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# EDITORIAL

**Dear readers!**

The recent issue of the journal is devoted to several governance and regulation issues.

***Gisele Mah, Itumeleng P. Mongale, Janine Mukuddem-Petersen and Mark A. Petersen*** investigate the determinants of the general government debt in Greece by means of Vector Error Correction Model framework, Variance Decomposition and Generalized Impulse Response Function Analysis. The analysis showed a significant negative relationship between general government debt and government deficit, general government debt and inflation.

***Sivave Mashingaidze*** is aimed to do a descriptive documentary analysis of literature in biodiversity and to recommend for business adoption as a sustainable performance strategy. The research findings indicated that most business theories and strategies can mimic perfunctorily from nature for them to achieve a sustainable performance.

***Alexander Maune*** provides an overview, from literature, about how competitive intelligence can be an enabler towards a firm's competitiveness. This overview is done under the background of intense global competition that firms are currently experiencing. This paper used a qualitative content analysis as a data collection methodology on all identified journal articles on competitive intelligence and firm competitiveness.

***Daniel Chigudu*** provides an exploratory study of the new public management's implementation in Zimbabwe. The data presented is a review of the government's policy initiatives and research publications. The paper provides policy recommendations necessary for addressing public sector reforms in developing economies particularly in African countries that have a history of political instability.

***Verena Klappstein*** provides the analysis which showes that the five chosen forms of obligations to contract bear analogical requirements but very similar rationales and economic consequences. It sets impaired market power right and it overstrikes irrational behaviour of market participants. As overall achievement it aligns the range of property, freedom of contract and freedom of competition.

***Kunofiwa Tsaurai*** examines the causal relationship between military expenditure and economic growth in Zimbabwe. The results of this study proves that military expenditure does not directly influence economic growth whilst economic growth does also not directly influence military expenditure both in the short and long run.

We hope that you will enjoy reading the journal and in the future we will receive new papers, outlining the most important issues in the field of governance and regulation.

# JOURNAL OF GOVERNANCE AND REGULATION

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## CONTENTS

# GOVERNMENT DEBT IN GREECE: AN EMPIRICAL ANALYSIS

***Gisele Mah, Itumeleng P. Mongale*, Janine Mukuddem-Petersen and Mark A. Petersen***

**Abstract**

Greek government debt has been increasing above the percentage stated in the growth and stability path from 112.9% in 2008 to 175.6% in 2013. This paper investigates the determinants of the general government debt in Greek by means of Vector Error Correction Model framework, Variance Decomposition and Generalized Impulse Response Function Analysis. The analysis showed a significant negative relationship between general government debt and government deficit, general government debt and inflation. Shocks to general government and inflation will cause general government debt to increase. Government deficit should be increased since there is gross capital formation included in its calculation which could be invested in income generating projects. The current account balance should be reduced by improving the net trade balance.

**Keywords:** Sovereign Debt; Greece; Debt crisis; Vector Error Correction Model; Variance Decomposition; Generalized Impulse Response Function.

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## 1. Introduction

African countries experienced the Sovereign debt crisis in the 1960s and 1970s when they accepted loans for political and economic stability from international lenders after their independence. Many of these governments were unable to honour their debts, leading to the formation of the Paris and London Clubs in the 1970s. In 1996, the Highly Indebted Poor Country (HIPC) initiative was created (Callaghy, 2002). The developed economies helped these countries to come out of debt through aids and development assistance. Europe was responsible for half of the aide given to developing countries. In the recent decade, however, most European countries are experiencing a debt crisis themselves. The Eurozone sovereign debt crisis (ESDC) started in 2008 with the collapse of Iceland's banking system and it spread primarily to Greece and Ireland in 2009 and to Portugal in 2011 (Sandoval *et al.* 2011). During this period, several European countries faced the collapse of financial institutions, high government debt and rapidly rising bond yield spreads in government securities. The most affected countries were Portugal, Ireland, Italy, Greece and Spain, collectively referred to as the PIIGS group.

Greece had a sovereign debt rate of 112.9% in 2008 and 175.1% in 2013. According to AMECO; this value is measured by the ratio of total government debt to GDP. This rising level of debt started building up from 1970 with the first and second oil shock. According to Alogoskoufis (2012), by 1997, a growth and stability pact was adopted by 27 member states of the European Union (EU) which aimed to maintain fiscal discipline and was reformed in 2005. The criterion of 3% budget deficit to GDP ratio and a 60% national debt to GDP ratios were maintained. In late 2000, the Greek economy was affected by the slowdown of the world economy which had an effect on its shipping and tourism industry, hence accumulating its national debts. By 2002, when it adopted the Euro as a currency, it had access to loans at low interest rate and also low bond rates in the Eurobond market. This resulted in increasing consumption spending.

As Arghyrou and Tsoukalas (2010) mentioned, the USA subprime mortgage crisis and the 2007-2008 financial crisis slowed down the growth rate in Greece to 2%, while the economic recession in 2009 affected access to credit, world trade and domestic consumption. Subsequently, Greece was excluded from the international financial markets in April 2010. On the 2 May 2010, it got a bailout package of €110 billion (Anand et *al.*, 2012 and Calice *et al.*, 2013) and the second bailout package of €130 billion in 2012 (Castel, 2012). By June 2012, Greece has undergone five series of austerity measures in order to reduce deficit spending and increase taxes.

The main concern was that if Greece defaults, it will lead to loss of confidence by investors and the downgrading of the credit rating of the PIIGS countries. Moreover, if it defaults on its debt, the banks of countries that provided the debt will face a tremendous liquidity problem which will lead to low production, less development, reduced trade and a situation leading to global economic depression. The Greek sovereign debt crisis makes their funding difficult and costly to have. It increases interest rates, export prices, depreciation of the Euro, and increase in unemployment, reduction in remittances sent to developing countries and a tightening of fiscal policy. As a result the austerity measures have affected citizens to an extent that it has lowered their standard of living due to increase in taxes, decrease in salaries and bonuses and an increase in unemployment and privatization. Furthermore, much money is spent on external debt services; as a result this reduced savings and foreign exchange earnings that could have been used to invest in the economy. The irony is that Greece and other European countries experiencing the crisis, used to give aid and development assistance to the developing countries. The implication is that they will not be able to assist and this will affect developing countries negatively in terms of the aid.

The recent wide spread of unsustainable debt in developed economies culminated in the Eurozone sovereign debt crisis, and this phenomenon with special reference to the Greek case was the main motivation for the study reported in this article. Based on the review of related studies and the economic theory, this paper is aimed at identifying the main reasons why Greece has been recording very high levels in its sovereign debt. The above background culminated in the question: What could be the possible determinants of the rising government debt in Greece?

The search for an answer to this question was based on the conceptual and theoretical framework that is outlined in Section 2. The outline of the framework is followed by the empirical investigation in Section 3. Section 4 presents the findings and discussion of the study. The article ends with some conclusions and a recommendation in Section 5.

## 2. Theoretical framework and Literature review

Government debt is defined by Black *et al.* (2012) as the sum of all outstanding financial liabilities of the government whereby it has the responsibility to repay the principle debt and the debt servicing. It seems that many developed countries are experiencing rising debt to the point where they have gone above the 60% ratio to GDP stated in the growth and stability path. These highly indebted countries including Greece are therefore experiencing Sovereign debt crisis.

The Keynesian economists are of the point of view that deficit spending could be as a result of increase in government expenditure or decrease in taxes and the performance of the economy. Their premise is that during a recession, fiscal policy is appropriate to bring the economy out of recession. That been the case, they are criticized because it is relatively easy to increase budget deficit and public debts in periods of economic recession, but it is rather difficult to reverse the trend during a recovery. Furthermore, the economic problems of most countries are structural rather than cyclical in nature, so debt financing has less ability to stabilize the economy from the macroeconomic point of view (Black *et al.*, 2012). Keynes encourages public borrowing which is a short term fiscal policy measure that will stimulate the economy hence bringing the economy out of recession.

On the other hand the neoclassical economists saw government deficit as a structural deficit and mentioned that it affects interest rates on private investment. Deficit occurs when government borrows from the public or foreign sources to finance its expenditures. When government competes with other borrowers to borrow funds, this causes an upward pressure on interest rates which crowd out private investors who are competing for the same funds. In the long run, deficit reduces the stock of private investment, hence economic growth. But if the government invests the borrowed funds, it produces capital and the burden of debt on future generations is reduced. When funds to finance the deficit are obtained from abroad, it becomes an additional debt serving problem since debt interest has to be paid alongside the principal amount. This constitutes a transfer from domestic country to individuals living abroad thus affecting the domestic citizens.

Deficits put pressures on the government which may make the monetary authority to monetize the debt which will eventually cause money supply to increase hence causing inflation in the economy. Also, a large deficit may cause government to default. Therefore the Neoclassical economist believes that when the government borrows from the country itself or abroad, it affects the economy of the country. The Inter-temporal budget constraint (IBC) is examined at its theoretical base. The IBC requires that the total government spending must be within the funds available for it over a long period. According to Salvi (2011), the IBC starts with a public sector income statement with one period budget constraint which explains the evolution of the net debt as

$$B_{t+1} = (1+r)B_t - PB_{t+1} \quad (1)$$

where $B_t$ is the stock of public net debt, $r$ is the interest rates and $PB_t$ is the difference between revenue and expenditure excluding interest expenditure. The IBC is

$$B_t = \sum_{t=1}^{\infty}(1+r)^{-i} PB_{t+1} \quad (2)$$

However, Bohn (2005) disagrees with the IBC in sustainability analyses and introduces the Model-Based sustainability (MBS) since it generalises the IBC to a world of uncertainty. It is assumed that the creditors are optimizing agents so that the government does not have a negative debt in the long run and that financial markets are complete. The model based sustainability criterion is

$$B_t = \sum_{n=0}^{\infty} E_t (U_{t,n} PB_{t+n}) \tag{3}$$

where $U_{t,n}$ of the economy is the pricing kernel for contingent claims and $PB_t$ is the difference between revenue and expenditure excluding interest expenditure. This theory is in line with this study because the budget deficit is a determinant of sovereign debt. Consequently the IBC is adopted in this study to explain the determinants of government debt in Greece and the model was adjusted by introducing the current account balance, inflation and government savings.

## 3. Empirical investigation

The Vector Error Correction Model (VECM) was constructed to analyse both short and long run relationships between the Greek Sovereign debt and its determinants. The variance decomposition and the Generalized Impulse Response Function (GIRF) are used to evaluate the impact of shocks on the Greek Sovereign debt levels. When we apply these tests, we expect to get a good debt determinant model for Greece.

