economic growth depends on the stock of natural resources, government expenditure on education and health sectors.

The Equation (3.7) implies that economic growth depends on the interaction between stock of natural resources and human capital development.

However, the study was carried out using:

(i) Unit Root Test

(ii) Co-integration and

(iii) Ordinary Least Square

Augmented Dickey Fuller Unit Root Test was used to check the property of the variables in the model. Co-integration was used to determine if there is existence of long run equilibrium relationship among the variables used. Ordinary Least Square was used to determine relationship between economic growth and explanatory variables (natural resources and human capital accumulation)

From the economic theory, it is expected that; \( \beta_1 > 0 \) indicating that natural resources should have positive effect on the growth of the economy; \( \beta_2 > 0 \) indicating that human capital development should have positive effect on the growth of the economy and \( \beta_3 > 0 \) indicating that health should have positive effect on the growth of the economy.

4. Results and outcomes

The unit root test is a highly persistent time series process where the current values comprise of the last period’s value and dependent disturbance. Examination of the properties of time series before analyzing the relationship between variables of interest have been held in a position of prominence because of the challenges that non stationarity series present in regression analysis.
Table 1

Unit root test result using Augmented Dickey Fuller test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Augmented Dickey Fuller</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level (with trend &amp; intercept)</td>
<td>Difference (with trend &amp; intercept)</td>
<td>Order of integration</td>
<td>Order of integration</td>
<td>Order of integration</td>
</tr>
<tr>
<td>LOGRGDP</td>
<td>-1.526 [0.800]</td>
<td>-3.775 [0.031]</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOGNR</td>
<td>-0.163 [0.991]</td>
<td>-6.080 [0.000]</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOGGED</td>
<td>-0.0373 [0.985]</td>
<td>-6321 [0.000]</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOGGEH</td>
<td>-2.010 [0.575]</td>
<td>-6.193 [0.000]</td>
<td></td>
<td>I(2)</td>
<td></td>
</tr>
<tr>
<td>LOGINTER</td>
<td>-2.154[0.0499]</td>
<td></td>
<td></td>
<td>I(o)</td>
<td></td>
</tr>
</tbody>
</table>

Note: probability value in parenthesis.


As depicted in Table 1, LOGRGDP had ADF value of -3.775 with probability of 0.031. The variable was integrated at first difference. Therefore, the series was stationary at this level. LOGNR, had ADF value of -6.080 with probability of 0.000. This implied that it was also integrated of order one, that is the series was stationary at the first difference. LOGGED had ADF value of -6.321 with probability of 0.000. The variable was integrated at first difference. Therefore, the series was stationary at this level. LOGGEH had ADF value of -6.193 with probability of 0.000. The variable was integrated at second difference. Therefore, the series was stationary at this level. LOGINTER had ADF value of -2.154 with probability of 0.0499. Therefore, the series was stationary at this level.

Conclusively, once the unit root test revealed a combination of stationarity of variables at different levels that is, I(1) and I(2) across the dependent and independent variables, econometric theory suggests we conduct a single equation co-integration test to examine if there exist long run relationship between the variables. However, prior to this, the study conducted a lag selection test to ensure optimum lag selection for the model.
Table 2

Optimum lag length selection

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-5.323548</td>
<td>-5.134955</td>
<td>-5.264483</td>
</tr>
<tr>
<td>1</td>
<td>-13.19074</td>
<td>-12.24778</td>
<td>-12.89542</td>
</tr>
<tr>
<td>2</td>
<td>-12.92267</td>
<td>-11.22533</td>
<td>-12.39108</td>
</tr>
<tr>
<td>3</td>
<td>-12.64730</td>
<td>-10.19560</td>
<td>-11.87946</td>
</tr>
<tr>
<td>4</td>
<td>-13.25007</td>
<td>-10.04399</td>
<td>-12.24596</td>
</tr>
<tr>
<td>5</td>
<td>-14.93980</td>
<td>-10.97936</td>
<td>-13.69944</td>
</tr>
<tr>
<td>6</td>
<td>-19.24206*</td>
<td>-14.52724*</td>
<td>-17.76544*</td>
</tr>
</tbody>
</table>

AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion


Table 2 showed the result of the optimum lag length selection analysis. The lowest value of AIC, SC and HQ are -19.242, -14.527 and -17.765 which was at lag 6. Based on this finding, the study therefore estimated Engle-Granger single equation co-integration test with 6 lags.

Single equation co-integration test

To determine if there was a co-integrating relationship among the variables, the Engle-Granger residual-based test for co-integration unit root test was applied to the residual obtained from the single equation ordinary least squares regression estimate under the assumption that the series were not co-integrated.

Table 3

Result of single equation cointegration test

<table>
<thead>
<tr>
<th>Dependent</th>
<th>tau-statistic</th>
<th>Probability</th>
<th>z-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGRGDP</td>
<td>-4.014726</td>
<td>0.1083</td>
<td>-21.60637</td>
<td>0.1118</td>
</tr>
</tbody>
</table>


Table 3 showed the results of the co-integration test. The result showed that there was no co-integrating equation, as indicated by the insignificant probability values of
the tau-statistics (0.1083) and z-statistic (0.1118) which were not significant at 5%. Therefore, the null hypothesis of no co-integration was accepted. Conclusively, the variables were differenced and ordinary least squares regression (OLS) was estimated.

**Ordinary Least Squares (OLS) on the relationship between natural resources endowment and human capital Development on Economic Growth**

In order to achieve objective One, OLS regression was estimated to determine the effect of natural resources endowment and human capital development individually on economic growth in Nigeria. However, in order to avoid the problem of autocorrelation, one lag difference of the dependent variable was regressed with the other independent variables.

**Table 4**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LOGRGDP(-1))</td>
<td>0.287835</td>
<td>0.135087</td>
<td>2.130745</td>
<td>0.0420</td>
</tr>
<tr>
<td>D(LOGNR)</td>
<td>0.194240</td>
<td>0.061385</td>
<td>3.164313</td>
<td>0.0037</td>
</tr>
<tr>
<td>D(LOGGEH)</td>
<td>0.315132</td>
<td>0.153604</td>
<td>2.051591</td>
<td>0.0497</td>
</tr>
<tr>
<td>D(LOGGED)</td>
<td>0.005732</td>
<td>0.053201</td>
<td>0.107751</td>
<td>0.9150</td>
</tr>
<tr>
<td>C</td>
<td>0.019038</td>
<td>0.008398</td>
<td>2.267085</td>
<td>0.0313</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.467314</td>
<td>Mean dependent var</td>
<td>0.048189</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.391216</td>
<td>S.D. dependent var</td>
<td>0.036867</td>
<td></td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>0.028765</td>
<td>Akaike info criterion</td>
<td>-4.120575</td>
<td></td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>0.023168</td>
<td>Schwarz criterion</td>
<td>-3.893832</td>
<td></td>
</tr>
<tr>
<td>Log likelihood</td>
<td>72.98949</td>
<td>Hannan-Quinn criter.</td>
<td>-4.044283</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>6140959</td>
<td>Durbin-Watson stat</td>
<td>2.168293</td>
<td></td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.001117</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Researcher’s Computation (2018).*

The result of the OLS regression presented in the table 4 indicated that D(LOGNR) was positive and had significant effect on D(LOGRGDP). The coefficient of 0.194 indicated that a 1% increase in D(LOGNR) would lead to about 19% increase in D(LOGRGDP). D(LOGGEH) was positive and had significant effect on D(LOGRGDP). The coefficient of 0.315 indicated that a 1% increase in D(LOGGEH) would lead to about 32% increase in D(LOGRGDP). D(LOGGED) was positive and had insignificant effect on D(LOGRGDP). The coefficient of 0.006 indicated that a 1% increase in D(LOGGED) would lead to about 0.6% increase in D(LOGRGDP).
The result of the R-squared was 0.467314 which suggested that about 47% of the changes in D(LOGRGDP) was caused by the independent variables D(LOGNR), D(LOGGEH) and D(LOGGED) respectively. The value of the F-statistic was 6.140959 with probability of 0.001117 which was significant at 5% critical level. The decision rule for the F-statistic was that we reject the null hypothesis when the F-statistic is less than 5%. Since the F-statistic was less than the required 5% level of significance, it meant that the explanatory variables were significant in explaining changes in the dependent variable and therefore the study rejected the null hypothesis.

The Durbin Watson which is always between 0 and 4 indicate that a value of two (2) means that there is no serial correlation in the model. A value approaching zero (0) indicates positive autocorrelation and values approaching toward four (4) indicate negative autocorrelation.

In the regression conducted, the value of the Durbin Watson was 2.168293 which indicated that there was no serial correlation in the model because the value was greater than 2.

Based on this finding, since the probability value (0.0037) of D(LOGNR) was significant at 5% level, it was concluded that natural resources endowment individually had significant effect on economic growth in Nigeria. On the other hand, since the probability value (0.0497) of D(LOGGEH) was significant at 5% level, it was concluded that government expenditure on health individually had significant effect on economic growth in Nigeria.

Lastly, since the probability value (0.9150) of D(LOGGED) was insignificant at 5% level, it was concluded that government expenditure on education individually does not have significant effect on economic growth in Nigeria.

Overall, null hypothesis one was rejected and it was concluded that natural resources endowment and human capital development individually had significant effect on economic growth since the coefficient of the F-statistic 6.140959 with probability value of 0.001 was significant at 5% level.

<table>
<thead>
<tr>
<th>Normality Test (Jarque-Bera)</th>
<th>Serial correlation (LM)</th>
<th>BreuschPegan Godfrey Heteroscedasticity test</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.426 [0.000]</td>
<td>0.795 [0.672]</td>
<td>2.992 [0.559]</td>
</tr>
</tbody>
</table>

*Note:* probability values in brackets.

The results in table 5 shows the diagnostic tests for regression estimate Heteroscedasticity is a term used to describe the situation when the variance of the residuals of a model are not constant. Breusch-Pegan-Godfrey test (BPG Test) was used to test for the presence of heteroscedasticity. Since the p-value was greater than 5%, the null hypothesis was accepted which meant that there was no heteroscedasticity.

The normality test is also a term used to describe the situation when the residuals of a model follow a normal distribution. Jarque-Bera test was used to test for normality in this study. Since the p-value was less than 5%, the null hypothesis was rejected which meant that the residuals were not normally distributed.

**Single Equation Co-Integration Test - Interactive**

In order to achieve the second objective which was to determine whether natural resources endowment and human capital development jointly have interactive effect on the economic growth of Nigeria, the Engle-Granger residual-based test for co-integration unit root test was applied to the residual obtained from the single equation ordinary least squares regression estimate under the assumption that the series were not co-integrated since the variables were of the order I (1).

*Table 6*

<table>
<thead>
<tr>
<th>Dependent</th>
<th>tau-statistic</th>
<th>Probability</th>
<th>z-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGRGDP</td>
<td>-3.372214</td>
<td>0.0678</td>
<td>-16.94493</td>
<td>0.0565</td>
</tr>
</tbody>
</table>


*Source: Researcher’s Computation (2018).*

Table 6 showed the results of the co-integration test. The result showed that there was no co-integrating equation, as indicated by the insignificant probability values of the tau-statistics (0.0678) and z-statistic (0.0565) which were not significant at 5%. Therefore, the null hypothesis of no co-integration was accepted. Conclusively, the variables were differenced and ordinary least squares regression (OLS) was estimated.
Ordinary Least Squares (OLS) on the relationship between natural resources endowment and human capital development- Interactive effect on Economic Growth

In order to achieve objective two, OLS regression was estimated to determine the effect of natural resources endowment and human capital development interactive effect on economic growth in Nigeria. However, in order to avoid the problem of autocorrelation, one lag difference of the dependent variable was regressed with the other independent variables.

Table 7

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LOGRGDP(-1))</td>
<td>0.393148</td>
<td>0.161730</td>
<td>2.430890</td>
<td>0.0213</td>
</tr>
<tr>
<td>LOGINTER</td>
<td>0.001744</td>
<td>0.009987</td>
<td>0.174670</td>
<td>0.8625</td>
</tr>
<tr>
<td>C</td>
<td>0.003217</td>
<td>0.150122</td>
<td>0.021427</td>
<td>0.9830</td>
</tr>
</tbody>
</table>

R-squared: 0.210799  
Adjusted R-squared: 0.158186  
S.E. of regression: 0.033825  
Sum squared resid: 0.034325  
Log likelihood: 66.50352  
F-statistic: 4.006577  
Prob(F-statistic): 0.028695

Dependent Variable: D(LOGRGDP)  
Method: Least Squares  
Date: 08/17/18 Time: 17:2  
Sample (adjusted): 1984 2016  
Included observations: 33 after adjustments


The result of the OLS regression presented in the above table 7 indicated that D(LOGINTER) was positive and had insignificant effect on D(LOGRGDP). The coefficient of 0.001744 indicated that a 1% increase in LOGINTER would lead to about 0.2% increase in D(LOGRGDP).

The result of the R-squared was 0.210799 which suggested that about 21% of the changes in D(LOGRGDP) was caused by the independent variables INTER.

The value of the F-statistic was 4.006577 with probability of 0.028695 which was significant at 5% critical level. The decision rule for the F-statistic was that we reject the null hypothesis when the F-statistic is less than 5%. Since the F-statistic was
less than the required 5% level of significance, it meant that the explanatory variables were significant in explaining changes in the dependent variable and therefore the study rejected the null hypothesis.

The Durbin Watson which is always between 0 and 4 indicate that a value of two (2) means that there is no serial correlation in the model. A value approaching zero (0) indicates positive autocorrelation and values approaching toward four (4) indicate negative autocorrelation.

In the regression conducted, the value of the Durbin Watson was 1.857329 which indicated that there was serial correlation in the model because the value was less than 2.

Based on this finding, since the coefficient of LOGINTER was 0.001744 with probability value of 0.8625 was insignificant at 5% level, null hypothesis two was accepted and it was concluded that natural resources endowment and the joint interaction of human capital development does not have significant effect on economic growth in Nigeria.

### Table 8

<table>
<thead>
<tr>
<th>Normality Test (Jarque-Bera)</th>
<th>Serial correlation (LM)</th>
<th>BreuschPegan Godfrey Heteroscedasticity test</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.249275 [0.882817]</td>
<td>0.495767 [0.7805]</td>
<td>4.282821 [0.1175]</td>
</tr>
</tbody>
</table>

*Note: probability values in brackets.*

*Source: Researcher’s Computation (2018).*

Results of the diagnostic test was presented in table 8. Heteroscedasticity is a term used to describe the situation when the variance of the residuals of a model is not constant. Breusch-Pegan-Godfrey test (BPG Test) was used to test for the presence of heteroscedasticity. Since the p-value was greater than 5%, the null hypothesis was accepted which meant that there was no heteroscedasticity.