### *3.1 Data*

The study uses annual data from 1976 to 2010 obtained from AMECO, world development indicators (WDIs) and the IMF. In line with studies such as Oh and Lee (2004) who used annual data from 1970 to 1999, Chakluk (2000) had 32 observations, while Babatunde and Adebafi (2005) had 33 observations, therefore, a period of 34 years data is considered to warrant a sound conclusion in this study. This implies that the 34 observations for our study were sufficient for a VECM analysis. Government deficit was contracted by subtracting gross national expenditure from gross national income and all the other variables were used without adjustments. The independent variables are government deficit (GDEF) in millions, current account balance (CAB) in % of GDP, inflation (INF) in annual % and government savings (GSAV) in % of GDP while the dependent variable is general government debt (GDEBT) in % of GDP. The debt determinant model for Greece in natural logarithmic form is expressed as:

$$In(GDEBT_t) = \beta_o + \beta_1 In(GDEF_t) + \beta_2 In(CAB_t) + \beta_3 In(INF) + \beta_4 In(GSAV) + \varepsilon_t \tag{4}$$

and it is in line with the classical linear regression model.

### *3.2 Estimation techniques*

**Stationarity Test**: Phillip Perron (PP) and Augmented Dickey Fuller (ADF) tests were conducted at constant and trend only. When variables are nonstationary at level form, stationarity test are carried out at first difference.

The test of ADF is given as

$$\Delta Y_t = \alpha + \beta t + \delta Y_{t-1} + \sum_{i=1}^{n} \lambda_i \Delta Y_{t-1} + \varepsilon_t \tag{5}$$

When we fail to reject the null hypothesis we conclude that the variables are nonstationary, Dickey and Fuller (1981).

The Phillip and Perron (1988) test regression is as follows

$$\Delta Y_t = \beta_0 X_t + \alpha Y_{t-1} + U_t \tag{6}$$

The PP test was considered here because the requirements of the homoskedasticity assumption is not needed in the error term and there is correction of serial correlation and autoregressive heteroskedasticity in the error terms (Drisaki, 2013). Moreover, PP tests consider less restriction on the distribution of the disturbance term (Enders, 1995).

**Descriptive statistics:** A brief description of our variables using measures of central tendency and measures of variability was done. The Jaque-Bera statistics shows the variables that satisfy the normality test at level form (Gujarati & Porter, 2009).

**Determination of lags**: There are various criteria for selecting the appropriate lag length such as Akaike information criterion (AIC), Schwarz information criterion (SC), and Hannan-Quinn information criterion (HQ). According to Liew (2004), the AIC and the FPE results are superior when observations are sixty and below than the SIC and HQ criterion when wanting to have a good lag length criteria.

**Johansen cointegration test**: According to Chang and Carballo (2011), the Johansen technique permits us to have more than one cointegrating relationships as contrary to Engle Granger which gives just one cointegrating equation. The Johansen methodology starts from the Vector autoregression (VAR) as:

$$\Delta Y_t = \mu + \prod Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-1} + \varepsilon_t \quad (7)$$

The Johansen test proposes two different likelihood ratio tests of the significance of these canonical corrections and the reduced rank of the $\prod$ matrix. There exist an n×r matrix α and β of the reduced rank where α represents the adjustment parameters and β is the cointegrating vector. There are two types of Johansen test: the trace and the maximum eigen value and the inference might be a little bit different. The trace test and the maximum eigen value test are as follows:

$$J_{\text{trace}} = -T \sum_{i-r+1}^{n} \text{In}(1 - \bar{\lambda}_i) \quad (8)$$

$$J_{\text{max Egen}} = -T\text{In}(1 - \bar{\lambda}_{r+1}) \quad (9)$$

where $T$ is the sample size and $\bar{\lambda}$ is the $i^{th}$ largest canonical correlation.

**Weak exogeneity test**: Bonham et al. (2009) mentioned that this test addresses the problem of over parameterization found in the VECM, that is , many equations in the system will be reduced to one and the number of parameters by ($mk + d$) where d is the number of deterministic component. According to Johansen (1991), when $\beta'$ are cointegrating vector, $x_t$ is weakly exogenous when $\alpha_x = 0$ .

**Long run restriction test**: We imposed restrictions on $\beta$ to get a good representation of our long run cointegrating equation from our VECM (Hall et al. 2002). Restrictions were imposed using economic theory point of view.

**VECM**: This test shows the long run component of our variables and the short run flexible dynamic specification. A proportion of the disequilibrium from one period is corrected in the next period. VECM involves estimating the model in the first difference form and adding an error correction term as an explanatory variable (Meniago, et al, 2013). The dynamic error correction can be obtained by using the autoregressive distributed lags approach. The error correction term (ECT) values are obtained by conducting a regression on the dependent variables with all the independent variables in the model.

**Variance decomposition test**: According to Enders (2010) Vector Moving Average (VMA) is

$$y_t = \mu + \phi_1 y_{t+1} + ... + \phi_p y_{t+2} + \varepsilon_t \quad (10)$$

where focus was on $y_t$, the n-step ahead forecast error is

$$y_{t+n} - E(y_{t+n}) = \phi_{11}(0)\varepsilon^s y_{t+n} + \phi_{11}(1)\varepsilon^s y_{t+n-1} + ...\phi_{11}(n-1)\varepsilon^s y_{t+1} \quad (11)$$

$$\phi_{12}(0)\varepsilon^s x_{t+n} + \phi_{12}(1)\varepsilon^s x_{t+n-1} + ...\phi_{12}(n-1)\varepsilon^s x_{t+1} \quad (12)$$

**Generalized Impulse Response Function (GIRF)**: Instead of the Impulse Response Function (IRF), we employ the GIRF because the IRF possess several inconveniences. The IRF is sensitive to the ordering of variables and the omission of important variables in the system may lead to wrong results. In lieu of this, we utilized the GIRF proposed by Koop, Pesaran and Potter (1996) which is represented as follows

$$GI_x(h, \sigma, \lambda_{t-1}) = E[X_{t+h} \mid \varepsilon_t = \sigma, \lambda_{t-1}] - E[X_{t+h} \mid \lambda_{t-1}] \quad (13)$$

where $\sigma$ is the known vector. The

$$GI_x(h, \sigma, \lambda_{t-1}) = C_h \sigma \quad (14)$$

is a VAR which dependent on $\lambda_{n-1}$ but depends on the composition of the shocks defined by $\sigma$ .

## 4. Findings and Discussions

The following results have been considered at a 5% level of significance in deciding whether to reject or accept the null hypothesis.

### *4.1 Unit root test results*

The stationarity test result in Table 1 shows that all the variables are stationary at first difference I(1). The null hypothesis of no unit roots was rejected at first differences since both the ADF and PP test statistics values are less than the critical values. The PP test gives more accurate results than the ADF test since it is non-parametric and is based on asymptotic theory (Mahadeva and Robinson, 2004).

**Table 1.** Unit root test of time series with ADF and PP tests at intercept and trend

| | ADF TEST | | | PP TEST | | | |
|---|---|---|---|---|---|---|---|
| Variables | T-values (Lags) | 5% Critical value | SIC | T-values (Bandwidth) | 5% Critical value | SIC | Order of integration |
| LGDEBT | -5.520218***(0) | -3.552973 | -2.119930 | -5.525131***(2) | -3.552973 | -2.119930 | I(1) |
| LGDEF | -9.705376***(0) | -3.552973 | 1.835456 | -32.77721***(32) | -3.552973 | 1.835456 | I(1) |
| LCAB | -7.608637***(0) | -3.552973 | 1.960600 | -11.89895***(18) | -3.552973 | 1.960600 | I(1) |
| LINF | -8.288442***(0) | -3.552973 | 0.919419 | -8.234738***(1) | -3.552973 | 0.919419 | I(1) |
| LGSAV | -0.886233(2) | -3.562882 | -1.218880 | -7.422549***(4) | -3.552973 | -1.090785 | I(1) |

*Note: Reject at 10 %(*), 5 %(**), 1 %(***) significant level*

## 4.2 Descriptive statistics results

The mean, median, mode, minimum and maximum values of our variables were close to each other as shown in Table 2. This indicates that the data is symmetric. The null hypothesis states that residuals of the variables at level form are normally distributed. The residuals from LGDEBT, LGDEF, LINF and LCAB could not be rejected at 5 % level of significance as indicated by the high p-value of the Jaque-Bera statistics; therefore, we accept the null hypothesis that the residuals from these variables are normally distributed. Hence in testing for stationary of such variables, structural break and outliers will not have to be accounted for when using the conventional unit root test. Nevertheless, the residuals of LGSAV are rejected at 5%, thereby indicating that this variable is not normally distributed at level.

**Table 2.** Descriptive statistics of variables used in the study at level form

| NAME OF VARIABLES | LGDEBT | LGDEF | LCAB | LINF | LGSAV |
|---|---|---|---|---|---|
| MEAN | 4.167903 | -8.937578 | -1.648621 | 2.143874 | 2.865577 |
| MEDIAN | 4.552392 | -9.014565 | -1.566322 | 2.498974 | 2.961037 |
| MAXIMUM | 4.976506 | -5.987710 | -0.123102 | 3.213863 | 3.451637 |
| MINIMUM | 2.875371 | -10.51586 | -2.775023 | 0.190620 | 1.532125 |
| STD. DEV. | 0.622117 | 1.125359 | 0.597078 | 0.843808 | 0.404573 |
| SKEWNESS | -0.842018 | 0.768060 | 0.192176 | -0.427689 | -1.430044 |
| KURTOSIS | 2.333658 | 2.985765 | 3.027121 | 1.889965 | 5.164231 |
| JARQUE-BERA | 4.783319 | 3.441474 | 0.216507 | 2.863947 | 18.76000 |
| PROBABILITY | 0.091478 | 0.178934 | 0.897400 | 0.238837 | 0.000084 |
| SUM | 145.8766 | -312.8152 | -57.70175 | 75.03559 | 100.2952 |
| SUM SQ. DEV | 13.15900 | 43.05873 | 12.12106 | 24.20841 | 5.565105 |
| OBSERVATIONS | 35 | 35 | 35 | 35 | 35 |

## 4.3 Lag length selection criteria results

The results in Table 3 show the best selected lag by the AIC, HQ, LR and FPE criterion. All other tests will be conducted using the chosen lag length of 2, in order to get a good model that reveals the determinant of rising debt in Greece.

**Table 3.** Lag length criteria at level for this study

| LAG | LOGL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -80.68352 | NA | 0.000124 | 5.192941 | 5.419684 | 5.269233 |
| 1 | 46.35046 | 207.8738 | 2.61e-07 | -0.990937 | 0.369524* | -0.533183 |
| 2 | 78.23372 | 42.51101* | 1.92e-07* | -1.408104* | 1.086075 | -0.568889* |

** indicates lag order selected by the criterion.*

### 4.4 Cointegration results

We analysed cointegration with Johansen using the trace statistics and the maximum eigen statistics. Table 4 shows that there is one cointegrating equation since the maximum eigen statistics are better than the trace statistics (Lutkepol et *al*., 2001). The results show that in the case of the trace tests, the null hypothesis of no cointegrating vectors was rejected since the test statistics of 102.8624 is greater than the 5 % critical value of 69.81889, hence cointegration exists at none. Moving on to the test of the null hypothesis of at most 1 cointegration vector, the trace statistics of 48.16393 is greater than the critical value of 47.85613, hence cointegration exist. The trace statistics of 24.90181 of at most 2 is less than the critical value of 29.79707; therefore the null hypothesis of no cointegration is accepted. The probability of the trace statistics was only significant at none and at most 1 hence confirming that two long run relationships exist between our variables.

At none, the maximum eigen value statistics of 54.69851 is greater than the critical value of 33.87687. However, the maximum eigen statistics values of at most 1, 2, 3 and 4 are less than that of 5 % indicating that the null hypothesis of no cointegration vector was accepted. The probability of the maximum eigen test is significant only at none hence confirming the existence of one cointegration relationship among the variables. As the maximum eigen test tend to be more appreciated than the trace test, we conclude that there is one cointegrating equation in the system. This means that there was a unique long run relationship between LGDEBT and its determinants in Greece.

Based on the normalised cointegrating coefficients the long run regression is expressed as follows:

$$LGDEBT = -374485LGDEF + 0.626167LCAB - 0.380628LINF - 0.422749LGSAV \qquad (15)$$

We explained this long run equation under the VECM estimates which gave the same result and had the level of significance of our variables.

**Table 4.** Cointegration results

| Hypothesized No. Of CE(S) | EigenValue | Trace Statistic | 0.05 Critical Value | Probability | Max-Eigen Statistics | 0.05 Critical Value | Probability |
|---|---|---|---|---|---|---|---|
| NONE | 0.819013 | 102.8624 | 69.81889 | 0.0000 | 54.69851 | 33.87687 | 0.0001 |
| AT MOST 1 | 0.516615 | 48.16393 | 47.85613 | 0.0468 | 23.26212 | 27.58434 | 0.1626 |
| AT MOST 2 | 0.369859 | 24.90181 | 29.79707 | 0.1650 | 14.77797 | 21.13162 | 0.3047 |
| AT MOST 3 | 0.265426 | 10.12384 | 15.49471 | 0.2713 | 9.870863 | 14.26460 | 0.2205 |
| AT MOST 4 | 0.007874 | 0.252976 | 3.841466 | 0.6150 | 0.252976 | 3.841466 | 0.6150 |

### 4.5 Weak exogeneity test

The weak exogeneity test is performed to help to identify if variables are to be considered weakly exogenous to the system (Meniago et al., 2013). As seen in Table 5, the results confirm that at the 1% significance level, all the variables are not weakly exogeneous to the system, thus endogenous. Hence our variables are independent off all other responses values.

**Table 5.** Results of the Weak exogeneity tests

| VARIABLES | CHI-SQUARE | PROBABILITY |
|---|---|---|
| LGDEBT | 41.42121 | 0.000000 |
| LGDEF | 36.45597 | 0.000000 |
| LCAB | 39.35416 | 0.000000 |
| LINF | 41.40933 | 0.000000 |
| LGSAV | 39.68111 | 0.000000 |

### 4.6 Long run restriction test

The results of the long run restriction test in Table 6 reveal that correct restrictions signs are imposed on the variables according to the theory in our model hence it gives a good long run equation. These results also confirms that the signs of the restrictions were correctly specified since the probability value was highly significant at 1 % level; therefore we imposed these restriction signs on our variables to get a good long run equation which reveals correctly the determinants of rising debt in Greece.

**Table 6.** Results of restrictions on $\beta$

| VARIABLES | CHI-SQUARE | PROBABILITY |
|---|---|---|
| LGDEBT - LGDE F+ LCAB + LINF – LSAV | 44.82945 | 0.000000 |

### 4.7 VECM estimates results

Since our variables are in natural logarithms, the coefficients were interpreted as long run elasticities (the degree to which a change in our dependent variable from a unit change in our independent variables).

#### 4.7.1 Long run estimates

The long run relationship of our model is

$$LGDEBT = 3.900687 - 0.374485LGDEF + 0.626167LCAB - 0.380628LINF - 0.422749LGSAV \qquad (16)$$

The VECM estimates results of the long run relationship shows that there was a significant negative relationship with LGDEBT and LGDEF. A 1% increase in LGDEF will cause LGDEBT to decrease by 0.374%. This negative relationship could be as a result of the gross capital formation included in the LGDEF calculations.

LGDEBT and LCAB show a significant positive relationship hence 1% increase in LCAB will significantly cause LGDEBT to increase by 0.626%. A significant negative relationship was revealed between LGDEBT and LINF. If LINF increases by1%, LGDEBT will decrease by decrease by 0.381%. LGDEBT and LGSAV show a negative relationship hence a 1% increase in savings would cause LGDEBT to decrease by 0.423%. Therefore the main determinants of rising government debt in Greece are current account balance and inflation.

Table 7 shows that the error correction term (ECT) is significant with the exception of LGSAV. This provides an additional evidence of cointegration in the government debt function of Greece. The estimate of the equation is theoretically correct since the sign of ECT is negative (-0.209504) and with a high absolute t-statistics value of 2.31702. The ECT was expected to be negative for equilibrium to be restored. This confirms that there was a problem in the long run equilibrium relationship between the dependent and the independent variables. The adjustment of the model of the previous year's disequilibrium is 20.1%.

**Table 7.** Long run coefficient and level of significance

| Variables | LGDEBT | LGDEF | LCAB | LINF | LGSAV | Constant |
|---|---|---|---|---|---|---|
| Coefficient | 1.000000 | 0.374485 | -0.626167 | 0.380628 | 0.422749 | -3.900687 |
| t-statistics | | 6.57749 | -10.4168 | 7.68836 | 1.60907 | |
| Variables | | D(LGDEBT) | D(LGDEF) | D(LCAB) | D(INF) | D(LGSAV) |
| Error correction term | | -0.209504 | -1.508414 | 1.061339 | -1.274131 | 0.219859 |
| T statistics | | 2.31702 | -2.23138 | 2.36210 | -3.47374 | 1.42841 |

#### 4.7.2 Short run results

The coefficient of changes in lag 2 of LGDEBT, LGDEF and LGSAV are negative and insignificant as shown in Table 8. The negative sign shows that they have negative effect in the short term changes in LGDEBT. Since it is insignificant, the value does no matter that much. The coefficient of changes in lag 2 of LCAB and LINF are positive and LCAB is significant while LINF is insignificant. The positive sign implies that they have positive effects on LGDEBT in the short term changes of LGDEBT. Since all variables are insignificant except LCAB at lag 2, we conclude that only LCAB does affect LGDEBT in the short run. The R square has a value of 0.632702 implying that about 63% of variation in LGDEBT is explained by the independent variables in Greece.

After estimating the model, we conducted stability and diagnostic tests to determine if the model was stable throughout the period.

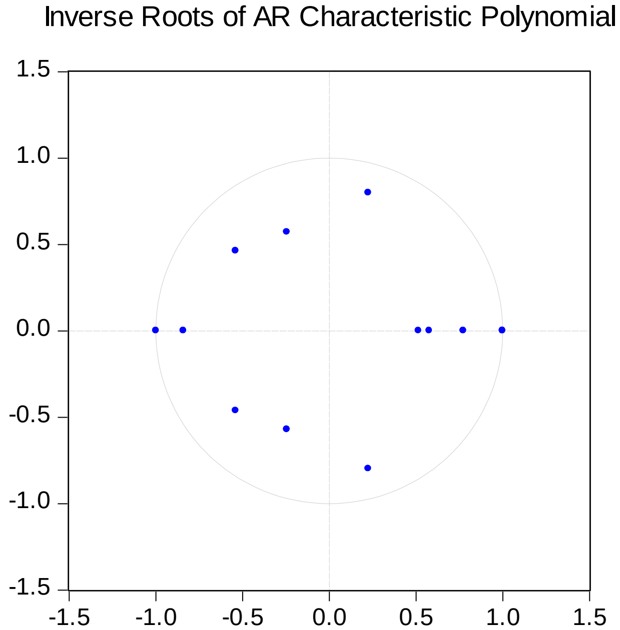
**Table 8.** Short run Error Correction results

| Variables | Coefficient | T statistics |
|---|---|---|
| CointEq1 | 0.209504 | 2.31702 |
| D(LGDEBT(-1)) | 0.085639 | 0.46185 |
| D(LGDEBT(-2)) | -0.085871 | -0.42496 |
| D(LGDEF(-1)) | -0.032192 | -1.06179 |
| D(LGDEF(-2)) | -0.022569 | -0.87671 |
| D(LCAB(-1)) | 0.043246 | 0.92369 |
| D(LCAB(-2)) | 0.098875 | 2.08032 |
| D(LINF(-1)) | -0.063577 | -1.25339 |
| D(LINF(-2)) | 0.050249 | 0.77841 |
| D(LGSAV(-1)) | -0.189808 | -1.45207 |
| D(LGSAV(-2)) | -0.068908 | -0.48636 |
| R-squared | 0.632702 | |
| Adj. R-squared | 0.520688 | |

#### 4.7.3 Stability test results

The AR roots was used to test the stability of the model and Figure 1 shows that all the unit roots lie in the unit circle indicating that the model is stable. The suggestion is that further analysis could be carried out since the model is stable and it can be acceptable in explaining the determinant of government debt in Greece.

**Figure 1.** Stability test results



***4.7.4 Diagnostics test***

The diagnostic tests indicate that the model has no heteroskedasticity, no serial correlation, and it is also normally distributed as shown in Table 9. It means that our estimated model is good and can be interpreted for policy analysis. We then we can proceed to forecasting.