The normality test is also a term used to describe the situation when the residuals of a model follow a normal distribution. Jarque-Bera test was used to test for normality in this study. Since the probability value was less than 5%, the null hypothesis was rejected which meant that the residuals were not normally distributed.

### 4.1. Discussion

The serial correlation test is also a term used to describe the situation when the residuals of a model have serial correlation. The serial correlation showed that there
was no serial correlation since the p-value is greater than 5%. Hence, we accept the null hypothesis. That is there is no serial correlation in the model.

Arising from the findings, the Ordinary Least Square (OLS) result showed that the R-square was 0.467314 which showed that about 47% of the changes in D(LOGRGDP) was explained by the independent variables D(LOGNR), D(LOGGEH) and D(LOGGED) respectively. The value of the Durbin Watson was 2.168293 which indicated that there was no serial correlation in the model. The value of the F-statistic was 6.140959 with probability of 0.001117 which was significant at 5% critical level. It is therefore concluded that natural resources endowment and human capital development had significant effect on economic growth since the coefficient of the F-statistic was 6.140959 with probability value of 0.001 which was significant at 5% level. The results of the study however conform and consistent with various research findings like Behbudi et al. (2010), Adu (2011), Ji, et al. (2014), Adeyemi and Ogunsola (2016), and Oladeji (2015) who also found significant positive relationship between natural resources, human capital development and economic growth.

5. Conclusion

This study examined the relationship between natural resource abundance and human capital development on economic growth in Nigeria. The study concluded that natural resources endowment and human capital development individually had significant effect and jointly had no significant effect on economic growth in Nigeria during the period under review.

Based on the findings, it is recommended that Nigerian government should consciously embark on policies that will enhance human capital development such as investment in education and health sectors as well as adopt policy measures that will optimize natural resources endowment with a view to enhancing economic growth and development.

References


POPULATION GROWTH, GENDER INEQUALITY AND ECONOMIC DEVELOPMENT IN NIGERIA

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JEL J16, J21, J82, O15 Abstract

This study examined whether the perseverance of gender inequality and population growth impacts on Nigeria’s economic development. The study employed the Generalized Method of Moment estimation in annual data for the period 1985-2017. Variables used include real household final consumption expenditure per capita and Real Gross Domestic product per capita as measures of development, population growth rate, ratio of sex employment for age group 15-64, sex labour force participation rate ratio, female tertiary gross enrollment and inflation to capture the macroeconomic environment. Findings showed that while sex employment ratio had negative insignificant impact on development, female tertiary enrollment and sex employment ratio showed positive significant impact on development. Population growth significantly and negatively impacted on development. The study thus recommends population control and human capital development employing fertility control, increase in female tertiary enrollment and female employment especially at the higher level.

Key words: Gender, Generalized Method of Moment, Economic Development, Inequality, Population growth, Time series.

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1. Introduction

The need for economic development is the ultimate goal for any economy. Economic theories have come to the consensus that achieving economic development rests on population growth and human capital development. The fast growing rate of the world population which is at 7.6 billion in 2017 and projected to be 9.8 billion in 2050 with an average yearly addition of about 83 million people (United Nations, 2017) is a current developmental concern. However, of a greater global developmental challenge are the persistent inequalities in gender and income. Gender inequity - among other economic problems - has tenaciously shackled global developmental efforts.

The pursuit for development has been a major concern in Nigeria and many policies (National Economic Empowerment Development Strategies (NEEDS) and Subsidy Reinvestment and Empowerment Program (SURE-P), PEP among others) have been put in place towards achieving this. Yet, economic development seems unachievable. Irrespective of its having an average RGDP growth rate of 6% from 2000 to 2017 (CBN, 2017), Nigeria is among the least developed countries of the world. The country ranks 152 out of 185 countries in human development index, with a human development index of 0.532 in 2017 and about 70% of the population being absolutely poor.

As measures of development, Nigeria’s RGDP per capita growth rate fell continuously from 9.89 in 1990 to -1.79 in 2017 and the country had multidimensional poverty index of 0.279 in 2015 (UNDP, 2016).

Nigeria is also the most populated country in Sub-Saharan Africa, among the world’s highest growing countries and the 7th highest populated country in the world with a population of 200,962,417 as at May 2019 with the female accounting for 49%. The country has a population growth rate of 3.75% and projected to rise to 350 million in 2050 making Nigeria the third largest populated country. The fertility rate of the country stands at 5.7 in 2016 which is among the global highest (UNDESA, 2012; UNDP, 2016; Worldometer, 2019).

However, to argue that the main cause of the low development level in Nigeria is the high population growth rate means neglecting some more serious possible economic problems such as all forms of inequality, particularly, gender inequality. Nigeria has a gender gap which is rather high in comparison to other developing countries. According to Gender in Nigeria report (2012), Nigeria ranks 118 out of 134 countries in gender inequality index. Its unemployment rate of female to male rate at 1.25% and labour force participation rate for female to male at 65.1 to 71.4 in 2015 (UNDP,
May be encouraging, but females are often at lower levels of employment. For instance, of the total number employed in 2017, 63.56% are men while 36.44% are female and for the period 2010 to 2015, 72.3% of the top Civil service positions were held by male while female had only 27.7% (NBS, 2018).

Source: Authors graph using data from UNDP, 2018; NBS, 2018.

Fig 1.1. Gender Inequality Indicators (2017)

Mat Sui (2013) cited in Ewubare and Ogbuagu (2017) noted that female education is a key developmental driver, while according to the IMF (2016) higher education for girls will open up better opportunities to females thereby promoting development. As observed by Anochie, Osuji and Anumudu (2015), a reduction of gender inequality through an increase in access to education enhances women empowerment which is a key factor to the promotion of economic development. This also brings about the expansion of the labour force thereby increasing economic productivity. In Nigeria, while the male literacy rate was 69.2% in 2016, the female was 49.7%, and while the combined gross enrollment for all levels of education for the female was 57% in 2010 it was 71% for the male (NBS, 2012, CIA World Factbook, 2018). In 2016, gender inequality index was 0.620 and this shows about 62% loss in the conceivable human development (NBS, 2018) and economic development of the country. Therefore, it can be argued that the growing Nigerian population can be harnessed as a resource for development.
Analysis on population and development has been a contentious issue. For instance Onwuka (2006) found a negative population and growth relationship while Adewole (2012) found a positive population and growth relationship in Nigeria. The necessity to investigate the role of gender equality in developmental policy is, on the other hand, a recent concern in literature. Nevertheless, recent empirical works have not analyzed studies on the comparative impact of population growth and gender inequality for effective policy formulation.

Furthermore, the recent studies in Nigeria (Olabiyi, 2014) employed the Vector autoregression model which - as pointed out by Gujarati and Porter (2009) - is mostly for forecasting and not appropriate for efficient policy formulation. Therefore, by employing recent available data for Nigeria, this paper is at variance with others by examining the joint effects of population growth and gender inequality on development. Consequently, the objective of this paper is to examine whether the perseverance of gender inequality and population growth has any impact on the level of economic development of Nigeria. This is aimed at recommending direct focus policies towards achieving the developmental goal of Nigeria.

2. Review of Related Literature

2.1. Conceptual Literature

Economic development

Before the 1980s, the performance of the country was ascertained by economic growth. However, modern economists have come to realize that economic development provides a better picture of the wellbeing of the people. Economic development is different from economic growth. **Economic growth is the increase in output or the real value of goods and services produced in a country for a period of time, usually one year. It is just a quantitative change in the country. It is usually measured by the gross national product or better still by the growth of gross domestic product (GDP).**

Economic development, on the other hand, is defined by modern economists as a multidimensional process that requires a change in social structures, attitudes of the masses and the national institution to the favour of the masses as well as enhancing growth in income. It involves qualitative and quantitative improvements in a country’s economy as well as its political and social transformations (Todaro and Smith, 2011). According to Sen (1990), development is the creation of freedom for people and removing obstacles such as poverty, poor governance and lack of economic opportunities, among others, to greater freedom. Hence, economic development is concerned with reduction of poverty, unemployment and inequality in the face of per capita income.
Economic development can be measured by GDP per capita, human capital development index, or consumption spending. The GDP per capita is the most common measure and primary measure of development because of the ease in the availability of data. It is however limited by its inability to account for distributional pattern of income, underestimation of true welfare not accounting for improvements of social activities like education, public health as well as the problems associated with the measurement of GDP such as double counting, etc. Thus, the consumption spending measure is better because households smooth their consumption over time, consumption measures contain smaller measurement error compared to income and are more reliable (Duclos and Araar, 2006).

**Population growth**

Population growth is the positive or negative change in the amount of the population of a group of people over a period of time. It is based on the balance between death and birth. When the birth rate is more than the death rate it is positive growth and vice versa (Hinde, 1998). The growth of population can be in absolute or relative terms. For absolute growth, the difference over time is in the number of the population while for relative terms, the difference is in the percentage change. The growth of population is often determined by the fertility, mortality and migration rate but the effect of migration on national population growth is, however, negligible. A positive growth rate shows there is higher fertility than mortality. At a constant fertility and mortality rate, the population remains at constant growth rates.

**Gender/Gender Inequality**

Often times, “gender” is wrongfully used to refer to “women”. Gender is customarily defined as the social meanings given to differences in biological sex. According to Riley (1997), gender is a social and cultural composition. Gender is a qualitative personality of being either a man or woman in society, while sex is the biological state of an individual being a male or female. Gender is also viewed as a social stratifier similar to other stratifiers such as ethnicity, race and age. Sen (1990) stressed that it is important not to limit the concept of gender to just male and female but to also consider the relationship between male and female in analyzing gender. Given these differences in the activities of men and women in society, the issue of the inequality between them arises.

Gender inequality was defined by Egbuloun and Eleoun (2018) as the uneven opinion and dealing with different individuals based on their differences in sex. They noted that gender inequality means all men are better off than women. World Bank,
(2001) in Morrison, et al (2007) noted that gender inequality is the inequality in the determinants of outcomes such as inequality in opportunities, resources, rights and voice and not just inequality of outcomes for men and women. We can thus say that gender inequality occurs as a result of inequality in the opportunities needed to bring about economic outcome.

2.2. Theoretical literature

Theories of population growth and economic development

The theory of population growth was given birth to by the work of Malthus in the eighth century. A critique of this theory has been put forth by different analysts with some theories in support with little modification and others with contrary views.

Malthus-Ehrlich-Brown theory: Malthus in 1798 posits that population is growing at a geometric rate while food is growing at an arithmetic rate and if population is unchecked it will lead to misery. The increase in demographic growth will exceed the capacity of agriculture to sustain the population which will lead to an economic cyclical adjustment through famine, wars, etc. (Ricardo-Malthus's "iron law of wages"). Ehrlich in his "The population bomb", 1968 predicted that within a decade, overpopulation will cause repeated famines and resurgence of diseases, eventually killing one fifth of the world’s population and Brown noted that overpopulation will constrain and even reverse economic progress. They recommended abstinence from many childbirths as the way out (Aguirre, 2002).

The Kuznets-Simon-Boserup theory: Economists, however, criticized the Malthus-Ehrlich-Brown theory on the grounds that it failed to explain economic development. The theory only looked at the consequence of population change and failed to look at the causes or effect of population change. Kuznets in 1960, Simon in 1977 and Boserup in 1981 had a different view, called the Kuznets-Simon-Boserup theory. The theory noted that in production analysis, the population is not just labour, but technical progress is endogenous to population size. Applying the "genius principle" and the "population pressure" principle, the higher the population, the greater the stock of ideas. Thus, population growth will stimulate technological innovation given the scarce resources. As noted by Boserup (1981) population density is positively correlated with the intensity of technology which is a developmental factor (Birchenall, 2016).

Theories of gender inequality and development

Some theories have come up to answer the question on gender inequality and development relationship. Among these are:
Functionalist theory: This theory was put forward by Talcott Parsons in the 1940s and 1950s. It posits that inequality in gender is a proficient way of creating division of labour towards the maximization of resources and hence increasing growth and development. Gender inequality is assumed to be complementing gender roles. For instance, while women are responsible for taking care of the home, men will be providing for the needs of the family (Ewubare and Ogbuagu, 2017).

Feminist theory: This theory opposes the functionalist theory arguing against gender inequality. It views gender inequality as simultaneous actions that bring about injustices irrespective of the gender which hinders development. In line with the above, the Intra-household bargaining of husbands and wives model noted that preferences differ between genders, and women are more concerned with the quality of the child than men. Hence, given the importance of human capital development, empowering the woman will result in faster economic development (Prettner and Strulik, 2017). Also, given the transition in generations, that women are more care givers to the child, educating the woman reduces the possibility of Malthusian prediction through reduction in fertility and ensuring more and better human capital (Klasen and Silva, 2018).

2.3. Empirical literature

The role of population and issues of gender inequality have been a recent area of investigation, particularly as it affects development. Examining the relation between population growth, economic growth and development, Onwuka (2006) employed the OLS regression analysis on annual data for the period 1980 - 2003 to evaluate the impact of Nigeria's growing population on economic growth. Findings showed a negative rapport between population growth and economic growth measured by real GDP. Contrary to the above findings, Furuoka (2014) showed that population growth has neither positive nor negative impact on economic development in Malaysia and that increase in income caused population expansion in Sarawak, Malaysia.

Adewole (2012) examined the validity of the Malthusian theory in Nigeria employing annual data for the time 1981 to 2007. The OLS estimation method was used and results showed that population growth positively and significantly impacted on economic sustainability captured by real gross domestic product (RGDP) and per capita income for the period of study, while, in investigating the outcome of population dynamics on Nigeria’s economic growth, Olabiyi (2014) employed the vector auto regressive (VAR) model for the time 1980 to 2010. Results showed a negative correlation between fertility rate and economic growth while a positive correlation was found between mortality rate and economic growth.
Analyzing the subject of gender as it affects the development of countries, the relation is not very clear. On the role of female education on the economic performance of Nigeria, Risikat (2012) used error correction techniques for the period 1975 to 2008. Findings showed that female education had no significant impact on Nigeria’s real GDP. Hence the need for required investment in female education was strongly encouraged.