**Table 9.** The summary of diagnostics and stability tests results of our regression

| Test | Null Hypothesis | Test statistics | P- value | Conclusion |
|---|---|---|---|---|
| AR roots graph | Stable model | $\sum_{i=1}^{n} a_i < 1$ | | The model is stable |
| Autocorrelation LM test | No serial correlation | At lag 2, LM stat=26.40175 | 0.3864 | There is no serial correlation |
| White | No heteroskedasticity | Chi square = 356.4155 | 0.1520 | There is no heteroskedasticity |
| Jarque Bera | Residual are normally distributed | JB = 8.473953 | 0.5826 | The model is normally distributed |

## 4.8 Variance decomposition results

Table 10 shows how much of the predicted error variance can be explained by the exogenous shocks of other variables. The table is a summary of variance decomposition results of LGDEBT on the independent variables over a period of ten years. At the end of 10 years, the forecast error variance of LGDEBT is explained by its own innovations with 93.76%. During the second period, LCAB is the only variable that explains the highest variation in LGDEBT with 2.6% and during the third period, LINF is the highest explanatory variable with 1.99% followed by LCAB in the 4$^{th}$ period with 2.4%. From the 5$^{th}$ to the 10th period, LINF explains the variation in LGDEBT with up to 4.02%. It appears that the variations in LGDEBT in Greece over the years are highly caused by LGDEBT, followed by LCAB in the second and fourth period and LINF over the remaining periods.

The results further reveal that from the variance decomposition of LGDEBT on LGDEF, a high proportion of shocks are explained by their own innovations with 84.88 % followed by a small 3.74 % of LGDEBT. The variance decomposition of LGDEBT on LCAB is mostly explained by LGDEBT with a 42.31 % followed by itself with a 17.575 variation in its own innovation. The variance decomposition of LGDEBT on LINF is 55.96% by itself, followed by 29.07 of LCAB. LGDEBT on LGSAV is 55.43% on itself, followed by 30.48 by LINF. We conclude that apart from LCAB, most of the variations are explained by their own innovations. Any shock in the economy will be explained by the chosen variables itself.

**Table 10.** Variance decomposition results of LGDEBT on our independent variables

| Period | S.E | LGDEBT | LGDEF | LCAB | LINF | LGSAV |
|---|---|---|---|---|---|---|
| 1 | 0.067006 | 100.0000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.115295 | 96.14786 | 0.028037 | 2.608841 | 0.459410 | 0.755847 |
| 3 | 0.149169 | 94.92303 | 0.115419 | 1.960608 | 1.993853 | 1.007090 |
| 4 | 0.193727 | 94.56275 | 0.102519 | 2.405121 | 2.242248 | 0.687360 |
| 5 | 0.238024 | 93.62563 | 0.195698 | 2.700015 | 3.012058 | 0.466598 |
| 6 | 0.278575 | 94.02228 | 0.150664 | 2.499837 | 2.970478 | 0.356737 |
| 7 | 0.317792 | 93.92581 | 0.119690 | 2.162626 | 3.509744 | 0.282126 |
| 8 | 0.354696 | 93.98535 | 0.097667 | 2.104196 | 3.565022 | 0.247761 |
| 9 | 0.390214 | 93.69548 | 0.083998 | 1.958639 | 4.057045 | 0.204837 |
| 10 | 0.424915 | 93.75892 | 0.080623 | 1.965439 | 4.020301 | 0.174715 |

## 4.9 Generalized Impulse Response Results

Result shows that the shock of LGDEBT to LGDEBT is positive, LGDEBT to LGDEF is negative, LGDEBT to LCAB is negative, LGDEBT to LINF is positive and LGDEBT to LGSAV is negative. While the shock of LGDEF to LGDEBT is fluctuating between positive and negative it is more negative; LCAB to LGDEBT is negative and then positive from the second till the tenth period. LINF to LGDEBT is positive and finally LGSAV to LGDEBT is negative and then positive from the fourth to the tenth period. This means that a shock from LGDEBT will cause an increase in LGDEBT. A shock from LGDEF, LCAB and LGSAV will cause a decrease in LGDEBT, while a shock from LINF will cause an increase in LGDEBT. LGDEF, LCAB and LGSAV determine government debt in Greece and react negatively to it.

## 5. Conclusions and policy recommendations

There is a significant negative relationship between general government debt and government deficit, and general government debt and inflation. Similarly there is a significant and a positive relationship between general government debt and current account balance and a negative but insignificant relationship between general government debt and gross savings. Therefore the main determinants of government debt in Greece are: government deficit, inflation and current account balance.

Variance in general government debt was mostly explained by general government debt itself. It also appears that current account balance and inflation cause the highest variation in general government debt over the periods. The response of general government debt to general government debt is positive and that of general government debt to government deficit and general government debt to current account balance is negative. On the other hand, the response of general government debt to inflation initially has no effect until after the second periods where it becomes positive. A shock of general government debt to gross savings appears to be negative in Greece. Policy makers in Greece should therefore be willing go into more deficits, using the deficit to invest into income generating investments. This is likely to help to reduce the Government debt in future as postulated by Keynesian theory. The current account balance should rather be reduced while inflation is increased. Finally it seems that the fiscal, monetary and trade policy are the best policies to be implemented to reduce the rising government debt in Greece.

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# BIOMIMICRY: DESCRIPTIVE ANALYSIS OF BIODIVERSITY STRATEGY ADOPTION FOR BUSINESS SUSTAINABLE PERFORMANCE

***Sivave Mashingaidze*** *

**Abstract**

Biomimicry is a novel interdisciplinary field that mimics nature's best ideas and processes to solve human problems. The objective of this article was to do a descriptive documentary analysis of literature in biodiversity and to recommend for business adoption as a sustainable performance strategy. The research was however based on nine (9) Life's Principles, which were candidly inspired by nature. The research findings indicated that most business theories and strategies can mimic perfunctorily from nature for them to achieve a sustainable performance. The research was quite a conceptual and therefore did not offer direct practical proposition because its value was a descriptive of the ideas and strategies from nature and to outline its fundamental principles since biodiversity has track record of sustainability without men's interference which humanity can also mimic.

**Keywords:** Biomimcry, Biodiversity, Business, Sustainable, Ecology, Ecomimicry, Biomimetic, Bionics

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## 1. Introduction

Biomimicry is an "emerging discipline that studies nature's best ideas and then imitates these designs and processes to solve human problems according to the Biomimicry website and emerging movement founded by science writer Jeanine Benyus, 1997.

Studying nature to get ideas to solve transdisciplinary human problems has recently received new attention from the field of biomimicry (Repperger, Phillips, Neidhard-Doll, Reynolds, & Berlin, 2006). According to (Benyus, 1997) biomimicry focuses ondesigns based in nature to create products, processes, andeven organizations and policies that are sustainable and adapted to nature's ways.

King Solomon the wisest Jewish King who ever lived the surface of the earth spoke along those lines of biomimicry with his sophistry encouraged indolent people to goand watch ants and learn from them, when he said"Go to the ant, thou sluggard, consider her ways, and be wise, which having no guide, overseer, or ruler, provideth her meat in the summer, and gathereth her food in the harvest" (Proverbs 6 vs 6). One would argue from the above biblical verse that humanity has been encouraged since time immemorial to learn from nature for life solutions since nature is endowed with answers. Fortunately biomimicry has only recently emerged on the business radar in the twilight of the 1990s, and was mainly fixated on product design engineering (Benyus, 1997 cited by Pedersen, 2007). As described in this section, it is a transdisciplinary subject that takes inspiration from nature to design innovative products and business processes (El-Zeiny, 2012). Biomimicry, or biomimickry is where the biosphere is mimicked as a basis for design, or a growing area for research in the fields of architecture, engineering and business operations (Pedersen, 2007). Biomimicry is an inspirational source of possible new innovation and business processes and because of the potential it offers as a way to create a more sustainable and even regenerative business environment (Benyus, 1997). It is not a familiar term to many in the business fraternity; hence the objective of this article is to do a descriptive documentary analysis of literature in biology, ecology, paleobiology, and evolutionary biology (biomimicry) as a new strategy for business sustainable performance. Therefore, the review of the literature begins with the definition of biomimicry and why it is important. The article is structured as follows: The researcher first introduces biomimicry a new approach for business sustainability and the look at descriptive documentary analysis as my methodology. Finally the research will briefly touch on the evolutionary history and describe the nine (9) Life's Principles, biomimicry and leadership, which was candidly inspired by nature, will be expounded.

### 1.1 Definition of Biomimicry

The term “Biomimicry” first appeared in scientific literature in 1962 and grew in the usage in the 1980s in material sciences (Benyus, 1997 cited by Goss, 2009).The term ‘biomimicry’ is a derivative from the Greek bios; life, and mimesis, imitation (Benyus, 1997). Biomimicry is the imitating or taking inspiration from nature’s forms and processes to solve problems for humans (Benyus, 1997). The preceding definition was broken further by (Benyus, 1997) as follows:

1. Nature as model. Biomimicry is a new science that studies nature’s models and then imitates or takes inspiration from these designs and processes to solve human problems, for example a solar cell inspired by a leaf.
2. Nature as measure. Biomimicry uses an ecological standard to judge the “rightness” of our innovations. After 3.8 billion years of evolution, nature has learned and discovered: What works. What is appropriate? What lasts? What does not last?
3. Nature as mentor. Biomimicry is a new way of viewing and valuing nature. It introduces an era based not on what we can extract from the natural world, but what we can learn from it.

In engineering, multiple terms label the practice of learning from organisms and systems present in the biosphere. These include: bioinspiration, biomimetics, bionics, biognosis and others (Schmidt, 2011).Biomimetics, biomimicry and bionics possess definitions traceable to those responsible for coining the terms. The engineering disciplines recognize Otto Schmitt as the originator of the word biomimetics (Bhushan, 2009). Schmitt purportedly created the term while developing a biologically inspired electrical circuit known in the electrical engineering community as the Schmitt Trigger (Schmidt, 2011). Schmitt defined biomimetics as, “‘the mimicry of life,’ or biology,” and he believed that the products of this mimicry could help solve mankind’s problems (Bhushan, 2009).

Biomimetics – “the study of the formation, structure, or function of biologically produced substances and materials (as enzymes or silk) and biological mechanisms and processes (as protein synthesis or photosynthesis) especially for the purpose of synthesizing similar products by artificial mechanisms which mimic natural ones” (Bhushan, 2009).

Bionics – “a science concerned with the application of data about the functioning of biological systems to the solution of engineering problems” or “the study of systems, particularly electronic systems, which function after the manner of living systems” (Bhushan, 2009).

### 1.2 Biomimicry as a panacea to business problems

It is very evident in today’s world that human development is going tangential with nature (Paul, 2010). The world is changing and every business needs to comprehend the global trends to remain workable and survive in the future and biomimicry is the only panacea to this. According to Paul (2010) the current business ecosystem breathes on:

1. Population explosion – growing inequality, aging population, and health challenges
2. Scarcity of resources – rising cost, migration of population
3. Biodiversity – extinction of species
4. Transparency and Awareness– People see what business do
5. Changing values – declining trust
6. Lack of skill

Paul, (2010) further stated that biomimicry increases efficiency and skills to the above business ecosystems and reduce costs, and this can allow humanity to both raise standards of living and preserve the environment and a cost-benefit evaluation points to the merits of biomimicry as reducing three major sources of costs:

1. The economic cost of pollution
2. The economic cost of waste disposal
3. The economic cost of natural resource depletion

### 1.3 What is Biodiversity?

The Canadian Biodiversity Strategy defines biodiversity as the variety of species and ecosystems on Earth and the ecological processes of which they are a part – including ecosystem, species, and genetic diversity components (Vold, and Buffett, 2008). The United Nations Convention on Biological Diversity provides a similar definition for biodiversity: “the variability among living organisms from all sources including, inter alia [among other things], terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” In short, the term is used to refer to life in all its forms and the natural processes that support and connect all life forms. Biodiversity is not easily defined because it is more than just the sum of its parts, as all of its elements, regardless of whether we understand their roles or know their status, are integral to maintaining functioning, evolving, resilient ecosystems. Complex concepts such as biodiversity are often easier to grasp if reduced to their component pieces. While this approach does not give a complete picture of how these pieces interact and combine to create biodiversity, it helps us understand different aspects of biodiversity (Vold, and Buffett, 2008).

## 2 Research Methodology: Documentary Analysis

For the purpose of this study a descriptive research methodology has been adopted, because it is restricted to factual registration and thatthere is no quest for an explanation why reality is showing itself this way (Tsang, 1997). In principle, descriptive research is not aiming at forming hypotheses or development of a theory (Creswell, 2002). Through document analysis descriptive research isabout describing how reality is in the natural ecosystem. With descriptive research in its purest form explaining and evaluating is left to the reader or to other disciplines (Krathwohl, 1993).

Document analysis is the systematic exploration of literature from various disciplines, biology, ecology, paleobiology, and evolutionary biology, business or other artefacts such as films, videos and photographs. Hanson et al., (2005) argued that documents are unobtrusive and can be used without imposing on participants; they can be checked and re-checked for reliability. This methodology emphasizes an integrated view of speech/texts and their specific contexts. Texts in documentary analysis can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theater, informal conversation, or really any occurrence of communicative language (Robson, 2002).

Two criteria pivoted the selection criteria of literature that serves as the bedrock forthis research. First, the selected literature for review needed to explicitly describe or explain the biosphere inaccessible terms and also the literature from the texts needed to be general and all encompassing. General texts according to Robson (2002) are respected journals and sections of journals focusing on these disciplines (from biomimicry, biology, ecology, paleobiology, bionics, ecomimicry, biomimetics and evolutionary biology) served as secondary sources for this treatise. Keywords such as principle, biomimcry, business, sustainable, ecology, ecomimicry and bionics were used to query databases such as Web of Science, JSTOR (a digital library founded in 1995 and originally containing digitized back issues of academic journals, and it now includes books and primary sources, and current issues of journals), and UNISA Electronic Databases such as Sage Journal, EBSCO, SABINET.The researcher practically reviewed all the content available on the website of the Biomimicry Institute (Missoula, MT, USA; www.biomimicry.net)

## 3 Evolutionary biomimicry

Biomimicry appears to be a forgotten science more than a truly new one, since many people across history have turned to nature for human design (Yurtkuran, Kırlı, &Taneli, 2013). Leonardo da Vinci for example drew sketches of a flying machine inspired by birds' wings. Hence, biomimicry is relatively an old concept whichhas been revamped (Benyus, 1997).

### *3.1 Early biological analogies: organizations as human bodies*

Bio-spherical resemblance can be traceable back to classic great Greek philosophers. Socrates, Plato and Aristotle compared the polis (city or state) to the human body (Hodgson, 1988and Goggans, 2004). Just like a system is described as a working together of different components of a body to complete a definite goal.The same principle works the same like organs and limbs as they co-operate in the body, citizens – who hold a variety of skills among themselves which are vital to the polis (city or state) – work together in service of the polis (Hodgson, 1988 and Goggans, 2004). In turn, each citizen needs a healthy polis to satisfy their various needs – the relationship between the individual and the organization is based on interdependence. Furthermore, the organisation of the polis (city or state) does not come as the result of a plan, but as an emerging process (Hodgson, 1988 and Goggans, 2004).

The Irish political theorist and philosopher Edmund Burke in the 18th century and the Scottich chemist Andrew Ure in the 19th century also used biological analogies to discuss both political and business organizations (Edwards, 2001). Andrew Ure, in 1835 compared his "three principles of action, the scientific, moral and commercial to the muscular, the nervous, and the sanguiferous system of an animal" and suggested that "three distinct powers concur to their vitality - labor, science, capital; the first destined to move, the second to direct, and the third to sustain(Edwards, 2001). When the whole are in harmony, they form a body qualified to discharge its manifold functions by an intrinsic self-governing agency, like those of organic life (Edwards, 2001, citing Ure, 1835).

In the early 20th century, business management theorist (Emerson, 1918 cited by Vincent, Bogatyreva, Bowyer, & Pahl, 2006) made several biological analogies. He suggested studying the "marvelously perfect and adaptable" nature of trees or cells to understand organizations: "cells, whether in plant or animal life […] know how to organize, to grow, to develop, to coordinate, to cooperate" (Emerson, 1918 cited by Vincent *et al.*, 2006). Emerson also found inspiration in the way natural organizations are adapted to a succession of sudden and rapid changes, and long periods of routine which provided not only for a strong growth but also for renovation (Emerson, 1918 cited by Vincent *et al.*, 2006)

In the dusky of 1950s an American biophysicist Otto Schmidt and US Air Force doctor Jack Steele conducted research on machine engineering inspired by nature, for which they coined the terms biomimetics and bionics respectively (Vincent *et al.*, 2006). However, whereas these approaches do take nature as a 'model', biomimicry as proposed by Benyus, adds the 'measure' and 'mentor' dimensions which refer to sustainability and a profound mindset shift in terms of our metaphysical relation to nature and collective destiny as a species. In that respect, biomimicry can be truly be seen as a welcome novelty (Benyus, 1997. But biological analogies have a long history in politics, economics and management.

### 3.2 Evolutionary Economics inspired by biology

Charles Darwin and Herbert Spencer's evolution and natural selection theory had a significant influence on early 20th century's economists (Foss, 2006). Darwin and Herbert also notably influenced Alfred Marshall who produced one of the most famous biological analogies which he compared young companies to young trees in the forest that struggle to grow in the shadow of their old rivals. Some die and others grow stronger and eventually "tower above their neighbors" before eventually dying of age (Marshall, 1925, quoted by Foss, 2006). This theory was the basis for neoclassical justification of free markets as advocated by Milton Friedman and put very simply by John D. Rockefeller (Foss, 2006). The growth of a large business is merely a survival of the fittest.

However the neoclassical school which has dominated economics thinking in the Western world in most of the 20th century, and whose Marshall is seen as one of the founders, eventually led to a "a historical, fully adapted, uniform equilibrium" view of the firm (Foss, 2006), in which there could be no variety, no selection, no evolution. Hence biological analogies disappeared from economics until 1970, with peripheral exceptions (Hodgson, 1995). UCLA economist ArmenAlchian did write a provocative paper called "Uncertainty, Evolution and Economic Theory" in 1950, which reintroduced the idea of evolution and variety. But his ideas were not picked up before a few more decades with Nelson and winter's Evolutionary Theory of Economic Change (1982). Their work challenged the neoclassical model of uniformity, rational agents and equilibrium with the ideas of variety, bounded rationality and non-equilibrium that resonate with system thinking to which we now turn (Hodgson, 1995).

### 3.3 Chaos, complexity and systems

The twentieth century saw the emergence of a new scientific paradigmatic shift with the cybernetics and systems theories, which cover various disciplines among which mathematics, psychology or biology (Freedman, 1992). Major authors include the English psychologist W. Ross Ashby or the Austrian biologist Ludwig von Bertalanffy who introduced his General Systems Theory in 1968 (Freeman, 1982). While traditional science following Galileo, Descartes and Newton – had led to atomism and reductionism and in turn focused on analysis, prediction, and control, this new science emphasized chaos and complexity (Freeman, 1982). Originated in science these new ideas eventually permeated economics, business and organisation management and challenged the established thinking – based in Western economies on Taylorism.

Taylorism was indeed a product of the 19th century scientific regard for reductionism: breakings down things into isolated parts in order to better control them (Freeman, 1982). In the 1960s studies by Scottish researchers Tom Burns and G.M. Stalker, and British organization sociologist Joan Woodward exposed the limits of Taylorism (Freeman, 1982). Their work paved the way to the contingency theory according to which there is no one best way to organize a firm: the optimal management depends on the environment. In the face of an unstable and uncertain environment, Taylor's mechanistic organization – based on the fragmentation of work, the separation of planning from execution, and the isolation of workers from each other – is too rigid to adapt quickly to change – and is outperformed by the organic type of firm, more flexible and open. Co-evolution can be seen as the reunion of the idea of interdependence between the parts and the whole – demonstrated by to body metaphor – and that of evolution (Hodgson, 1995 and Goggans, 2004).

## 4 Biomimicry for business sustainable management

Although the major focus of biomimicry is on the technical design, Benyus' book does comprise a chapter about business management concepts in relation to biomimicry (Benyus, 1997). She referred to Paul Hawken's 'Ecology of Commerce' (1994) where theof concept of industrial ecology was developed by Michael Braungart and William McDonoughin (2002) with 'Cradle to Cradle', which focused on closed-loops systems – where waste equals 'food' or input – and solution-based business models (Benyus, 1997). Beside the application to organization and team management, biomimicry for business management has however not grown as much as its design counterpart. Yet, beyond specific technical solutions, nature provides a powerful and rich source of inspirational metaphors. This requires an understanding of more abstract and conceptual principles that govern nature (Chang, 2010).

However, only recently since the biomimicry movement emerged has business management been addressed through Biomimicry for Creative

Innovation (BCI). Biomimicry for Creative Innovation (BCI) is a collective of professional change agents, biologists and design professionals founded in 2009 that translated the Biomimicry Guild's 'Life's Principles' into a more business-oriented framework (Benyus, 1997). Nature Principles' suggest a set of behaviours and qualities which simply echo the law of the system – the Earth – upon which our lives – let alone our business – depend. They are neither a model nor a theory, but rather a philosophy which reminds us that while humans are a special species on Earth, we are still part of nature and subject to its law (Kaplinsky, 2006).