Eneh and Nkamnebe, (2011) examined the issues surrounding gender gap and sustainable human development as it affects the general economic development of Nigeria. Employing both primary and secondary data sourced from interviews among women and children and other documented records, it was found that unemployment, lack of needed health facilities and access to credit, loss of right and disinheritance as well as poor governance, among others, are the various ways that females have been marginalized which has hindered human development and the development of the country.

Analyzing the liaison between gender inequality and economic development, Eastin and Prakash (2013) found a coiled (‘S shaped’) relationship. Economic development reduced gender inequality as the initial stage of the development as there was encouragement in labour force participation rate. Thereafter, as the level of development increases, gender discrimination reduces the female labour force employment rate and gender inequality increased but at the final stage of development with enhanced female educational level and technological advancement, new employment openings came up for females and gender inequality is reduced.

The impact of the different determinants of the gender gap on human capital in developing countries, was examined by Dao (2012) and it was found that female primary completion is a function of per capita GDP, as well as employment in agriculture, industry and services. The ratio of girls’ to boys’ enrollments in primary and secondary as well as girls’ mortality were also found to be a function of low developmental level captured by poverty rate, fraction of population with access to improved water source and maternal mortality.

Determining the influence of gender inequality on economic development, Khayria and Feki (2015) used data of gender inequality on economic growth in a panel of five countries of Great Maghreb for the period 1985-2011. They employed the dynamic GMM model and the result showed that there is a positive significant effect of population growth on economic growth, contrarily, gender inequality showed a negative significant effect on economic growth.

Oriana and Ashwini (2013) failed to show any evidence of causal connection between gender inequality and growth in a study on some countries, this was found not to be enough for a conclusion on the relation between inequality and growth. Rather
they recommended micro studies to throw more light on the process by which growth and development is affected by gender inequality for effective policy design.

In a regional study, Hakura, et al (2016) carried out a comparative evidence for sub-Saharan Africa on the impact of both income and gender inequality on economic growth of the countries. Using a dynamic panel regression estimation on current data series, the inequalities were found to be negatively associated with growth particularly for the low income countries. Specifically, they noted that per capita income in Sub-Saharan Africa is expected to grow by 0.9 if inequality is reduced to a minimum level as obtainable in China.

Ewubare and Ogbuagu (2017) analyzing the role of gender inequality in the unemployment and economic growth relationship in Nigeria employed the Engel Granger Error Correction Model and Dynamic Stochastic Variance Decomposition Model in annual data. The result showed that gender inequality is positively and significantly related to unemployment while economic growth negatively impacted on unemployment. Population growth was also found to transmit a significant impulse on unemployment. It was thus concluded that gender inequality is a key factor in the unemployment problem in Nigeria.

Kleven and Landais (2017) analyzed gender inequality impact on economic development in the face of fertility, education and norms employing a panel study of 53 countries for the time 1967 to 2014. It was found that the most important factor in the closure of the gap in the male and female earning on the path to development was the increase in female participation rate in labour force. Hence, all forms of norms against women and children should be changed to reinforce gender convergence. Egbulonu and Eleonu (2018) used annual data spanning from 1990 to 2016 for Nigeria to examine the relationship between gender inequality and economic growth. They also sought to find out the factors that could enhance female contribution to economic growth in Nigeria. Findings showed that male school enrollment and female employment rate significantly affect economic growth. Olukemi and Dominic (2019) explored the inclusive growth implication of gender inequality in Nigeria. Using annual data of 1980 to 2018 on an ARDL estimation method, the outcome revealed that gender inequality - notably in education and employment - has ominous consequences on the achievement of inclusive growth in Nigeria. Equal access to education and employment was strongly recommended.

2.4. Summary of and gaps in empirical literature

Of the above studies reviewed, very few studies have been carried out on the impact of population and gender inequality on economic development. Emphasis has
been laid on their impact on economic growth. Given that economic growth does not present a correct welfare status of the people, this study will therefore fill these gaps towards recommending policy measures aimed at achieving economic development for Nigeria.

3. Theoretical Framework and Methodology

3.1. Theoretical Framework

This study adopts the Malthus-Ehrlich-Brown theory and the Feminist theory supported by some analysts (Olabiyi 2014; Klasen and Silva, 2018). The Malthus-Ehrlich-Brown theory underscores the need to control population for economic development particularly through fertility control, which is among the agenda of the Sustainable Development Goals. The Feminist theory also accentuates that closing the gender gap will yield a faster economic development.

3.2. Model Specification

To estimate the effect of both population growth and gender inequality on the level of Nigeria's development, we adopted a linear regression model using time series data. The model is estimated using the Generalized Method of Moment (GMM). This is as a result of the ability of the method to correct for heteroscedasticity and serial correlation. The GMM estimator also has the ability to deal with endogeneity problems in models (Arellano and Bond, 1991). The consistency of the GMM estimator, however, depends on the validity of the instruments. This was addressed using the Sargen/Hansen test of over-identifying restrictions, which tests the overall validity of the instruments by analyzing the sample, analog to the moment conditions used in the estimation process.

The functional model for this study is specified as:

\[ Y = f(POPg, SEMR, SLPR, FTGEN, INF) \]

Econometrically and taking the log of the variables in nominal values while the variable in rate are left in their form,

\[ \ln(Y) = \alpha_0 + \alpha_1 \ln(POP) + \alpha_2 \ln(SEMR) + \alpha_3 \ln(SLPR) + \alpha_4 FTGEN + \alpha_5 INF + \mu \]

Where \( \alpha_1, \alpha_2, \alpha_3 < 0; \alpha_4 > 0 \)

\( Y \) is development measured by RHCEpc=real household final consumption expenditure per capita and RGDPCg=Real Gross Domestic Product per capita. The use of consumption expenditure and real gross domestic product is to bring out the comparative advantage of consumption expenditure over real gross domestic product which has often been used by previous empirical studies.

POP=Population
SEMIR=sex employment ratio, a ratio of female in employment (age 15+) to male in employment (age 15+).
SLPR=sex labour force participation ratio, a ratio of female to male labour force
FTGEN=female tertiary gross enrollment
INF=inflation to capture macroeconomic

3.3. Data

The data for the study were obtained mainly from secondary sources, particularly from the World Development Indicators, (2017), CBN Statistical Bulletins, (2017), CIA World Factbook (2018) and NBS’s Annual Abstract of Statistics (various years), spanning for the period from 1985 to 2017. The E-views 9 econometric package was used.

4. Empirical Results

4.1. Correlation Result

The degree of multicollinearity was accounted for using the group correlation matrix. In Table 4.1 the results showed the absence of perfect multicollinearity among the variables. Analyzing the correlation among the variables, the population was found to be positively correlated with development captured by RGDP per capita and real household final consumption expenditure per capita (HCEpc). Gender inequality variables showed a positive correlation with development. Inflation was negatively correlated with development. However, examining the simple bivariate correlation in a conventional matrix does not take into account the degree of association between the variables and the impact of independent variables on those explained. Thus, our main analysis for policy on the impact of population and gender inequality on economic development were drawn from the appropriate multivariate models estimated.

Table 4.1

<table>
<thead>
<tr>
<th></th>
<th>RGDPCC</th>
<th>RHCEpc</th>
<th>POP</th>
<th>SEMPR</th>
<th>SLPR</th>
<th>FTGEN</th>
<th>INF</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGDPCC</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RHCEpc</td>
<td>0.461019</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POP</td>
<td>0.651351</td>
<td>0.894057</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEMPR</td>
<td>0.409556</td>
<td>0.896935</td>
<td>0.908770</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLPR</td>
<td>0.649198</td>
<td>0.885175</td>
<td>0.984563</td>
<td>0.854441</td>
<td>1.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTGEN</td>
<td>0.471901</td>
<td>0.892255</td>
<td>0.934309</td>
<td>0.988690</td>
<td>0.875041</td>
<td>1.000000</td>
<td></td>
</tr>
<tr>
<td>INF</td>
<td>-0.161101</td>
<td>-0.429968</td>
<td>-0.388900</td>
<td>-0.474854</td>
<td>-0.380821</td>
<td>-0.438015</td>
<td>1.000000</td>
</tr>
</tbody>
</table>
4.2. GMM Estimation Result

Estimating the impact of population and gender inequality on economic development, we made use of the GMM where development was captured using Real Gross Domestic Product per capita (RGDPpc) and consumption measured by the real household final consumption expenditure per capita (RHCEpc). On the relationship and impact of population on economic development, conflicting results were found for the two measures of development. Using RGDPpc as a measure of development, the result showed a positive insignificant influence of population on economic development at 5% level of significance. This is contrary to the findings of Onwuka (2006), however, it is consistent with some other studies on population and economic growth (Adewole, 2012; Khayria and Feki, 2015).

Still on the measure of development using RGDPpc, the results of the indices of gender inequality (SEMPR, SLPR, FTGEN) showed that FTGEN and SLPR came out a positive but insignificantly related with development. The results showed that 1% increase in FTGEN and SLPR leads to 9.6% and 0.08% increase in development respectively while there was a negative insignificant impact of SEMPR on development. 1% increase in the SEMPR leads to 2.9% fall in development. This is in line with expectations and shows the current situation in Nigeria.

Using RHCEpc as a measure of development, population was found to be negatively and insignificantly related to development. The result shows that increase in population reduces development and a major channel through which this can take large family size, increasing unemployment as a result of the population resulting in increasing poverty as has been found by some studies (Umoru and Ogbeide-Osaretin, 2018). 1% increase in population leads to 3.6% fall in development. The above findings are in conformity with the Malthusian theory. Examining the relationship and impact of gender inequality on development using the RHCEpc, the result showed that sex employment ratio SEMPR is negatively and insignificantly related with development. This indicates that closing the gender gap in employment and participation rate will increase the level of development as found by some studies (Kleven and Landais, 2017; Egbulonu and Eleonu, 2018). Given a population of about 49% female and a total employment of 77.55 million in 2017, only 36.44% of females were employed (NBS, 2018).

The result also showed that sex labour participation rate (SLPR) and female gross tertiary enrollment rate (FGTEN) had a positive significant impact on economic development. 1% increase in SLPR and FGTEN leads to 11% and 0.3% increase in development. These results of the relationship of FGTEN and SLPR are however
contrary to our expectation and to some other studies, Dao (2012) among others. FGTEN was, however, found to significantly impact on development. The positive relationship of SLPR could be attributed to female zeal of contributing to the family thereby taking up low grade jobs in most cases. For instance, in 2017, while men held 72.3% of the top Civil service positions, females held only 27.7% (NBS, 2018).

Equality existing at positions of the top civil service, will amount to more income to females which will reduce their level of poverty thereby increasing the level of development. These findings confirmed that educational gender inequality is an impediment to the development of Nigeria through low human capital. Education is indeed the root for development and thus, the role of education is confirmed important towards the effective development of the country, irrespective of gender.

The above evidence portrays the real situation in Nigeria. For instance the female gross tertiary enrollment in 2016 was 9.2% even when primary enrollment was as high as 80% and sex tertiary enrollment ratio in 2014 was as high as 78% (World Factbook, 2018). Hence, while it seems that Nigeria is meeting up with the educational goal objective of sustainable development, higher education where the knowledge of technology (vital key for development) is impacted especially for females has been very low. Hence, development seems unachievable in Nigeria.

Examining the impact of macroeconomic state in inflation, result showed a negative and insignificant impact on development in both models. Thus, the high unstable inflation is also a contributing factor to the low level of development in Nigeria. Inflation makes cost of living very high so that households end up spending a greater proportion of their income on consumption, obeying Engle’s law.

Examining the fitness of both models, they were found to be well fitted. The model of RGDPpc had an $R^2$ of 69% and the DW-statistics of 1.646531 confirming the nonexistence of autocorrelation in the model. Also the model using RHCEpc had an $R^2$ of 84% and a DW statistics of 1.649272. The models were also found to pass the Hansen test of valid instrument and the null hypotheses were accepted that all instruments are valid.

The GMM method of estimation also corrected the problem of heteroscedasticity and serial correlation given a Hansen test statistics and probabilities of 3.775573 and (0.052006) for RGDPpc model and 3.973854 (0.056212) for the RHCEpc model. Given the two models and the fitness of the models, the model with RHCEpc proves to be more fitted given its $R^2$ of 84% in comparison with the $R^2$ of 69% of the second model. Hence, the policy formulation for this study will be based on the model with the use of RHCEpc as measures of development.
Table 4.2

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Estimation using L(RHCEpc) measure of development</th>
<th>Estimation using L(RGDPpc) measure of development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient/probability</td>
<td>Coefficient/probability</td>
</tr>
<tr>
<td>POP</td>
<td>-3.574189 (0.0075)*</td>
<td>0.385423 (0.9252)</td>
</tr>
<tr>
<td>SEMPR</td>
<td>-1.306950 (0.2155)</td>
<td>-2.880581 (0.4142)</td>
</tr>
<tr>
<td>SLPR</td>
<td>10.79029* (0.0058)</td>
<td>9.645722 (0.3834)</td>
</tr>
<tr>
<td>FTGEN</td>
<td>0.293750* (0.0015)</td>
<td>0.089356 (0.7128)</td>
</tr>
<tr>
<td>INF</td>
<td>-0.000358 (0.8160)</td>
<td>-0.000903 (0.7902)</td>
</tr>
<tr>
<td>C</td>
<td>30.53887 (0.0047)</td>
<td>-30.91494 (0.4009)</td>
</tr>
<tr>
<td>Hansen test</td>
<td>3.973854 (0.056212)</td>
<td>3.775573 (0.052006)</td>
</tr>
<tr>
<td>Instrument rank</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>R²=0.894283</td>
<td>0.847162</td>
<td>0.698682</td>
</tr>
<tr>
<td>Adj R²=0.869886</td>
<td>0.818859</td>
<td>0.640736</td>
</tr>
<tr>
<td>DW= 1.740407</td>
<td>1.649272 (0.3834)</td>
<td>1.646531 (0.4009)</td>
</tr>
<tr>
<td>Number of observations</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Note: *Indicates significant at 5% level of significance
Null hypothesis of Sargan/Hansen test: All instruments are valid
Source: Author’s computation using data sourced

5 Policy Inferences of Empirical Findings

5.1. Policy Inferences

Based on our empirical estimates, the following policy inferences are drawn from the result:

i. Population growth is negatively and significantly impacting on development. So policy measures towards enhancing development should lay emphasis on the reduction of population growth. Thus, this study recommends population reduction control measures such as fertility control as an important policy tool towards achieving this. The Sustainable Development Goal of fertility rate reduction has been far from achievement in Nigeria and this continues to increase population growth.
ii. Female gross tertiary enrollment as a measure of gender inequality has positively and statistically impacted on development. This suggests that gender inequality through educational inequality has contributed to the low level of development of the country. We therefore recommend the reduction of gender inequality through the increase in female tertiary enrollment.

iii. Sex employment ratio was found to negatively and statistically relate to development. This implies that increasing female employment will increase the level of development. Poverty has been found to be prominent among female headed households and to be positively related to unemployment. Thus, we recommend increasing employment opportunity for females which will reduce the level of poverty among them, thereby increasing development.

iv. Sex labour force precipitation rate was positively related and significantly impacted on development. The significant impact shows that increasing the participation of females in the labour force will enhance the level of development. Hence, policy measures of increasing the educational level of females and employment opportunities for them will increase their participation thereby increasing the level of development.

Conclusion

Achieving economic development has been the ultimate goal of Nigeria and human capital development is a major prerequisite. However, this seems to be encumbered by the high population and level of inequalities. The results of the study showed that the high population growth rate has significantly obstructed developmental goals and gender inequality has also intensified the obstruction of the achievement of this development goal.

This study thus concludes that transforming this population into effective human capital development by closing the gender gap in particular would enhance the achievement of national development. The lesson from China’s miracle of transforming her high population into a developmental tool is strongly recommended.

References


1. Introduction

Nigeria remains the most attractive destination for investment in the world based on her natural resources. Despite that, the involvement of most Nigerians in corrupt practices has brought the country into disrepute. The effect of corruption on economic
growth in Nigeria has no doubt contributed to economic stagnation, recession and retarded growth of economic agents (Household, firm and government) through inefficient allocation of resources which slowed down economic activities (Egunjobi, 2013). This menace manifests itself in various forms such as dishonest, irrational acts, embezzlement, and misappropriation of economic resources and abuse of public office for private gains (CPI, 2017). Its existence in the economy has obviously prevented the government from fulfilling its major roles of allocative, stabilization and distributive (Ogunlana, 2016). Thus, it consequently shows in the Human Development Report ranking Nigeria 151 with low per capita income (Jhingan, 2007) as Nigeria is situated under this low Human Development categories followed by Tanzania and Zambia. This is a clear indication that the basic necessities of life (education, health, food, water supply and nutritional standards) are not easily accessed by 80 percent of Nigeria's population despite her resource endowment, thereby positioning Nigeria as the poverty capital in the world (Demuren, 2018).

In Africa, the negative effect of economic corruption tends to be skewed to the poor and the middle class. It is found within the rich, average and poor African countries, albeit in different forms and magnitude (Bamidele, 2013). Mismanagement of resources contributes to the failure and abject poverty that most African states encountered through their power struggles which led to the eruption of civil wars and pushed fragile countries that have weak institutions to a state of failure and can result in prolonged insecurity (Le Billon, 2008). Transparency International corroborates this in its arguments that African states scarred by war are linked with economic corruption and are perceived to have the highest levels of public-sector corruption, while those countries with long standing conflicts have divided governance and misappropriated economic resources. Thus, economic corruption has led these African states (including Botswana, Mauritius, Rwanda, Namibia, South Africa, Ghana and Nigeria) to a sharp economic decline, political instability, high poverty, inequality, unemployment, deteriorated public services and arbitrary applications of the rule of law which promotes social insecurity (Transparency International, 2011).

The World Bank and the International Monetary Fund (IMF) maintain that corruption is the single greatest obstacle to social and economic development involving two economic agents who give and take gratification (Nobuo, Yusaku and Masayo, 2005). These international organizations relate the cause of corruption to economic factors. Hence, they did not only support a number of anti-corruption programmes and initiatives in over 180 member countries globally but also uploaded working papers and data, organized seminars and conferences, and produced many publications to help resolve the problem. Meanwhile, previous studies have acknowledged gov-
The Effect of Corruption on Economic Growth in Nigeria

The government efforts in fighting corruption in Nigeria with available records showing that what has been lost to corruption over the years is responsible for the poor economic growth. Its effect on society has called for a great concern. For instance, during the oil boom of the 70s, statistics showed that Nigeria generated sufficient revenue through its oil resources, which is capable of financing a number of infrastructural projects to meet basic developmental needs, but in spite of this, resources were not properly channeled to growth enhancing projects (Ogunlana, 2016). Available records have also shown that between the military and the democratic era Nigerian leaders have stolen about $220 billion (Agba, 2010).

The fact that corruption has degraded Nigeria as a nation and yet it’s not properly looked into as a serious issue to the poor economic growth posts a serious threat to the economy and concern to researchers. Similarly, the rebasing of the Nigerian economy of 2014 increases the gross domestic product from ₦42.3 trillion to ₦80.3 trillion ($509.9 bn) (Adediran, 2014). This increase has not transformed the lives of Nigerians via low per capita income recorded where there is a high level of terrorism in the North East, Militancy in the South, kidnapping in the South-West, herdsmen attack and other social vices with ₦1.067 trillion ($6.8 billion) misappropriated during the subsidy era (Nkonjo-Iweala, 2018). It causes concern that in spite of the huge GDP growth recorded, coupled with efforts to fight corruption to end social vices, through the adoption of various policies, misappropriation of economic resources is still on the high side. It is against this background that this study investigates the effect of corruption on economic growth in Nigeria. Apart from the introduction, section 2 contains the literature review and a stylized fact, section 3 presents the methodology, while section 4 analyses the estimation techniques. Section 5 presents the empirical results, findings and conclusion.

2. Literature Review

Corruption remains a problem, disgraceful and associated with irrational acts, embezzlement, and abuse of office by public officers in the course of discharging their duties for pecuniary gains (Odusanya and Adegboyega, 2015). It is well documented in the literature as a form of dishonesty undertaken by a person entrusted with a position of power or authority to acquire personal gain. The three major ethnic groups have given it different traditional names; the Igbos call it “Igboozu”, the Yorubas call it “Egunje” and the Hausas call it Chuachua (Ndokwu, 2004). While Ochejele (2010) defines economic growth as the quantitative and sustained increase in the county’s per capita output or income accompanied by expansion in labour force, consumption, capital and volume of trade.
However, the World Bank definition of corruption which relates it to betrayal, misrepresentation of public officers during the discharge of assigned duties for pecuniary gains has attracted attention to the investigation of corruption in Nigeria. Corruption thus represents degeneration from the normal social behavior which damaged the local economy (Okojie and Momoh, 2005).

World Bank (1997) and Ngouo (2000) define corruption as the exploitation of public office for private or personal benefits. They explain further that the lack of civil spirit among civil servants leads to corrupt practices and misappropriation of public funds. Bertrand (2013) provides a definition synonymous to World Bank (1997) as a sale of government property for private gain which implies betrayal of trust by public office holders. Thus, when the key economic players lack public trust, it could be a barrier to investors, with less investment leading to slower economic growth. Mo (2001) supports this argument and opines that corruption reduces the level of human capital and private investment in an economy. Where policies capable of promoting investment are being tampered through corrupt practices, investors are discouraged and the multiplier effects transmit to low productivity and growth.

Enoefe, Oriaifoh and Akolo (2016) maintain that corruption is a cankerworm which has eaten into the fabric of the foundation of Nigeria, and threatened the existence of a living standard. This position is consistent with Gbenga (2007) who noted that corruption is worse in a country where institutions such as the legislature are weak; where the rule of law and adherence to formula rules are not rigorously observed, where political patronage is not in standard practice, where the independence and professionalism of public sectors have been eroded.

Transparency International (2017), a leading global and corruption watchdog, maintains that corruption is the abuse of public office for private gains for the benefit of the holder of the office or some third party. This international body in 2003 rated Nigeria as one of the top most corrupt countries in the world (Ribadu, 2003). Consequently, in the 2014 corruption perception index, Nigeria was ranked 136 out of 176 countries with a score of 27 out of 100 while 85 percent of Nigerians surveyed believed corruption has increased from 2011 to 2013. The corruption perceptions index (2018) has clearly shown that corruption remains blight around the African countries which robs billions of people of a brighter future and hurts people around the world. This was corroborated in the first quarter of 2018 recent report released by transparency international where Nigeria stood at the 148 position out of 180 countries selected. Transparency international describes Demark, Finland and New Zealand countries as corrupt free nations while Somalia as most corrupt country in the world. Nigeria is classified as one of the most corrupt nations in the world and ranked 144 at 27 score. This is depicted in the table below:
Table 1

Corruption ranking in some selected countries

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<td>144*</td>
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</table>
Corruption was reported as one of the problems confronting Nigeria’s economic, political and social stability (Ogunlana, 2016). It varies from petty corruption, grand corruption to white-collar corruption. The others are moral, economic, electoral, educational, religious and political corruption. It transforms through the conception stage which is the stage in which the perpetrator of the corrupt act proposes through the execution stage. Thus it is depicted in the schema below;

<table>
<thead>
<tr>
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<td>10</td>
<td>180</td>
<td>10</td>
<td>180</td>
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</tbody>
</table>


2.1. Corruption Pyramid in Nigeria

This concept considers the hierarchical trend of the perceived level of corruption in Nigeria from the inception of the pre-colonial era to the present democratic era. The transition of Nigeria’s government from the pre-independence era through the present democratic era with the corruption phenomenon has persistently increased the depletion of the country’s natural resources. The resources being depleted through economic corruption in the form of embezzlement are sufficient to improve the standard of living of the people and raise per capita income. The per capita income in the recent times is considered a desirable variable for measuring the level of growth of an economy (Ochejele, 2010).
Economic corruption in Nigeria has eaten into the fabric of the resources which has consistently increased the level of insecurity thereby affecting the judicious use of natural resources. Figure 2.5 is detailed; the red colour signifies the attack and danger on the economic resources while the green portion signifies the abundant resources that could have improved the lives of Nigerians if judiciously tapped. The downward movement of the pyramid reflects the advancement and spread of economic corruption. For example, the magnitude of corruption in the democratic era is wider than its size during the military era. The welfare effect of the depletion in the economic resources reduced per capita income and resulted in abject poverty and insecurity (Alege et al., 2014).

![Corruption Pyramid in Nigeria](image)

**Source:** Researchers’ design based on information available on corruption trend, 2019.

**Fig. 2. Corruption Pyramid in Nigeria**

### 2.2 Empirical Review

Meon and Sekkat (2005) investigate the impact of corruption on growth and found a significant negative impact of corruption on growth in an emerging economy. Yakautsava and Dissou (2011) investigate the effect of corruption on growth in China using Barro (1990) model and found significant relationship between corruption and growth and that corruption acts as an impediment through the investment channel. Obayelu, (2007) investigates the effects of corruption and economic reforms on economic growth in Nigeria and found significant reductions in the level of corruption. Fabayo, Posu & Obisanya (2011) investigate the consequences of corruption on investment in Nigeria using the Ordinary Least Square technique and found that
corruption lowered investment and economic growth in Nigeria. Egunjobi (2013) investigates the impact of Corruption on economic growth in Nigeria from 1980-2009 and found that corruption per worker exerts a negative influence on output per worker directly and also indirectly on foreign private investment, expenditure on education and capital expenditure per worker. Odunbumi and Agbelade (2014) examine the causality between corruption and economic growth in Nigeria using Johansen cointegration test. The result reveals further that economic growth and other variables such as government expenditure, foreign direct investment, and gross capital formation have positive significant relationship with corruption.

3 Theoretical Reviews

There are three schools of thought on the relationship between corruption and growth. The Greaser Theory advocated by (Leff, 1964, Huntington 1968; Summer 1977; Acemoglu and Verdier (1998) and Odunbumi and Agbelade, 2014) holds the view that corruption has a beneficial effect on economic growth through the payment of bribes to bureaucrats in any form which acts like oil that lubricates and facilitates the engine of economic growth. While the Slander Theory maintains that corruption negates economic growth as it adds to the cost of business and productivity and introduces significant uncertainty in the decision making process which hinders human capital development and growth (Mauro 1995; Mo 2001; Gbenga 2007; Fabayo, Posu and Obisanya 2011; Ajie and Oyegun 2015). The Policy-Oriented Theory which was developed by Teveik, Albert and Charles (1986) emphasizes the role of government in fighting corruption. In the circumstance, The Endogenous Growth Theory which this study is anchored upon offers better explanation of the process of long-run economic growth and maintains that the innovation brought about by investment in knowledge generation is the driving force of long term economic growth which may be influenced by corruption as pointed out by Barro (1990). Other proponents of this theory include (Romer 1986; Lucas, 1988; Jones and Manelli 1990; Rebelo 1991).

3.1. Methodology

The model for the study is a modification of Barro (1990) and is expressed as:

\[ Y = AK^\alpha G^{(1-\alpha)} Lg_t \]

Y represents the output, A represents total factor productivity which the study assumes, an avenue where corruption enters the model, hence denotes corruption, K represents the investment, L represent labour proxied by human capital, while G represents the government expenditure and disaggregated into education and health expenditure.
However, the above model can be reduced into an equation as:

\[ PCI_t = \beta_0 + \beta_1 \ln CORR_t + \beta_2 \ln GFCF_t + \beta_3 \ln EDEXP_{t-k} + \beta_4 \ln HEXP_{t-k} + \beta_5 \ln HC_{t-k} + \varepsilon_t \]

Where PCI is a proxy for economic growth, CORR is a proxy for corruption and GFCF is a proxy for investment, EDEXP is government education expenditure, HEXP is government health expenditure and HC is the human capital.

### 4. Result/Findings

#### Time Series Properties of Data Set

<table>
<thead>
<tr>
<th>Variables</th>
<th>Augmented Dickey Fuller (ADF)</th>
<th>Philips Perron (PP)</th>
<th>Order of Integration @ 5% using ADF</th>
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</thead>
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<td>-1.61</td>
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</tbody>
</table>

*Note: CV implies Critical Value; Source: Authors’ calculations based on data used, 2019.*

Having established the order of integration of this series using Philips Perron and Augmented Dickey Fuller test, the variables are found to be integrated of the same order, such as I (1) as shown in the unit root tests. The study therefore conducts long-run co-movement test using Johansen Cointegration technique and error correction mechanism to determine the short run speed of adjustment. Thus, the empirical result of the co-integration test reveals that the variables are co-integrated based on Trace statistic and Eigen values since the hypotheses of no co-integration are rejected at 5% level for both tests using Mackinnon-Haug Michelis (1999) p-values.