Benyus holds that nature has nine basic operating principles that can be used as a beneficial model for human behavior and business operations. She further posits these laws, strategies and principles have beenfound to be consistent over generations, and over cultures (Benyus, 1997). More importantly, they can be observedby anyone who is interested in perpetuating a highstandard of living in harmony with nature.

## 4.1 Nine Principles of Ecosystem Biomimicry

By conducting a comparative analysis of related knowledge of ecosystem principles in the disciplines of ecology, biology, industrial ecology ecological design and biomimicry, a group of ecosystem principles aiming to capture cross disciplinary understandings of ecosystem functioning was formulated (Pedersen and Storey, 2007). It is intended that this biomimicry theory in the form of a set of principles based on ecosystem function could be employed by designers, to aid in the evolution of methodologies to enable the creation of a more sustainable built environment and business management (Pedersen and Storey, 2007). A set of ecosystem principles derived from comparing cross disciplinary understandings of how ecosystems function is detailed by Pedersen and Storey (2007) as follows.

Rewards cooperation and integration-makes symbiotic relationships work because nature is all about connections between relationships. Nature knows that we do not always haveto go it alone (Morgan, 1997). Moreover, nature allows predationand competition to exist through cooperation and natural ecosystems operate on a symbiotic, complex network of mutually beneficial relationships (Morgan, 1997). Working together is a rewarding and necessaryphenomenon in the natural ecology. Teams should be holistic and cross-functional, the same applies to business, people should be broadly trained rather than specialized so that they are interchangeable, and equipment should be general purpose and organized in cells that produce a group of similar products rather than specialized by process stage (Morgan, 1997, Hayes 1994). This idea is central to Business Process Reengineering, as promoted by Hammer (1990), discussing on Morgan's Six Models of Organization or holographic organization (Morgan, 1997) and to lean management, as observed with some of the most successful Japanese manufacturers (Hayes and Pisano, 1994,). In these organisations, capabilities must be distributed, according to the 'whole-in-parts' concept (Morgan, 1997). Bonabeau & Meyer (2001) commended on the collective behaviors of (unsophisticated) agents interacting locally, the agents follow very simple rules, and although there is no centralized control structure dictating how individual agents should behave whether its local or to a certain degree random, interactions between such agents lead to the emergence of "intelligent" global behavior, unknown to the individual agents. Natural examples include swarm intelligence including ant colonies, bird flocking, animal herding, bacterial growth, and fish schooling.

Nature always fits form to function, efficiently and elegantly. Zari (2007) and Reap (2005) describe the characteristic of form fitting to function as the use of limited materials and metabolic energy to create only structures and execute only processes necessary for the functions required of an organism in a particular environment.' Geometry and relative proportions found in nature are offered as examples of materials and energy efficiency by various authors (McKeag, 2013). Nature builds something that works because it was built within the confines of available resources. Also, the shape that somethingtakes depends upon what it is intended to do. Furthermore, nature's designs are organic andonly as big as they need to be to fit their function, rather than being linear (squares andblocks) and oversized, with a focus on form (Chang, 2010). Nature optimizes rather than maximizes. Organisms in nature co-evolve, work as teams, adapting to the changes of others (for example they fit form to function). Bio-Teaming catering to the pressing needs to face the major challenge present in today's organizations with respect to speed and responsiveness of teams. Thompson, a team dynamic expert has done an extensive research on understanding the methods of interactions and how teams achieve optimal co-ordination through non-verbal communication (Thompson, 2013). And according to his findings nature's team transmit required information relating to threats and opportunities in the surrounding atmosphere. For example, a honeybee does the waggle dance to indicate other bees about the presence of good nectar spot and each member takes independent actions to grab the opportunity (Thompson, 2013).

Nature depends on and develops diversity of possibilities to find the best solution(s), rather than a one-size-fits-all, homogeneous approach. Nature also depends upon randomness, more so than reason, because randomness creates anomalies that open opportunities for diversity (Chang, 2010). This randomness of entropy (the breakdown of order) allows for flexibility (Chang, 2010). A wide variety of plants and animals create the bank of diversity. The entire habitat is used, not just bits and parts of the system. Also, a system must be as diverse as its environment in order to remain viable remarked Chang (2010).

Systems respect regional, cultural and material uniqueness of a place. Systems are flexible, allowing for changes in the needs of people and communities - allowing for emergent diversity. Organizations' should obviously not only be aware of external stakeholders. Sensing and responding to their needs and motivation of their employees will improve their engagement and consequently organization's performance. Furthermore, decentralization of decision-making to employee level greatly enhances the organization's ability to sense and respond to changes in its environment as employees' diversity and creativity is a source of innovation in terms of process and product (Morgan, 1997).

Nature recycles and finds uses for everything. Being adaptive requires a smart management of natural and technological resources. There is a "need for a fundamental conceptual shift away from current industrial system designs, which generate toxic, one-way, "cradle-to-grave" material flows, and toward a "cradle-to-cradle" system powered by renewable energy in which materials flow in safe, regenerative, closed-loop cycles" (Mc Donough *et al*., 2003). This concept is directly inspired from nature where there is no waste as such, since waste is food. So "in closed-loop production systems, modelled on nature's designs, every output either is returned harmlessly to the ecosystem as a nutrient, like compost, or becomes an input for manufacturing another product" (Lovins *et al*., 1999). Benign manufacturing will ensure that biological output can be harmlessly recycled, and 'design for disassembly' will ensure that recycling any output will be technically and economically feasible (McDonough and Braungart, 2002). Everything becomes recyclable; everything has ause. Waste should be a good thing because it will be reused again for another purpose. Naturewants waste; it needs it to sustain itself (waste equals food or sustenance). Nature does not generate waste, per se; it does not foul its own nest because it has to live in it. In closed systems, each co-existing element consumes the waste of another as its lifeline! From this perspective, the word waste goes away because waste means to fail to take advantage of something (Lovins *et al.*, 1999).

Nature requires local expertise and resources. Just as nature requires a rich bio-diversity toadapt to change and to grow, local ecosystems require a rich range of interlocking resourcesand the involvement of many local species to create a vibrant natural community (Morgan, 1997). Locals are familiar with the boundaries within which they are living and are familiar with other specieswho share this space and who have developed their own adaptive expertise. Nature does notneed to import from outside. If it is not there, it cannot be used. Natural ecosystems are tiedto the local land; hence, sustainability requires reliance on local expertise and indigenous knowledge. Species that make up ecosystems tend to be linked in various relationships with other organisms in close proximity (Morgan, 1997). They typically utilize resources and local abundances from their immediate range of influence, and tend to be well adapted to their specific microclimatic conditions (Morgan, 1997).

Nature avoids internal excesses and overbuilding by curbing excesses from within. Nature has no ego to drive it like human beings. Nature remains in balance with the biosphere, that part of the earth and its atmosphere in which living organisms exist, that is capable of supporting life. Social insects can also teach a great deal about innovation and leadership. Their foraging strategies demonstrate a balance between exploitation of existing sources and exploration for new ones, an emerging and democratic decision-making process and a collective support to the chosen options (Bonabeau and Meyer, 2001). Honeybees' swarming – the splitting of the nest in two when the colony becomes too large – further suggests that organisations cannot grow forever. They will reach a point of diminishing returns when they should spin off some of their operations. Interestingly, there is no social-insect equivalent to mergers, only spin-offs (Bonabeau and Meyer, 2001).

Nature taps into the power of limits and manages not to exceed limits. Species flourish withinthe boundaries that surround them, and do not seek elsewhere for resources, as they useexisting materials sparingly (Morgan, 1997). Nature depends upon its constant internal feedback mechanismsfor information on how to maintain balance. It makes the most efficient use of its surrounding resources and uses limits as a source of power, a focusing mechanism, always conscious of maintaining life-friendly temperatures, harvesting within the carrying capacityof the boundaries and maintaining an energy balance that does not borrow against the future (Morgan, 1997). Learning to live with finite resources isa source of powerful creativity in nature as limits create power. This idea is the opposite of seeing limitsas a dare to overcome the constraints due to scarcity and to continue our expansion (Morgan, 1997). Nature teaches us to flourish within boundaries. For example, mycorrhiza fungi grow in a fungal mat in the ground between the trees that have access to both sun and water, distributing these necessary nutrients between the trees (Morgan, 1997). Mimicking the symbiotic relationship between the fungi and its associated trees, the relationship between the national body and the chapters would evolve from hierarchical to supportive, ensuring the flow of information and resources and leveraging local initiatives (Walker, 2010).

Nature runs on the natural sunlight. In the natural ecosystem all energyis sunlight and nature knows how to gather energy efficiently. Leaves follow the sun and photosynthesis is 95% efficient (Leitch, 2013). Plants use the sun to turn light into sugar, the natural food thatthe plant lives on - and then humans eat the plant. The photosynthetic process also useswater and releases the oxygen that everything absolutely must have to stay alive (Leitch, 2013). But, naturedoes this by using contemporary sunlight rather than heirlooms of sunlight (fossil fuels).The sun also acts as a timing and directional orientation or spatial organization mechanism for example biological rhythms such as diurnal and annual (or longer) cycles are determined by the sun‘s gravitational effect and the rotation of the earth(Leitch, 2013).

Migration patterns or flowering seasons in some species in response to these cycles are examples of the role the sun (or the earth‘s relative position to it) has in timing mechanisms in ecosystems.

If the built environment was based on this one principle alone as is advocated by sustainable design theory in general, where its energy was sourced from contemporary sunlight (including wind, hydro and biomass) and it was cited and organised according to climate, environmental impact would be considerably less and there may be consequent significant positive physical and psychological health impacts (Lovins *et al*., 1999).

Nature uses only the energy and resources that it needs. Lovins *et al*., (1999) who did a research on the ecology draws on the interest ratherthan the entire natural capital at its disposal. According Lovins et al., (1999) nature does not draw-down resources, meaning itdoes not deplete resources by consuming them unnecessarily. In order to make optimal andmaximum use of the limited habitat, each organism finds a niche, using only what it needsto survive and evolve. With the rise of the environmental crisis, resource depletion, pollution and climate change, environmental management has become a hot topic for business and most initiatives must aim at reducing negative impacts to the environment. Rather than addressing the cause of the problem the designers must goals and using practices that sustain a fundamentally flawed system" (Mc Donough et al., 2003). As reactive eco-efficiency is replaced by proactive eco-effectiveness, business evolves to solutions-oriented and closed loop models (Lovins et al., 1999). The only sustainable approach is a net positive impact on nature. Ultimately, business must restore, sustain, and expand the planet's eco-systems so that they can produce their vital services and biological resources even more abundantly" (Lovins et al., 1999)

## 4.2 Nature as Model, Measure and Mentor

Biomimicry is a new way to view and value nature (Benyus, 1997). According to Benyus, if people want to consciously emulate nature's genius, they need to look at nature differently and as teacher not an enemy. In biomimicry, people look at nature as model, measure, and mentor. Consulting life's genius brings natures wisdom to bear on today's pressing, messy, wicked problems (Benyus, 2002).