<table>
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<td>-31.07</td>
<td>-5.49</td>
</tr>
<tr>
<td>LOG(CORR)</td>
<td>-0.46</td>
<td>-4.39</td>
</tr>
</tbody>
</table>
The result of the findings above shows that there is negative and significant relationship between corruption and growth through per capita income in Nigeria. The significant coefficient effect shows that a unit increase in corruption would result in a decrease (by 0.46 units) in growth in Nigeria. The economic implication of this is that an initial change in corruption will cause changes in economic growth through the per capita income. Hence, the need to strengthen anti-corruption fight in the economy in order to ensure that it does not influence growth thereby causing further changes in corruption in Nigeria. The value of the adjusted R-squared shows that about 28% of the variations in per capita income were accounted for by the explanatory variables (corruption, gross fixed capital formation, government expenditure (education and health) and human capital). Furthermore, the model does not suffer from the problems of serial correlation since the value of the Durbin-Watson statistics (1.91) was close to 2.

4.1. Summary/Conclusion

The stationarity test using Philips Perron and Augmented Dickey Fuller test indicate that the variables are found to be integrated of the same order, such as I (1) as shown in the unit root tests. This necessitates the investigation of long run co-movement of the variables. The result of the co-integration test reveals that there is existence of long run relationship between corruption and economic growth in Nigeria. The empirical result using Barro (1990) model further proved that corruption negatively influences the level of output in Nigeria. This is evidenced from the result on the effect of corruption and economic growth in Nigeria. It points to the fact that corruption does more harm than good.

In conclusion, the econometrics result on the effect of corruption and economic growth in Nigeria reveals a negative relationship within the period under review. This
suggests that the government through its anti-graft agencies (EFCC, ICPC and Code of Conduct) needs to strengthen its fight against corruption at all levels in Nigeria.

5. Recommendation

The study recommends that the government should intensify its effort in the fight against corruption by strengthening the existing anti-corruption agencies. It should make the fight against corruption holistic without considering political affiliation. Also, the government should ensure that acts of corruption are discouraged in the public offices and ensure better remuneration for public officers and ensure that the policy of single treasury account is maintained to block loopholes where resources are being mismanaged. Hence, the government should formulate a policy that will provide capital punishment for corrupt practices.

This study is open to criticism; therefore, researchers are advised to identify the gap in the literature and carry out further study on the nature and strategy of government policies and measures to combat corruption in Nigeria.

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CULTURE, ENVIRONMENTAL CONSCIOUSNESS AND CONSUMPTION –
AN EXPLORATION OF THE UNDERLYING MECHANISMS
OF A COMPLEX RELATION

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JEL Q01, Q50, D9

Abstract
The paper is aimed at exploring relevant academic literature regarding the connection between culture, environmental consciousness and consumer behavior, contributing to a more comprehensive understanding if the mechanisms behind the interactions between these elements, thus aiding other researchers and policy makers in their future activities. Among the main conclusions, the role of culture and the manifestation of cultural dimensions in modelling green behaviors and consumption patterns is to be emphasized, thus making it central to both future research efforts on the subject and the approach to policy design and implementation.

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1. Introduction

In a global context characterized by the intense calls for environmental responsibility, and in line with the conclusions of van Alstine and Neumayer (2010), who argue that economic value needs to be decoupled from resource depletion and environmental destruction, the quest for reconciling social, economic and environmental concerns occupies a top position on the agendas of policy makers, corporations and academics alike. Moreover, as Iizuka (2010) notes in her paper almost two decades ago, the envi-
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2020 • Volume 64 • №1

Environmental awareness and behavior of citizens play a key role in the success of pro-environmental policies, an observation that is in line with more recent developments characterized by the fact that often pro-environmental policies are originating in the area of public opinion and then pushed on the agenda of policy makers.

In this context, this paper aims at exploring relevant academic literature regarding the connection between culture, environmental consciousness and consumer behavior, looking to enable a deeper understanding of key elements that characterize this triangle and to provide scholars with useful insight that could help them in their own scientific endeavors on the topic of sustainable development. Expanding this perspective by taking into consideration Gorham’s findings regarding the role that cultural factors play in shaping the decision-making process at different levels of government (Gorham, 1997) and the insights provided by Daniell’s comprehensive literature review on this subject (Daniell, 2014), it can be further argued that culture represents one of the elements that have the potential of binding socio-economic environmental developments with policy, contributing to more effective and efficient governance.

It must be highlighted that the main objective of the paper is to analyze relevant articles on the topic and provide a comprehensive picture of the current state of research, thus identifying and clarifying key ideas and conclusions that would have otherwise been more difficult to isolate from within the large amount of papers that are currently available. The goal is that the results of this investigation would be relevant for a wide range of future research, enabling researchers to, among others, (1) better focus their scientific approach in light of the existing body of knowledge, (2) more easily identify specific areas in which more research is needed in order to achieve an increased comprehension of particular complex socio-economic processes, (3) identify potential inconsistencies between their results and the results of previous papers, thus opening a discussion on the causes of such differences. Also, the investigation performed by this paper has the potential of constituting important inputs for policy makers, allowing them to implement improvements in public policy design and implementation.

This approach assumed by the paper entails also some limitations, as some of the studies analyzed present conclusions that stem from a particular context, meaning that extending those conclusions to significantly different circumstances should be done with the appropriate diligence. Also, as stated before, the existing body of literature is considerable, meaning that any claim of having performed an utter investigation is unfeasible, as some of the relevant literature may be missing, without implying, however, that the goal of providing a pertinent picture that can prove to be useful for researchers and policy makers is not attainable.
The paper is divided in two main sections: one dealing with the extended relation between culture, environmental consciousness and green consumption, and the other exploring academic knowledge on the role that culture plays with regards to sustainable attitudes and behaviors. We feel that these two perspectives of the culture-environment relationship could bring extra clarity to an otherwise complex picture and could enable researchers to better calibrate their efforts on the topic.

2. Culture, Environmental Consciousness and Green Consumption

The concept of environmental consciousness is accurately defined by Jimenez Sanchez and Lafuente (2010, p. 732) who, based on the observations of Zelezny and Schultz (2000), argue that the term is multi-dimensional and behavior-oriented and that it revolves around “specific psychological factors related to individuals’ propensity to engage in pro-environmental behaviours”, thus incorporating psychological constructs such as beliefs, values, attitudes and knowledge.

As Glig, Barr and Ford (2005) argue, green consumption should be included in a wider context of sustainable lifestyle that incorporates several environmental actions. This view is shared by Sachdeva, Jordan and Mazar (2015) who observe that green purchases represent an accessible way in which consumers engage in sustainable behavior, but that the aggregate effect on sustainability of such an approach is debatable, as such actions of relative low environmental intensity „can allow individuals to feel morally licensed and subsequently behave less prosocially‟.

In the context of environmental consciousness being on the rise with a vast number of consumers, there is more and more interest, from businesses and academics alike, towards understanding the complex interactions that prompt significant eco-friendly behavioral changes and affect consumer choice. Indeed, as Gericke, Boeve-de Pauw, Berglund and Olsson (2019) note, environmental consciousness plays an important role in the fields of marketing and business research, as it has the potential to describe and measure pro-environmental actions at multiple levels, such as individual, organization or country. Out of the vast literature on the subject, we mention a couple of representative researches.

Although the concern regarding the impact of business and economic growth on environmental sustainability is not new, as shown by Bergquist (2017) who provides a long-term business history perspective on the topic, the discussion was intensifie in the ‘90s, with researchers delivering insightful investigations on the impact that environmentally sustainable operations and/or products have on company performance. Among the considerable body of such papers, we refer to some that we deem of increased relevance to our scientific objectives. Walley and Whitehead (1994), who
explore two different approaches: (1) the win-win approach aimed at transforming eco-friendliness from a cost of doing business to a “a catalyst for constant innovation, new market opportunity, and wealth creation” and (2) the value-based approach that recognizes trade-offs and weights environmental benefit against value destruction, concluding that shareholder value is much more efficient than compliance, emissions or costs as unifying metric for all environmental issues that companies are confronted with. The views of Walley and Whitehead (1994) have fueled the continuation of the debate, Clarke at all (1994) presenting a wide series of arguments on the matter, showing that the discussion does not only need to take place, but is as lively and relevant as possible. Researching within the same subject area, Ahmed, Montagno, and Firenze (1998) concluded that there is a positive relation between the degree of environmental consciousness of a company and its earnings.

More recently, Liu, Anderson and Cruz (2012) report a positive relationship between the dynamic of environmental awareness and the financial benefits of manufacturers offering eco-friendly products, with the level of competition playing a key role in distributing the resulting financial gains between manufacturers of inferior quality and superior quality eco-friendly products. Similarly, Sharma and Bansal (2013) find that green marketing efforts depend on the environmental consciousness of the consumers in achieving objectives related to inducing pro-environmental buying behaviors.

Such analysis exploring the implications of consumers’ eco-friendly attitudes and/or beliefs have been conducted in relation with different industries, including the hotel industry (Ting, Hsieh, Chang and Chen, 2019), mobility and transportation (Bekiaris, Tsami and Panou, 2017; Mohiuddin et al, 2018; Suchanek and Szmelter-Jarosz, 2019; de las Heras-Rosas and Juan Herrera, 2019), the food industry (Kriwy and Mecking, 2012; Petrescu and Petrescu-Mag, 2015; Afonso, Gavilán, Martins Gonçalves and García de Madariaga, 2017; Chu, 2018; Nguyen et al, 2019; Wang, Pacho and Liu, 2019; Bai, Wang and Gond, 2019), fashion (Wagner, Chen, Curteza, Thomasse, Perwuel and Zeng, 2017; Han, 2018). Also, there is an important body of literature contributing to refining the methodology used to evaluate sustainable attitudes and/or behaviors, among which we refer to the studies of Rivera, Becerra and Lin (1999), Ham, Mrčela and Horvat (2016), Gericke, Boeve-de Pauw, Berglund and Olsson (2019) and that of Hiramatsu, Kurisu and Hanaki (2015).

Although the link between environmental consciousness and consumer behavior is weakened by cognitive dissonance, a phenomenon investigated by Ham, Mrčela and Horvat (2016) and White, Hardisty and Habib (2019), who explore the topic with regards to behavior towards environmental issues (i.e. a person’s conflict between environmental attitudes and actual behavior), it emerges that environmental con-
Environmental Consciousness and Consumption – an Exploration of the Underlying Mechanisms of a Complex Relation

Environmental consciousness is a relevant determinant of consumer behavior, presenting with the potential of significantly impacting corporate performance. This being said, it must be observed that consumption of eco-friendly products is not a uniform concept, with an important differentiation between green consumerism and sustainable consumption. More precisely, while green consumerism implies a list of behaviors that are undertaken with the intention of promoting positive environmental effects (Sachdeva, Jordan, Mazar and Green, 2015; Thøgersen and Noblet, 2012), sustainable consumption (and production) is "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations” (Norwegian Ministry for the Environment, 1994). The main difference between the two lies in the fact that green consumerism has a more superficial character that centers around “the production, promotion, and preferential consumption of goods and services on the basis of their pro-environment claims” (Akenji, 2014, p. 13), while sustainable consumption pursues a deeper approach that takes into consideration the underlying links between economic processes and the environment, including natural resources, with the purpose of providing policy instruments and tools that foster responsible consumption and cleaner production (United Nations, 2015). This distinction is highlighted by several scholars who notice that the choice of anchoring policy decision to one concept or the other presents with differences in outcomes that can be greater than intuitively predicted (Sachdeva, Jordan, Mazar and Green, 2015; Chen et al, 2016), as green consumerism is limited, over-simplified and insufficient for capturing diverse attitudes and behaviors (Pedersen and Neergaard, 2006). The discussion is relevant for the topic of this paper as previous research reports that green consumerism is strongly influenced by consumer values, norms and habits (Peattie, 2010). However, the limited impact of green consumerism on the environment creates the need to further investigate the pivotal role of culture at a deeper level, tackling issues pertaining to its relationship with sustainable consumption, one of the channels that ensures the connection with environmental performance. This comes in the context in which governments tend to promote green consumerism, which has only a neutral or limited positive effect on the environment predicted (Gatersleben, Steg and Vlek, 2002; Sachdeva, Jordan, Mazar and Green, 2015; Chen et al, 2016), with some papers arguing that this effect could be actually negative, like in the case of forest and biodiversity destruction (Koh and Lee, 2012). Such actions that come at the expense of sustainable consumption should therefore be limited, as they contribute at providing a mere illusion of progress. If hardcore structural changes are neglected, there will
be clear consequences regarding the achievement of sustainable development (Akenji, 2014), understood as the societal process that delivers sustainability (Angelstam et al, 2013), as policies that only encourage green consumerism through fostering pro-environmental attitudes may not be effective in tackling greenhouse gas emissions and climate change, which would have a much larger impact on the environment (Alfredsson, 2014; Csutora, 2012; Chen et al, 2016). Consequently, it is our belief that a deeper understanding on how national culture interacts with environmental performance could help develop public policies that would be more effective in reaching beyond green consumerism and truly enabling a sustainable economy. Such a research linking national culture and environmental performance has been conducted by Dan (2019).

Another aspect lies in the relation between green consumption and the economic variables characterizing the consumer / the demand side of the market. As Al Mamun et al (2018) show by focusing on the Malaysian market, even though eco-literacy and self-efficacy have positive effects on the consumption of green products, it is vital to tackle also the issue of increasing affordability and accessibility so that mass green consumption could be achieved. This comes in the context in which the connection between sustainable consumption and have been widely documented, a pertinent analysis being available in Wolf and Chomkhamsri (2015), who show the role that economic or economically linked elements such as available income, time and space (volume, area).

3. Culture as Means of Understanding Sustainable Attitudes and Behaviors. The Instrumental Function of Hofstede’s National Cultural Dimensions Model

By departing from the premises that culture is a kind of artificial reduction of complexity into human limits, Brocchi (2010) notes that every culture is a potential cause for environmental problems, while other scholars indicate that culture is, alongside the social, economic and ecological components, an intrinsic, even central, dimension of sustainable development (Opoku, 2015; Hawkes, 2001; Axelsson et al., 2013), with the latter being understood as “the adjustment of human behaviour to address the needs of the present, without compromising the ability of future generations to meet their own needs” (Opoku, 2013). The pivotal role of culture is emphasized also by Husted, who argues that the national culture element should always be included in the analysis of the environmental sustainability phenomenon, as economic causes are insufficient in describing it (Husted, 2005). In the same note, other papers show that increasing sustainability at a societal level requires a cultural shift delivered
through the educational vector (Cortese, 2003) and that various cultural sustainability indicators are highly relevant for sustainable development (Koh, 2012; Angelstam et al, 2013).

Perhaps the most influential cultural model available is that of Dutch sociologist Geert Hofstede, who, together with his collaborators, has developed a comprehensive model that enables inter-country comparisons (Hofstede, 1980a, 1980b, 1998, 2001, 2011; Hofstede, Hofstede and Minkov, 2010). Consequently, much of the scientific literature studying culture is dominated by Geert Hofstede’s model and cultural measurements, a status documented by Ferreira who reports 13,412 Web of Science citations in the model’s first three decades of circulation alone (Portugal Ferreira, Ribeiro Serra and Pinto, 2014), with more added in recent years. More precisely, the research of Hofstede and his collaborators has provided with cultural dimensional data for a wide range of analysis in the fields of social, political and economic sciences: corruption (Seleim and Bontis, 2009), marketing practices (Soares, Farhangmehr and Shoham, 2007), competitiveness (Dan, 2018), job performance (Taras, Kirkman and Steel, 2010), decision-making style (Dabic, Tipurić and Podru, 2015), tax evasion (Richardson, 2008; Réthi, 2012), social progress (Dan, 2017) or conflict resolution (Morris and Fu, 2000), just to mention a few of such papers.

This record does not mean, however, that Hofstede’s model is free of criticism, as Jones’s comprehensive literature review reveals (Jones, 2007). Among the main points identified by Hofstede’s critics and documented by Jones, we note the ones referring (1) to cultural homogeneity, as the model assumes domestic population as being a homogenous whole, (2) the suspicion of biased results due to specific timing of the survey (as detailed in Søndergaard (1994) and Newman (1996), (3) the single company that the respondents come from and the resulting inadequacy of nation-wide conclusions, as formulated by Olie (1995) and Sondergard (1994). These criticisms have generated a debate that has put Hofstede in the position to defend his model by arguing that the measurements are not absolute, their purpose being to allow for comparisons (Hofstede, 1998), by drawing attention upon the advantages of having respondents from a single company whose behavior is not influenced by different corporate policies and practices, thus allowing the attribution of their behavior to national culture (Hofstede, 1980), or by underlying the highly stable nature of culture, which dismisses the accusation that his findings are not time enduring (Hofstede, 1998).

This being said, we acknowledged that errors stemming from the data generated by Hofstede’s model are a potential source of bias to the results reported in different papers. However, one must acknowledge as well that no measurements of such com-
plex processes as those pertaining to culture and national cultural identity can be completely beyond error and consequently aim at using the model that seems to be the most accurate, a position that Hofstede’s model holds, as proven by its numerous validations (Jones, 2007) and the wide acceptance in the academic environment.

Another relevant observation is of a methodological nature and regards those studies that aim at identifying links between cultural dimensions (as independent variables) and other behavioral indicators (as dependent variables). More precisely, special attention must be granted to the perils of committing an ecological fallacy, stemming from inferences regarding individual characteristics that are generated departing from group level data, or the atomistic one, which can occur when the generalization is made from the individual level to the aggregate level, as described in Croon and van Veldhoven (2007). As Grenness (2012) points out, many researches based on Hofstede’s model falsely assume that a relationship which is observed at a group level is valid for individuals pertaining to that particular group, thus committing an ecological fallacy. On the other hand, since Hofstede’s model uses as input data collected from individuals and formulates group level conclusions and measurements, there could be the suspicion of atomistic fallacy. However, Hofstede has constructed his model in such a way that its culture scales are correlated at a national level, as confirmed by Brewer and Venaik (2014). Moreover, Hofstede’s national cultural scores are irrelevant if taken by themselves and have a meaning only in the context of comparison.

With all its shortcomings (which we consider to be greatly outnumbered and outweighed by its numerous merits), Hofstede’s work represents undoubtedly a clear advancement in the field of national culture due to its construction of a complex framework that serves for a better understanding of national character. Seen as an organic development of cultural theory, Hofstede’s model was influenced by previous research focused on the conceptual structure of cultural dimensions. More precisely, Hofstede’s power distance, masculinity and uncertainty avoidance dimensions are clearly refined from, respectively, Inkeles and Levinson’s concept of relation to authority, approaches to self and the approaches to primary dilemmas or conflict (Hofstede, 2011), while the hofstedian dimensions of individualism and indulgence are influenced by similar concepts defined by Parsons and Shills, namely the collectivity vs. self-pair and the concept of affectivity/affective neutrality (Soares, Farhangmehr and Shoham, 2007).

Focusing our analysis on the topic of sustainable development, we note that more and more importance is given to sustainability related issues and their links to national culture (as per the Hofstede model). Among such studies, we nominate a few investigating environmental performance (Halkos and Zisiadou, 2018), environmental health
(Onel and Mukherjee, 2014), environmental sustainability (Park, Russel and Lee, 2007) environmental proactivity of firms (Calza, Cannavale and Tutore, 2016), the relation between profitability and environmental disclosure (Khliif, Hussainey and Achek, 2015) and a more distant cousin of sustainability, namely corporate social performance (Ho, Wang, and Vitel, 2012; Rignov and Zollo, 2007). The relevance of culture in the sustainability debate is highlighted also by Lahuerta-Otero and González-Bravo, who focus on the relationship between Hofstede’s cultural dimensions and individual environmental performance indicators, conclude that, in a sample made up of 31 European countries operating under the European Environmental Agency’s umbrella, country level environmental policies differ depending on the cultural profile of that country, despite common European objectives (Lahuerta-Otero and Gonzalez-Bravo, 2018).

Moreover, a study performed on projects developed in Asia found that Hofstede’s cultural dimensions (namely individualism, uncertainty avoidance and long-term orientation) are influencing differences in infrastructure sustainability (Menga, Jinghong and Bingsheng, 2016), the role of culture for the sustainable nature of infrastructure projects being confirmed by Meng, Yan and Xue (2018). Also, we note the contribution of Kaminsky, who reports that three hofstedian cultural dimensions (uncertainty avoidance, masculinity and individualism) are exhibiting significant relationships with renewable electricity adoption, with uncertainty avoidance being particularly relevant for renewable electricity policies (Kaminsky, 2016). In addition, hofstedian cultural dimensions are in the same time linked to the quality of sustainability reports (Fernandez-Feijoo, Romero and Ruiz, 2011), while, as reported by Song, Montabon and Xu (2018), environmental management practices are significant statistical relations with various cultural dimensions.

Last but not least, Calza, Cannavale and Tutore (2016) show that environmental policies that are based on national culture and cultural values are more effective, as such an approach permits decision makers from both the public and the private sector to mitigate the limiting effects of specific cultural values, while in the same time having the potential of raising individual and corporate awareness.

4. Conclusions

As stated in the initial section of this paper, the objective of the research was to investigate relevant academic literature regarding the connection between culture, environmental consciousness and consumer behavior, looking to enable a deeper understanding of key elements that characterize this triangle and provide scholars with different scientific interests related to the topic of sustainability with useful insight that could help them in their own academic endeavors.
The body of literature relevant for a better understanding of the targeted relationship is vast and is characterized by what seems to be an intensification of interest from the academic community, so one must assume that in the following years significantly more pertinent papers will be published. Beyond the acknowledgement of the numerous valuable observations and conclusions that the selected papers have provided, one must emphasize the image of the potential of culture of binding socio-economic environmental developments with policy, thus constituting a key factor for an effective and efficient policy making process.

The paper has devoted special attention to the investigation of the complex links that between the trinity made out of culture, environmental consciousness and green consumption, showing that (1) cultural elements are key in understanding and modelling green consumption patterns, (2) there is a psychological dimension that ensures the transmission between green attitudes and beliefs and green consumption (i.e. the materialization of beliefs in purchasing/consumption patterns), (3) public policy design and implementation that aims at achieving sustainability related goals needs to have a culture centered approach that acts as a liaison between the socio-economic dimension and the desired environmental outcomes, as the exhibited cultural dimensions are decisive in determining a wide range of relevant behaviors in consumers.

On a final note, we feel that even though polarization between hardcore environmental activists and the promoters of the “business as usual” idea is unavoidable at this point, real change that would pave the way to new, efficient and long term environmentally friendly socio-economic arrangements can originate only from dialogue based on objective, non-partisan and scientifically backed arguments that can enable society to correctly understand the tradeoffs that are implied by shifting the paradigm towards more sustainable arrangements and thus deliver effective and efficient solutions to what we consider being (one of) the world’s newest and most crucial challenge(s).

References


STRENGTHENING ECONOMIC COOPERATION OF THE CIS COUNTRIES

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JEL F15 Abstract

The main objectives of the article are to provide a snapshot view of the present state of economic cooperation in the CIS countries and to identify areas for strengthening inter-country cooperation between them. The article analyzes the experience of the CIS countries’ transformation from centrally planned to market economies. It is also devoted to analysis of the most important areas of market reforms including macroeconomics, international trade, foreign direct investment and transport infrastructure. The authors display major opportunities for mutual cooperation among countries, the need to overcome the arising contradictions and expand neighborly cooperation for the benefit of the population in the CIS countries. The article notes that a strong political and administrative commitment to initiate coordinated national actions is crucial to accelerate the process of regional cooperation in the CIS. The paper has given a brief indication of the existing economic cooperation initiatives in the CIS countries. It has also sought to identify some areas where either the current initiatives need to be strengthened and effectively implemented or new initiatives are required.

Key words: CIS countries, economic cooperation, integration.


1. Introduction

On December 8, 1991, the leaders of the three union republics of the former USSR (Belarusian SSR, Russian Federation and Ukrainian SSR) signed a number of documents
that announced the withdrawal of the three republics from the USSR and proclaimed the formation of the Commonwealth of Independent States (CIS) at their meeting in the wilderness area of Belovezhskaya Pushcha (Belarus), in the small village of Viskuli. Soon, Kazakhstan, Kyrgyzstan, Tajikistan, Armenia, Azerbaijan, Georgia, Moldova, Uzbekistan, and Turkmenistan (with reservations) entered the Commonwealth. Latvia, Lithuania and Estonia refused to enter the CIS. The Commonwealth did not have governing bodies of power and all issues of economic cooperation and political interaction were resolved at meetings of heads of governments. In the effort to develop cooperation, numerous coordinating institutions have been created, the activities of which were aimed at, firstly, maintaining economic ties between the republics, and secondly, at deepening them. These tasks turned out to be too complicated in the context of the general economic and social crisis of the 1990s, the emergence of armed conflicts and the difficulties associated with the creation of independent states, and the transition to capitalist economic relations, accompanied by de-industrialization and a rollback from existing distributional relations, which led to increased distress and poverty of the population.

Numerous attempts to impart dynamism to economic cooperation within the CIS were unsuccessful. In this situation, a number of countries, with the active position of Kazakhstan, created the Customs Union (Kazakhstan, Belarus, Russia) in 2013, which was later transformed into the European-Asian Economic Union (EAEU) as part of Kazakhstan, Kyrgyzstan, Belarus, Russia and Armenia in 2015. Its creation did not come at the best time. From the end of 2013 to the beginning of 2014 Russia began to lurk in the new economic crisis, investments in major industries were reduced, oil and gas prices fell sharply on world markets, which severely hit Russian and Kazakhstan economies, reducing their foreign exchange earnings. The situation was aggravated by Western sanctions against Russia in connection with the reunification of Crimea and the events in Eastern Ukraine. Against this general background, there was a significant contraction in the foreign trade of Russia, as well as of other country-members of the CIS and especially the EAEU. The interconnected nature of the economies of the CIS countries affects the state of the business cycle and the conditions of reproduction in these countries. This strong interaction between the countries operates, despite the fact that mutual trade and economic ties are not so great, and moreover, they are decreasing from year to year.

2. Prerequisites for Economic Cooperation

Economic cooperation among the Commonwealth of Independent States (CIS) can be viewed both as a natural outcome of and a prerequisite for their economic and
social development. It is a natural outcome partly because of their geographical proximity. More importantly, these countries used to be parts of the big economic complex of the former Soviet Union, and were firmly integrated into the intra-USSR division of labor. In the immediate aftermath of the break-up of the USSR, some of the links were severed. More recently, efforts have been made to restore and revitalize economic complementarity among these countries. Economic cooperation is also a necessity as each of the countries individually has a rather small market, except for the Russian Federation (table 1). Yet, with the CIS countries having many common historical and geographical characteristics and areas of economic complementarity, there is a considerable potential for these countries to be a modern growth area collectively. Covering more than 22 million square kilometers and consisting of 288.5 million people, the CIS countries have a good foundation for regional cooperation.

Table 1

<table>
<thead>
<tr>
<th>Countries*</th>
<th>Area (thousand square kilometers)</th>
<th>Population (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
<td>86.6</td>
<td>10.0</td>
</tr>
<tr>
<td>Armenia</td>
<td>29.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Belarus</td>
<td>207.6</td>
<td>9.5</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>2,724.9</td>
<td>18.4</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>199.9</td>
<td>6.4</td>
</tr>
<tr>
<td>Moldova</td>
<td>33.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Russia</td>
<td>17,125.2</td>
<td>146.8</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>143.1</td>
<td>8.9</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>491.2</td>
<td>6.7 (2006)</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>448.9</td>
<td>33.3</td>
</tr>
</tbody>
</table>

* Ukraine has uncertain status in the CIS starting from 2014.

Sources: Interstate Statistical Committee of the CIS, February 2020.

In terms of size Armenia and Moldova are relatively small countries with 29.7 and 33.7 square kilometers of surface areas respectively, whereas Russia and Kazakhstan have vast territories of 17.1 and 2.7 million square kilometers respectively. The size of population ranges from 3.0 million in Armenia to about 147 million in the Russian Federation. From the point of view of resource endowment, the CIS countries are rich in oil and gas, ferrous, non-ferrous and precious metals, and hydropower resources. Six countries in the region have substantial hydrocarbon deposits, the ex-
exploitation of which constitutes their principal export prospect in the twenty-first century. The CIS has competitive advantages to produce grain, cotton, meat and dairy products and can be self-sufficient in food. Additional advantages of the region are human resources with a high level of education and scientific and technical potential.