### 4.2.1 Nature as model

People would draw on nature to model new forms of behavior. Nature can provide insights into the quest for new ways to frame day-to-day life (Paul, 2010). In nature, there is no waste, and there are no borders separating things. There are just nested systems wherein each part of the system supports the existence of the other parts. Modeling this interconnectedness and interrelatedness would respect the needs of the other species. As Benyus (2002) affirms, that humans are one votein a parliament of 30 million other species (Biomimicry, Guild, 2007). Humanbeing's long standing arrogance (hubris) would nolonger be the model for human behavior. Communities modeled on nature learn how to stay put withoutbankrupting their ecological capital. They learn howto optimize rather than maximize (Bhushan, 2009). The latter focuseson increasing measures such as revenue, profits, andmargins while optimizing involves making a systemor design as effective or functional as possible.

### 4.2.2 Nature as measure

Ausubel (2005) posited that people would turn to nature for guidance, standards and to use to judge the rightnessof their innovative behaviors and decisions.Are they life promoting? Does the resultant action fit with nature? Will the results or the impact last in a positive way? (Ausubel, 2005). These questions are judged using an ecological standard (Benyus, 1997).What Benyus (1997) refers to as the Nine Laws of Nature, Life's Principles (discussed earlier)? When a natural ecosystem reaches maturity, it is populated by mature living organisms that act in life affirming ways, grounded in the nine laws of nature (McDonough & Braungart, 2002). Onemeasure of rightness is ensemble or living in groups. In nature, an ensemble is a group of complementary parts thatcontribute to a single effect. Ensemble living meansorganisms (humans and other species) learn to maintain a dynamic stability, like dancers, continuallyinteracting without harming or compromising eachother (stepping on each other's toes in the dance).The parts of the ensemble that manifest (rise upfrom the whole) are still enfolded in the whole (Ausubel, 2005).

#### 4.2.3 Nature as mentor

McDonough & Braungart (2002) stated that people's relationship with nature would change from master to teacher and mentor. This new relationship would mean people have to steward nature if they want to continue to have something from which they can learn a source of ideas, innovation and inspiration (Robinson, 2004). Nature is a source of knowledge fit for imitation. Mentors are trusted friends, counselors or teachers, usually a more experienced person. Nature has had 3.8 billions of years to evolve and gain experience of living systems in evolving complex, efficient, resilient and adaptive systems (Benyus, 1997). Humans would do well to watch and learn rather than exploit and destroy as the answers are there in nature if peopletake the time to discover and apply innovations (Robinson, 2004). Nature has figured out what works, what is appropriate and what last and has a spirit of cooperation, flexibility and diversity that has made her a reliable and long-term survivor. As mentees, humans would be guided by humility (rather than arrogance) as they begin to learn from" nature so they can learn to fit in alongside the rest of nature (Vincent et al., 2006).

## 5 Biomimicry and Leadership Lessons

McKeag (2009) stated that there are a surprising number of behaviors that occur in nature and that can be related to business organizational structures and we only need to look at some of the interesting habits of one of the most common creatures in the world to seehow complex structures can be developed by many hands making light work. There is a great need for better leaders. Certainly if one wants to be successful, one should develop one’s leadership skills. Animals can be good examples of leaders for they lead their groups by influencing, showing examples, guiding and constantly communicating with their followers. A few examples are given in the succeeding subsections for illustrative purpose.

### 5.1 Eagle

One leadership lesson drawn from nature is the helicopter vision of an eagle. It is said that the eagle soars or flies high when it is hunting. From the way of the eagle, the leader can learn the need to have a high vantage point, giving vision to the people (Ozirney, 2009 cited by Williamson et al., 2010).

When eagles are 30 years old, they go through a process of renewal. Finding a hidden place high in the mountains, the old eagle with curved beak begins to claw at its face, and tear out the old feathers that by now become less airborne. As a result, it bleeds badly. But this is vital for the eagle in order to renew its strength. If the eagle did not do this, it would not be able to live to its normal 40 years (Ozirney, 2009 cited by Williamson, et al., 2010). It is thus vital for the eagle to undergo the change process to gain its strength and this builds the eagle’s resilience. By the same token, mankind simply needs to accept the change process, learn and grow. It is part of life and living.

### 5.2 Ant society

According to (Johnson and Heimann, 2000 cited Wyles, 2012) the ant is a very busy creature living in a complex system. Collectively, a colony of 40,000 ants has the brainpower of one human being and at the top of the colony is the queen ant, which has a whole army of worker ants that serve her and look after her precious eggs (Johnson and Heimann, 2000 cited Wyles, 2012). To not do so would put the existence of their entire colony at risk. In addition to protecting and serving the queen, worker ants have different roles and responsibilities. Some build, some are foragers, some are defenders, some are explorers for new nest sites and others have the role of tidying and putting out the rubbish. Relating this to the business world, with a chief executive at the top and numerous workers with different roles to play to ultimately keep the organization profitable and surviving in a hostile environment called ‘businesses. The workers are committed to their role, because the company provides them with the ability to buy food and shelter, and with a sense of purpose. They have a shared goal whose primary objective is profitability and, ultimately, their survival. Occasionally, in the ant kingdom, the Slave Maker Ant will raid the nests of other ants and steal their pupae. When these new ants hatch, they work as slaves within the new colony. We could perhaps call this an acquisition (Johnson and Heimann, 2000 cited Wyles, 2012).

### 5.3 Mentoring matriarchs in elephants

According to a research done King (2013), elephants recognize the importance of mentoring within their social structure, the most obvious being the matriarch of a herd of elephants. The matriarch is usually the oldest and most experienced female elephant; the rest of the herd is usually made up of her daughters and their calves. She influences the herd more than any other group or individual. In a crisis, they will rely on her to make the major decisions about their course of action. As the first and eldest elephant, the matriarch is instrumental in teaching her daughters how to care for their young, who will then help care for their younger siblings, training and preparing them for when they have their own calves. Sometimes, the matriarch is not a born leader and another will step up to the task – an elephant with the qualities required to nurture, teach, build confidence and earn respect. For elephants this is never about overpowering an individual to achieve a leadership position, as in some other social structures within nature. Rather, it may present through a challenge to the authority of the matriarch or a decision being made by the rest of the herd. It would be great if all teams worked as smoothly as this, yet the reality is that conflict can easily occur if two people are jostling for leadership position. The key to avoiding this situation is to set clear boundaries and have clear roles and responsibilities. This clarity within the team cements it and allows members to get on with the activity that is essential to the project.

### 5.4 The wolf pack

Towery (1997) did a research on wolf's pack and discovered that wolves have a very sophisticated group dynamic within every pack. Wolves naturally organise themselves into packs to maintain stability and assist with hunting. He stated that the groups are usually between three and seven, are always led by an alpha male and alpha female, and often comprise their offspring until they mature and venture elsewhere.

The attitude of the wolf is always based upon 'what is best for the pack' and he knows explicitly what needs to be achieved for its survival (Towery, 1997). While there are alpha males and females, each member of the pack understands exactly what is expected of them. In truth, there are usually no more than five to eight wolves howling in a pack. The secret is that the wolves are always careful not to duplicate each other. Each wolf assumes a unique pitch, respecting the individuality of the other members of the pack. This is also true for team communication: by expressing their own uniqueness, while respecting and encouraging the uniqueness of others, the unity of the team becomes a strong, formidable force. However, for the wolf pack, there are strong consequences for failure, if they don't work together, they will be lonely and go hungry (Towery, 1997).

In business organizations, too, the consequences of failure should be clear, yet the reality is that there are often few consequences for a lack of achievement or failure to deliver. Therefore, as well as the purpose of the team being made clear, so too must be what constitutes failure (Johnson and Heimann, 2000 cited Wyles, 2012). Without both aspects being defined, responsibility may not be taken by every individual, causing resentment and further conflict. When individuals take responsibility for their input to the group, great things can happen. At the performing stage of a team, members of the group are self-motivated and knowledgeable and can handle the decision-making process without supervision. Dissent is expected and allowed, as long as it is channeled through a means that is acceptable to the team. When the team has ironed out its differences, it can be a formidable force against competition.

### 5.5 Achieving more through communication and teamwork (bio-teams)

By examining the insect world, Thompson (2013) discovered that the gathering of information can make a colony more productive. Scientists have found that a foraging bee that has found a good food source will perform a dance for other bees in the hive, which indicates the location of the food source. This information allows the other bees to tap into the food source, thereby becoming more productive within the hive. Pooling this information helps the whole colony achieve more and this can easily be related to the purpose of working in teams. Each person has a role to play within the team and they can achieve more collectively than they can by working separately. A popular animal analogy to this 'together everyone achieves more' concept is the *Lessons from Geese* prose, which was believed to have been first written by Robert McNeish in 1972 (cited by Thompson, 2013). He had observed geese for many years and was particularly interested in their flight formation and how they flew such great distances during migration. He noted that, as each goose flaps its wings, it creates uplift for the bird that follows. By flying in a V formation, the whole flock has a far greater flying range than if each bird flew alone. When the lead gooses tires, it rotates back into the formation and another goose flies to the point position, so that different geese take it in turns to keep up the speed of migration (Thompson, 2013). In our business world, the appointed leader does not always need to be the person to give pace to the project: there may be different leaders at different stages of its development. The most important point is that the team understands the direction in which it is heading and that it can achieve its goal quicker and more easily when its members work together and are willing to accept and give help whenever it is needed.

### 5.6 Snake

Hayes (2007) affirms that snakes such as pythons are said to have swallowed dogs or even huge animals such asbuffaloes; this is because of their flexible jaws which can open up to accommodate thesize of their prey. Here, we can liken this to the confidence and ambitions of a leader.The leader is usually big-hearted and magnanimous, wanting to move the people towardsthe vision he or she envisages. Snakes also shed off or change their skins often; here, leaders need to lead change by being fluid in accepting and managing change. Creating a sense of urgency, they motivate their people to accept and implement the change. Leaders celebrate successes, no matter how little; and they also get their people to see the benefits of the change (Hayes, 2007). This is to keep the change momentum going while moving towards realizing the change and it is the key to the citadel of business success.