The international economic relations of the CIS member states are transitional relations that preserve the strongly expressed elements of inter-republican economic relations in combination with those that are growing stronger and are transiting into international ones. This process developed asymmetrically, since it was determined not only by the state of the economy, but also by the attitude of the population, and it was volatile. At the same time, the Commonwealth has an undoubted positive role. It acts as a large international organization in the field of cooperation and interaction of its member states, and ensures rapprochement of positions and adoption of joint decisions on many acute issues of interstate relations in the absence of rigid supranational structures.

3. Features of Transformational Reforms in the CIS Countries

The integration process among the CIS countries was initiated in 1993 with signing an agreement on the creation of an economic union to form a common economic space. However, progress has been slow as such close integration would require a series of complex interaction and decision-making, including the establishment of a common central bank and a single supranational currency; a common macroeconomic and fiscal position; common agreements with regard to the unimpeded movement of goods, labor, scientific and technical expertise and capital; and a joint budget for common needs preferably financed through a single taxation system. The formation of an economic union inevitably presupposes the renunciation of a certain degree of economic sovereignty and transfer of some significant management and economic functions to supranational institutions.

According to the UN country classifications all the CIS countries continue to be economies in transition with the reform agenda in different stages of completion. Macroeconomic reforms initiated in the CIS have many common features. The most important aspects of these relate to macroeconomic stabilization, financial sector reform, tax reform and exchange rate management. A key issue in the macroeconomic policy facing most, if not all, countries of the CIS in the short to medium term is to achieve durable and stable growth and improve the fiscal positions which have remained fragile up to the present.

Price liberalization, started in all the CIS countries in 1992, blew up the pricing mechanism existing in the former USSR. In 1992 – 1994, all the economies experi-
enced hyperinflation which prompted a complete breakdown of monetary exchange. Price liberalization and the monetization of large fiscal deficit were the main causes of high inflation in the CIS. Since 1995, the CIS economies have pursued anti-inflationary policies which resulted in arresting the hyperinflation. From 1995 to 2018, annual inflation rates fell from 512 to 2.3% in Azerbaijan, from 809 to about 5% in Belarus, from 231 to 2.9% in the Russian Federation, from 543 to 3.8% in Tajikistan, from 477 to about 11% in Ukraine. Prudent fiscal and monetary policies and the appreciation of the national currencies were the two main factors responsible for the considerable success in reducing the rates of inflation in the CIS countries. The improvement of the macroeconomic situation offers favorable opportunities for increased cooperation and macroeconomic policy coordination in the region.

Over the past decades, the CIS economies have undertaken substantial reforms of their financial sector. Major components of financial sector reforms have been the establishment of a two-tier banking system with independent central banks, removal of interest rate control and bringing interest rates close to market rates, improving the functioning of different types of financial institutions and strengthening the supervisory, regulatory and legal frameworks. The reform measures have been accompanied by the liberalization of the external account, more flexible exchange rates, and the establishment of foreign financial companies in the domestic market. These national level measures have been complemented by the creation of the CIS Financial and Banking Council (FBS CIS) in December 2006 to intensify joint efforts for increasing the role of financial integration in the processes of economic cooperation of the Commonwealth countries. The main objectives of the Council are to promote the search, development and implementation of investment projects and programs within the CIS countries and to develop and implement innovative financial technologies in the Commonwealth space.

In the financial sector, a critical component of reform is the quality of supervision that a country could build in a rapidly changing environment. Financial markets are inherently prone to such malaise as “asymmetric information”, “moral hazard” and “herd reaction” which call for effective prudential supervision and regulatory oversight. Moreover, with cross-border integration of financial services it is essential to develop monitoring, surveillance and early warning system as well as to provide for coordinated policy response to contain the spillover effects of financial crises across countries. The financial and economic crisis of 1997-1998 in Asia and in the Russian Federation raised the question of how to manage the financial sector reform and liberalization in order to minimize the potentially adverse effects that the financial sector liberalization can inflict on an economy. It also raised the question what
policy instruments can be used in a more liberalized financial system without recourse to excessive discretionary measures that can easily become subject to abuse.

Access to a variety of financial instruments enables economic agents to mobilize resources for investment, reduce uncertainty and transaction costs, and to pool risks. From this perspective, it is worth noting that Kazakhstan and Kyrgyzstan launched their Stock Exchanges in 1997 and 1998 respectively. Uzbekistan set up the Stock Exchange earlier in 1994. The exchanges have an infrastructure, regulatory framework and listing requirement that conform to high standards. However, trading levels in some of those stock markets are low. Given the small size of individual economies, the stock market of any country, with the exception of Russia and Kazakhstan, is likely to remain thin in the foreseeable future. This underscores the need for considering establishment of regional markets with mechanisms for cross-listing. In addition, with the launch of the sub-regional stock markets, a growing number of new non-bank financial institutions (including brokerages and private pension funds) could be licensed, as insurance and leasing companies which already exist in the CIS economies.

The CIS countries have reformed their tax policy and tax administration, some more successfully than others. New tax laws have been adopted to bring about a tax structure that is more in conformity with a market-based economic system. Much progress appears to have been achieved in reforming tax policies, especially in the elimination of export taxes and excess wage taxes. Mixed progress has occurred in the introduction of appropriate value added tax, excise tax and personal income tax regimes, and in the simplification of the rate structure within various tax categories. However, there has been less progress in the introduction of new accounting systems and standards, the elimination of exemptions and the effective taxation of small businesses and the agricultural sector. Therefore, exchange of experiences in implementation of tax reforms and improving tax administration is essential for creating efficient tax regimes and tax collection mechanisms in the CIS countries.

The tax administration reform in the CIS economies has focused on the enactment of tax administration legislation consistent with the new tax structure. Reform measures have included management and organizational reforms, the development of systems and procedures, and the enforcement and determination of the scope of non-compliance.

Despite the above initiatives, the progress in implementing tax reforms has turned out to be slow for several reasons. First, in some economies, uncertainties continue to prevail with regard to the determination of actual tax liabilities, partly because of poor accounting systems which make it difficult to determine the tax base.
accurately. Second, the tax administration is not adequately equipped to handle the significant increase in the number of taxpayers and the different types of taxpayers, particularly small and medium-sized ones in the private sector, which have emerged in the course of the economic transformation. Third, the pervasiveness of barter trade and non-cash transactions has complicated the task of collecting taxes. In light of these common problems, it might be worthwhile establishing a regional tax training institute to enhance skills in the areas of tax policy formulation and tax administration.

Harmonizing tax regimes is also an important prerequisite for economic cooperation to help avoid unnecessary loss of revenue arising from smuggling or redundant incentives for investment. This would require a greater flow of information among tax authorities, including computerization and the processing of tax-related data and information at the regional level.

In the course of macroeconomic reforms, the CIS economies have moved from multiple exchange rate practices toward more flexible, unified, and market-oriented exchange rate regimes. Kazakhstan and Kyrgyzstan have eliminated multiple currency practices and accepted Article VIII status in the IMF. Tajikistan unified its exchange rate and abolished surrender requirements and also accepted the IMF’s Article VIII in 1998. Although Turkmenistan unified its exchange rate in April 1998, the government continued to restrict access to foreign exchange and maintained surrender requirements. Uzbekistan introduced a number of policy measures to relax currency control for both foreign investors and national businesses in 2001 - 2002 in order to liberalize the foreign currency market gradually. Among these were the introduction of a new exchange rate for exporters and foreign investor, the abolition of tax on repatriated hard-currency earnings and the exemption of small and medium-size enterprises (SMEs) from the surrender rate, and the depreciation of the som in order to bring the official rate closer to the so-called parallel market rate. A common approach to exchange rate management is important for promoting economic cooperation. Cooperation in exchange rate management is needed further to strengthen the management of foreign exchange reserves, diversify reserve assets holdings, and improve risk management in the CIS countries.

As the CIS economies become more involved in regional and international transactions, there is a need to develop a regional clearing and settlement mechanism. This could help to overcome some of the payment problems that inhibit intraregional trade and investment.
4. Current State and Contradictions in International Trade

The CIS countries made considerable progress toward trade liberalization through elimination of state monopolies on foreign trade, relaxation of licensing requirements and implementation of significant tariff reforms. However, the progress toward trade liberalization has been more pronounced in Armenia, Kazakhstan, Kyrgyzstan, Russia and Tajikistan, while it was more gradual in Turkmenistan and Uzbekistan. Many countries established relatively open and liberal regimes and made considerable progress to abolish state monopoly privileges, unify exchange rates, and simplify the regulatory and fiscal frameworks governing foreign trade. The measures to liberalize trade also included elimination of non-tariff trade restrictions and export duties, surrender of export earnings, and registration requirements for export contracts.

The governments of Turkmenistan and Uzbekistan continue to play a leading role in trade agreements and in the foreign exchange markets. As indicated earlier, the government of Uzbekistan has introduced new policy measures to relax currency control for foreign investors and national businesses. However, it still controls almost all recorded international trade through a system of centralized and non-centralized permitted exports. The bulk of exports come under the centralized category which is liable for a 50% surrender rate of hard-currency earnings to the authorities and includes cotton, gold, oil, gas, rolled steel, non-ferrous metals, and uranium. The most important non-centralized exports are cars for which half of hard-currency earnings must be sold to the authorities. To implement its import substitution policies, Uzbekistan shifted the burden of taxation away from exports toward imports by simplifying and lowering export taxes and introducing import tariffs. In Turkmenistan, all foreign trade is channeled through the state commodity exchange with the exception of gas traded by the Ministry of oil and gas.

The CIS economies have benefitted from trade liberalization and the move toward world prices. In 2000-2018, exports grew significantly and all the countries were able to diversify their markets. In 2017-2018, the CIS countries as a whole continued to record considerable trade expansion (table 2). Export earnings rose by 27 p% cent in Azerbaijan and by about 26% in Kazakhstan and the Russian Federation in 2018. However, exports between the CIS countries grew only by 11.7% for the same period. Despite a narrow export base and low oil prices, export earnings in Kazakhstan rose from US$ 8.81 billion in 2000 to US$ 61.11 billion in 2018. Import continued to be dominated by technological goods and the value of import spending increased by 13.7% in 2018. In 2018 seven CIS countries (Armenia, Belarus, Kyrgyzstan, Moldo-
va, Tajikistan, Uzbekistan and Ukraine) ran trade deficit. Tajikistan, Uzbekistan and Ukraine ran trade surplus in 2000, however these economies recorded trade deficit in 2018. During the period of 2000-2018, import spending from Uzbekistan increased almost 6.5 times owing mainly to an increase in imported machinery and equipment. The Russian Federation remained the main trading partner for most countries in the CIS. The CIS countries accounted for 12.2% of the export earnings of Russia in 2018 compared with 13.4% in 2000. Exports of Russia to the CIS countries rose by about 14% in 2018, while the share of CIS economies in Russia’s imports increased by 6% only during the same period.

In the 1990s, the CIS countries redirected their trade away for “traditional partners” of the former Soviet Union to non-CIS countries. Although the Russian Federation remains one of the main trade partners for all the CIS countries, more than 80% of their exports is now directed to non-CIS destinations. Among new trade partners of the CIS economies are Germany, Italy, China, and the United States. The improvement in international market conditions increased the value of exports of the CIS countries to the non-CIS area. In 2018, non-CIS economies accounted for the bulk, 84% of Kazakhstan’s exports, compared with 73% in 2000. Kyrgyzstan’s increased sale of electricity and agricultural commodities were offset by weaker sales of gold, processed foods and manufacturing goods. Export from Tajikistan increased on the strength of higher volumes of aluminum.

Table 2

Merchandise exports and imports of the CIS countries, 2000 – 2018

(in million US$)

<table>
<thead>
<tr>
<th>Countries</th>
<th>2000</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>of which</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CIS countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other countries</td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>1735</td>
<td>1510</td>
<td>1533</td>
</tr>
<tr>
<td>Armenia</td>
<td>300</td>
<td>227</td>
<td>2238</td>
</tr>
<tr>
<td>Belarus</td>
<td>7326</td>
<td>6475</td>
<td>48503</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>8812</td>
<td>6475</td>
<td>48503</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>511</td>
<td>297</td>
<td>1764</td>
</tr>
<tr>
<td>Moldova</td>
<td>472</td>
<td>196</td>
<td>463</td>
</tr>
<tr>
<td>Russia (Bln. US$)</td>
<td>103,1</td>
<td>89,3</td>
<td>357,3</td>
</tr>
</tbody>
</table>
Primary commodities dominate the exports of the CIS countries making their export revenues highly sensitive to changes in commodity prices. Azerbaijan, Kazakhstan, the Russian Federation and Turkmenistan depend significantly on foreign sales of crude oil, natural gas and oil products. Exports of base and ferrous metals are important to Kazakhstan, Kyrgyzstan and Tajikistan while cotton and light industry products are important to Uzbekistan.

There are great possibilities of trade cooperation between the CIS countries because of some degree of complementarity under existing conditions. The share of intra-CIS trade in total turnover of the CIS economies fell from about 28% in 2000 to 18% in 2018. However, the volume of intra-CIS trade increased from US$58.4 billion in 2000 to US$193.1 billion in 2018. The slow growth in intra-CIS trade was partly due to the fact that the CIS countries exported same items to third markets where they competed with each other and partly due to barriers raised by all the economies. Besides, the trade regimes of the countries are still characterized by a complex set of non-transparent, non-tariff barriers, in addition to a wide-ranging and changeable tariff structure. All trade measures introduced unilaterally by each country sometimes
violate the rules and spirit of economic cooperation. The membership of selected CIS countries in the WTO may also conflict with some of the countries’ obligations as member countries of the CIS.

One form of trade cooperation among the economies of CIS could involve exchange of information and collective responses to trade policies pursued by other countries affecting their place in the world economy. In particular, they could initiate collective protection measures against discrimination, unfair competition, legal and economic sanctions and other threats from third countries and groups.

An emerging trend in promoting regional and sub-regional trade in Europe and Asia involves the establishment of economic or growth zones. These zones are typically aimed at exploiting the complementarities among contiguous areas of member countries as a means to promote intra-regional trade and to attract foreign direct investment (FDI), particularly export-oriented FDI. A significant feature of most of these zones is that the private sector investors from within as well as outside the constituent countries undertake most of the investments in production activities. The role of the government is primarily to minimize the costs and risks of cross-border trade and investment flows by providing, inter alia, the necessary infrastructure and enabling regulatory framework. There is a scope for pursuing similar strategy in the CIS countries.

The CIS countries have undertaken several multi- and bilateral initiatives towards closer economic cooperation. In October 2011, eight member-countries of the CIS (Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan and Ukraine) signed the Free Trade Area Agreement (FTA) based on the WTO principles and aimed at ensuring free trade within the CIS. Uzbekistan joined the agreement on special conditions in 2013. However, membership of Ukraine in the agreement on the CIS free trade area was suspended in December 2015. The main objectives of the agreement are to create a full-scale free trade regime and to abolish existing restrictions and exemptions, including import of raw materials and export of finished goods. The participants of the agreement also agreed to pursue a coordinated policy regarding the use of energy resources and transport services, develop common markets for agricultural goods, create a network of international transport corridors within the CIS, and eliminate cross-border fiscal and administrative barriers. In 2014, five CIS countries (Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia) established the Eurasian Economic Union (EAEU) with the two main goals. Firstly, to comprehensively upgrade and raise the competitiveness of and cooperation between the national economies. And secondly, to promote stable development in order to raise the living standards of the population in the EAEU member-states. However, the differentiated
composition of participants impedes integration processes within the union. There are significant discrepancies in key economic indicators, macroeconomic instability, deterioration of state budgets, slowdown in economic growth and increase in public debt in some EAEU countries. The financial and banking systems of member countries are at different levels of development, and industrial cooperation and intercountry trade relations are at a relatively low level.

A necessary accompaniment to trade liberalization at the intra-CIS level is trade facilitation measures. Harmonizing and simplifying administrative aspects of individual trade transactions are essential because if traders continue to face a multitude of procedural obstacles to trade, liberalization efforts may not yield the anticipated results. There are a number of ways in which trade facilitation measures can help the CIS economies integrate into the global economic systems. Obstacles to trade at the border in the form of transshipment delays at point of entry/exit, complex customs procedures, unfair customs valuation or unnecessary inspections are commonly found among the CIS countries. Simplification, automation, harmonization and greater transparency in customs procedures could significantly lower the costs of doing business and trade.

5. Analysis of Inflow and Outflow of Foreign Direct Investment

Foreign direct investment (FDI) can play an important role in economic development. FDI provides the host country with an additional source of capital. In addition, it can enhance market access through distribution systems of transnational corporations, serve as a vehicle for technology transfer and it can be a major instrument to enhance the efficiency of trade in services, such as banking, insurance and telecommunications. Economic cooperation could maximize those benefits of FDI.

The CIS economies have taken steps individually to liberalize their investment regimes to attract FDI. The liberalization of FDI policy regimes in combination with macroeconomic stabilization has led to an increase in FDI inflows in the CIS countries (table 3).

<table>
<thead>
<tr>
<th>Countries</th>
<th>FDI inward stock (Millions of US dollars)</th>
<th>FDI outward stock (Millions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
<td>1 791</td>
<td>7 648</td>
</tr>
<tr>
<td>Armenia</td>
<td>513</td>
<td>4 405</td>
</tr>
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</table>
The Russian Federation attracted from 60 to 70% of all FDI into the CIS in 2000–2018. The natural resources are the main interest for foreign investors in the country, especially the oil and gas sector. Cumulative FDI inflow in Kazakhstan equaled more than US$10,000 million in 2000 and about US$150,000 in 2018 or one-third of that invested in Russia. The bulk of FDI has also gone to the oil, gas and metals sectors. Total net FDI in the CIS economies rose from about US$50 billion in 2000 to more than US$710 billion in 2018 or by more than 14 times. Russia has the lowest ratios of FDI to GDP. In 2018 FDI inflows accounted for about 25% of GDP and US$2,775 per head. To compare, Kazakhstan and Kyrgyzstan attracted FDI inflows of 87 and 46% of GDP in 2018 respectively. Among the other CIS economies, Armenia ranks above Tajikistan and Moldova in FDI ratios to GDP. FDI inflows accounted for more than 44% of GDP in Armenia in 2018. The United Kingdom, Germany, USA, Turkey, Italy are the main foreign investors in the CIS countries.

The attraction of FDI flows depends not only upon the legal framework and incentives but also on the political stability in the countries, the general business climate and availability of indigenous resources, including skilled labor and various other host country determinants. Regional cooperation can also play an important role in attracting FDI. In view of the small size of the national markets, the progress in regional cooperation which would guarantee to potential foreign investors access to the CIS markets represents an essential condition for promoting investment into manufacturing and redressing the present excessive concentration of FDI into the primary sector.

Some of the other areas of regional cooperation in investment promotion could include organization of regional trade and investment fairs, joint investment road

<table>
<thead>
<tr>
<th></th>
<th>1 306</th>
<th>9 904</th>
<th>20 761</th>
<th>24</th>
<th>205</th>
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<tbody>
<tr>
<td>Belarus</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Kazakhstan</td>
<td>10 078</td>
<td>82 648</td>
<td>149 254</td>
<td>16</td>
<td>16 212</td>
<td>16 726</td>
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<tr>
<td>Kyrgyzstan</td>
<td>432</td>
<td>1 698</td>
<td>3 917</td>
<td>33</td>
<td>2</td>
<td>7</td>
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<tr>
<td>Moldova</td>
<td>449</td>
<td>2 957</td>
<td>4 047</td>
<td>23</td>
<td>90</td>
<td>253</td>
</tr>
<tr>
<td>Russia</td>
<td>29 738</td>
<td>464 228</td>
<td>407 362</td>
<td>19 211</td>
<td>336 355</td>
<td>344 090</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>136</td>
<td>1 146</td>
<td>2 760</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>949</td>
<td>13 442</td>
<td>36 012</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ukraine</td>
<td>3 875</td>
<td>52 872</td>
<td>43 757</td>
<td>170</td>
<td>6 548</td>
<td>7 430</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>698</td>
<td>5 366</td>
<td>9 667</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CIS total</td>
<td>49 965</td>
<td>646 314</td>
<td>714 107</td>
<td>19 477</td>
<td>365 322</td>
<td>392 656</td>
</tr>
</tbody>
</table>

shows in home countries of potential investors and joint activities in related human resources development.

6. Ways to Increase Efficiency of Transport Infrastructure

The construction of the CIS infrastructure is necessary for meaningful economic cooperation among the countries. Within the region, there have been many infrastructure initiatives designed to facilitate intra-CIS economic interactions. In addition to transport and cross-border trade facilitation, the CIS countries are in the process of collaborating in the implementation of a number of projects on rational and efficient use of energy and water resources. Among other initiatives to improve the CIS infrastructure are developing tourism potential by creating small and medium enterprises to provide tourism and accommodation services and development of multiple routes for pipeline transportation of hydrocarbons to global markets.

The expansion of exports and FDI in the CIS countries requires a supportive transportation infrastructure. Improvement in the transport system will enable people and goods to move more easily and rapidly among the countries, reduce the cost of trade and enhance the value of business. The regional transportation infrastructure was adequate to support the needs of the CIS economies and to facilitate their trade and development interests in the former Soviet Union. However, it should be reoriented and improved to meet the goals of expanded trade and closer economic cooperation among themselves and with other countries. The most important problem facing the transportation sector in the CIS is the rapid deterioration of physical infrastructure as a result of inadequate investment in maintenance, repairs and rehabilitation of the existing infrastructure.

Rail remains the most important mode and principal means of transport in the CIS. It accounted for more than 75% of all freight and passenger transport in the countries in the 1990s, especially in the Russian Federation, Kazakhstan and Uzbekistan, where it carried the bulk of freight and passenger traffic. The disruption of traditional markets, the rising cost of rail transportation, and increasing competition from road transport resulted in considerable reduction of traffic volumes carried by rail. In many countries railroads lost a significant portion of their business to road transport, partly due to the shift away from heavy industrial goods production. The effect of this shift on rail transport was less noticeable in Kyrgyzstan and Tajikistan which did not rely on rail transportation heavily. However, rail transportation is expected to play an important role in the economic growth of the CIS such as successful exploitation of new mineral reserves, including oil, and their transportation will require improvement of the rail network and integration in the near term into proposed Trans-Asian Railway (TAR) network already developed together by
UNESCAP and the CIS countries. While seeking alternative routes and cheaper transportation to distant markets, the CIS economies could collaborate in rehabilitating the existing rail infrastructure, developing new capacity, maintaining rolling stock and providing a better managed and technically efficient railroad system.

Adequate road networks characterize the road transportation situation in the CIS countries. As noted above, there has been an increase in road freight volumes particularly connecting to markets in Europe. The abolition of centrally planned distribution system and the entry of higher-value, finished consumer goods in local markets make the speed and flexibility of trucking more important. However, many roads in the countries are in poor condition and do not confirm with internationally accepted standards. In addition to collaboration on these aspects, the focus of economic cooperation could be on initiating and developing road maintenance policy reforms to improve serviceability of existing road infrastructure as identified by the Asian Highway Network under the auspice of UNESCAP and the E-road network of UNECE, and developing service infrastructure on the roads, improving passenger and freight security, creating environmental and road safety awareness.

For the countries with economies in transition it has become evident that the development of transport infrastructure is a necessary, but not a sufficient condition for efficient land transport routes of international importance. Of equal importance are proper facilitation measures for transit transport and at border-crossings particularly as, in many cases, complicated and lengthy. Customs and other procedures result in huge time and material losses. To harmonize transit transport and border crossing international organizations adopted many relevant conventions. As these international and transport conventions are cost effective instruments that can assist contracting parties in making their international transport operation faster and more economical, there is an evident need for cooperation in speeding-up the accession and implementation process to these conventions.

There are nine land-locked countries in the CIS. For these economies, in particular, the introduction of multi modal transport (MT) will create the potential for integrated and free flowing road, rail, water and air transport between them, their neighbors and international markets, resulting in improved delivery schedules, shorter transit times thus leading to reduced costs. However, the full implementation of MT in the CIS may require changes within the regulatory environment and some investment in infrastructure and equipment. Although its full adaptation need not be carried out at once, steps must be taken by the countries to prepare the groundwork.

Such preparation inevitably calls for a review of existing national laws on transport, banking and insurance, which need to be amended to facilitate the devel-
opment of MT in the CIS and between other countries. Facilitation of land transport at border crossings also needs to be addressed and dealt with. The CIS countries also need to accede to international transport and transit conventions and implement related agreements, strengthening their respective administrative and planning machinery, organize their transport enterprises, and develop appropriate regulatory and legislative frameworks.

There has been an increase in demand for passenger and cargo air transport in the CIS as a result of various factors, including greater openness of their economies. However, supply response has not been adequate to meet the rising demand. Among the main problems faced by the CIS airlines are ageing and inefficient aircrafts, inadequate maintenance, substandard airports, inadequate freight storage and poor processing facilities. The CIS countries should collaborate to meet market-driven demand for information and customer service in air transport and improve airport and airline management, including air traffic control, airport security and flight route connections, customer service at both ticketing places and airports, and passenger immigration and baggage delivery.

7. Concluding Observations

The implementation of any programme of inter-country economic cooperation requires firm political commitment on behalf of cooperating countries. It is also important that the political commitment is concretized through required administrative and policy measures. The implication is that cooperating countries themselves have to institute a host of actions to realize the potential benefits that cooperation at regional level could potentially entail. Cooperation with other neighboring countries may offer new areas for mutual beneficial development. However, many CIS countries will require considerable support from the international community in the form of both financial and technical assistance, if they were to succeed in their fledgling efforts aimed at strengthening economic cooperation.

End Notes


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- A manuscript can be accepted without any remarks or with minimal correction. This does not require another check from a reviewer.
- A manuscript can be accepted with a recommendation for substantial correction. This requires for reviewers to confirm again the truthfulness and relevance of their corrections, after that the editor-in-chief makes the decision for publishing the article.
- The manuscript can be returned to its author for substantial rewriting and a second review process.
- In case the manuscript is rejected, its author cannot send it again.
Structure of the manuscript

Requirements about the structure of the manuscript:

- **Title** – clearly and precisely stated, relatively short.
- **Abstract** – it must resemble a summary and include the objectives of the research, methodology and results;
- **Key words** – precise and sufficient, not more than five.
- **Introduction** – it should state the objectives of the research and the relevance of the scientific problem; it should review the condition of the issue and review references; it should also give the theoretical framework of the research, lead to research questions and hypotheses.
- **Methodology and data** – the methods used should be correct and include also appropriate references on similar, already published methods. The data shown must come from reliable sources.
- **Results and outcomes (conclusions)** – the results should be presented clearly and elaborated correctly; they must show a better way of using the data. Conclusions must be significant, valid and supported by proofs.
- **Bibliographic sources (references).**

Formatting:

The papers suggested for publishing must meet the following technical requirements:

- Manuscripts typed in Word for Windows, font - Times New Roman, font size – 14 pt, line spacing – 1.5 lines.
- Size of tables and charts – not larger than A4. The numeration of tables and charts should be consecutive in the wording of the paper. The use of colour charts, graphs and pictures are not accepted. All tables, figures, charts and images should be editable.
- Margins in cm: top – 2.5, bottom – 2.5, left – 2.5, right – 2.5.
- The title should be typed in caps, without abbreviations (font - Times New Roman, font size - 14 pt, line spacing - 1.5 lines, Bold – Center).
- At the right top corner above the title it is typed EconLit index in JEL (Journal of Economic Literature) classification system.
- After the title articles must include an abstract (10-12 lines) and up to 5 key words. The abstract and the key words should be written in Bulgarian and English (for articles in Bulgarian) and only in English for the articles submitted in English.
✓ Listing the used sources and citations is done in compliance with the Harvard short reference system (See examples of description and citation). The Quoted sources of a scientific research paper should be at least 20 and transliteration is obligatory. Footnotes are not recommended, except when necessary. If so-called “notes” need to be used, they should be indexed with Arabic numerals and are explained at the end of the article, before the references.

✓ The papers should be written without any handwriting and crossing out words, in good Bulgarian and, respectively, English.

After the article is received, it is edited language- and style-wise. As for the Language the editor makes insignificant corrections since it is supposed that the papers are written in good Bulgarian and English. The articles in English can be returned for another check by the author. Authors confirm the suggestions for changes in style or mark what they disagree with.

Acceptable size of manuscripts:

• for articles – from 16 to 20 pages ;
• for micro articles, reviews and abstracts of dissertation papers - up to 10 pages.

Articles submitted for publishing must be original and not published before or in the process of reviewing and preparation for publishing in other publishing houses. Editors have the right to make insignificant editing corrections on the manuscript. After an article is accepted, authors must declare an agreement and give the publishing house the exceptional right for publishing. Authors can use the article or part of it in their future work without permission from the publishing house, but this would require citing the original article.
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