### 5.7 When the Emperor says adjourn

Williams (1995) who did a research on Penguins work as teams discovered that when a penguin republic has done a good job they adjourn. In an organization it could be when sales targets are being consistently met, or when all product glitches have been ironed out. Emperor penguins live in the Antarctic and they are the only animals whose breeding season is in winter (Williams, 1995). The teamwork involved in ensuring their young ones survivessuch harshestcold winter conditions. After laying her eggs, the female transfers full responsibility for the project of nurturing them to her male partner, while she disappears to feeding grounds for two months for vacation. During this time, the males spend much of their time sleeping and huddling the young ones together gently rotating as a group, so that they take turns on the outside to warm the kids. A single penguin would perish from the cold and lose his offspring. Two months later, and after the chicks have hatched, the females return and the males then take their turn to feed – their job is done – but they return approximately 24 days later to help feed the chicks and support the mother by taking turns with her to visit the feeding ground (Williams, 1995). After about two months, the chicks have theirjuvenile plumage and can start their independence, although they may be topped up with food by their parents for a short time, before full independence. The parenting is done and it is then time for the next project to start.

## 6 Critiques

The documentary literature review analysis has also discovered some schools of thought who arethe idea that technically, the business environment is much more chaotic in terms of resources than nature (Iansiti & Revien, 2004). Sunlight and other resources, for example biological nutrient flow in nature are "fairly constant or at least follow predictable cycles", while "inputs like technology in business ecosystems are constantly changing" (Iansiti & Revien, 2004) "Nature presents itself as being objective and real in every aspectwhereas organizations, and their environments can, to some extent, be understood as socially constructed phenomena" (Morgan, 1997). Therefore life of man in societyis incidentally a biological fact, and has characteristics that are not reducible to biology and must be explained in the distinctive terms of a cultural analysis" (Hofstadter 1992, cited by Levallois, 2011).

## 7 Conclusion

The documentary literature review analysis has shown and demonstrated that Nature's Principles as a whole appear well compatible with business literature and form a comprehensive yet conceptual framework which business can make use for their sustainability. In the light of this article, nature appears to be endowed with solutions in a holistic framework that are highly relevant and recommendable for current business operations. Literature review has shown that most business theories can mimic perfunctorily from nature, among which: Total Quality Management (TQM), Learning Organizations, Strategic Innovation Management, Sustainable Supply Chain Management, Core Competences and Strategic Intent, Management by Values, Natural Capitalism, Cradle-to-Cradle and Solutions-based business models (Finchman and Rhodes, 2004).

## 8 Recommendation and way forward

Paul (2010), based on few of the examples stated that it will be interesting to study on how businesses can take advantage of biomimicry in improving their management and how they can move towards calling themselves a "bionic enterprise" as a survival strategy for business sustainability. The examples also provide a hint that businesses can create conditions conductive to life or rather society at large. Further research and development can definitely bring break through solutions and strategies in: Going Green in business, Human Resource Management, Project Management and Marketing intelligence. On a peripheral and tangential note, biomimicry can be one of the quintessential tools which businesses can use to enhance their corporate social responsibility (CSR) model and environmental management.

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# COMPETITIVE INTELLIGENCE AS AN ENABLER FOR FIRM COMPETITIVENESS: AN OVERVIEW

***Alexander Maune ****

**Abstract**

The purpose of this article is to provide an overview, from literature, about how competitive intelligence can be an enabler towards a firm's competitiveness. This overview is done under the background of intense global competition that firms are currently experiencing. This paper used a qualitative content analysis as a data collection methodology on all identified journal articles on competitive intelligence and firm competitiveness. To identify relevant literature, academic databases and search engines were used. Moreover, a review of references in related studies led to more relevant sources, the references of which were further reviewed and analysed. To ensure reliability and trustworthiness, peer-reviewed journal articles and triangulation were used. The paper found that competitive intelligence is an important enabler of firm competitiveness. The findings from this paper will assist business managers to understand and improve their outlook of competitive intelligence as an enabler of firm competitiveness and will be of great academic value.

**Keywords:** Competitive Intelligence; Firm Competitiveness

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## 1. Introduction

In an era of globalization, competitors need to incorporate new approaches in managing their intelligence processes to remain competitive. Globalization of markets, resulting from advances in communication and transportation, rapidly changing political climates and ideologies, and the reduction in trade barriers has opened doors to new international opportunities and competition for business. With the invading of foreign firms in domestic markets, firms must aggressively identify 'windows of opportunity' and then institute programmes to achieve continuous improvement, creativity and innovation to enhance their competitiveness and remain relevant. Competitive intelligence (CI) has brought intelligent knowledge for decision making and strategy. According to Viviers et al., (2004), intelligence is the active use of information to guide decision making in order to reach the goals set by an organization. The business practice of competitive intelligence is the function of turning information into intelligence (Viviers et al., 2004). Literature has shown CI to be an efficient instrument for improving firm competitiveness, though its applicability in developing nations has yet to be fully examined. Sound CI practice is presented as a key element in providing organizations with appropriate "corporate radar" and actionable intelligence (Fuld, 1995; Pollard, 1999 in Bergeron and Hiller, 2002).

Fleisher and Bensoussan (2002) in Juhari and Stephens (2006) and Bergeron and Hiller (2002) regard CI as an old phenomenon in both scholarship and business practice. As in many fields of scholarship, history connects the field of CI to philosophical views and methodologies found documented by early war and economics scholars, from which CI is already thought to have originated. Hence, its employment may be traced to a long and winding history. Juhari and Stephens (2006) state that history has also shown that the evolution of CI borrowed elements and processes from the military, government administration, business administration, marketing, economics, and to some extent intelligence-driven cultures. They further state that prior to Prescott`s placement of the 1990`s as being the refined 'modern CI', elements of the intelligence cycle for business applications had already been in practice as formal processes in China, Japan, France, Great Britain and other parts of the world. Chin (1997) in Juhari and Stephens (2006), reports that China had records of observations and Stratagems for ensuring its sustainability as far back as 2 500 years ago, c. 500 BC. He further argues that the practice of employing, Eunuchs, as envoys, business advisors and spies to further the 'leadership' of Imperial China in a number of industries was a good example of intelligence. By 204 BC, Rome was known as the greatest organized military force in the world and as such thrived on trade and competition for world goods. In 1234, the Mongols had already institutionalized their system that served to provide CI to their whole Government and business administration (Juhari and Stephens, 2006). Teo (2000) in Juhari and Stephens (2006) states that, today, CI is receiving even more attention from top management than before. The origins of CI was to give some competitiveness of some sort either militarily or business wise. Although CI is considered to be an old phenomenon (Bergeron and Hiller, 2002 and Juhari and Stephens, 2006) especially in developed countries, its slow embracement in developing countries poses it as a new phenomenon thereby creating a huge gap in the board of knowledge.

### 1.2 Research purpose

The purpose of this article is to provide an overview, from literature, about how competitive intelligence can be an enabler towards a firm's competitiveness. This paper seeks to answer the question "How competitive intelligence can be an enabler towards a firm`s competitiveness?" This overview is done under the background of intense global competition that firms are currently experiencing. In light of this, the paper seeks to understand how CI enables firm competitiveness and how are firms utilizing CI as an enabler of competitiveness. It also seeks to get an overview from other researchers on their view of CI as an enabler of firm competitiveness. This paper seeks also to fill the existing knowledge gap on how CI enables firm competitiveness. This paper used a qualitative content analysis as a data collection methodology on all identified journal articles on competitive intelligence and on firm competitiveness.

The remainder of the paper presents definition of terms, the CI process as an enabler of firm competitiveness, followed by the methodology used then followed discussion of findings and then subsequently conclusion and recommendations together with areas for further research.

## 2. Definition of Concepts

### 2.1 Competitive Intelligence definition

"Definitions," to paraphrase Samuel Johnson (1709-1784), are like watches and none is ever exactly correct. The concept of CI is multifaceted and fuzzy. Many definitions have been given for CI (Oubrich, 2011; Weiss and Naylor, 2010). Fleisher and Wright (2009) state that most of these definitions that have emerged over the years differ only in terms of semantics and emphasis. McGonagle and Vella (2002) define CI to involve the use of public sources to develop data on competition, competitors, and the market environment. It then transforms, by analysis, that data into [intelligence]. Public, in CI, means all information you can legally and ethically identify, locate, and then access. CI is also called by a lot of other names: competitor intelligence, business intelligence, market intelligence, and technology intelligence. The most common difference among them is that, the targets of the intelligence gathering differ. Deschamps and Nayak (1995) categorise three types of competitive intelligence:

1) *Market Intelligence*. This is needed to provide a road map of current and future trends in customers' needs and preferences, new markets and creative segmentation opportunities, and major shifts in marketing and distribution.
2) *Competitors' Intelligence*. This is needed to evaluate the evolution of competitive strategy over time through changes in competitors' structure, new product substitutes and new industry entrants.
3) *Technological Intelligence*. This is needed to assess the cost/benefit of current and new technologies and to forecast future technological discontinuities.

### 2.2 Business Intelligence

In the normal management practice of companies, the competitive intelligence is most often given in the context of the term business intelligence (BI). Business intelligence is a field of activity, parent to all the processes of intelligence in the business segment. Here are monitored, collected, analysed and processed data about the business environment as a whole, not only about the customers, the market or competitors. The same term is used in connection with the management, analysis and evaluation of large data volumes, mostly in the context with saving raw data, their administration and data mining. The overall objective is seen in providing the management with intelligence, which helps to make better decisions that result in a better achievement of the company`s objectives. Business intelligence represents a complex of approaches and applications of information systems, which almost exclusively support the analysis and planning activities of enterprises and organizations and they are built on the principle of multi-dimension, which we understand here as ability to look at the reality from several possible angles (Novotný et al., 2004).

### 2.3 The meaning of firm Competitiveness

Survival and success of firms in turbulent and dynamic environments increasingly depend on competitiveness. Competitiveness has been described by many researchers as a multidimensional and relative concept. Competitiveness as a multidimensional concept refers to the ability to create sustainable competitive advantages that can be used at national, industry and firm level (Vilanova et al., 2009 cited in Marín, Rubio and Maya, 2012). Competitiveness can be looked at from three different levels: country, industry, and firm level. Competitiveness originated from the Latin word, competer (Murths, 1998), which means involvement in a business rivalry for markets. The concept of competition itself is being redefined (Cronin and Crawford, 1999a, 1999b; Shapiro and Varian, 1999; Von Krogh, Ichijo & Nonaka, 2000 all in Bergeron and Hiller, 2002) with competitor-focused strategies becoming increasingly viewed as essential for survival. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills, and ideas move freely across geographical borders (Murths, 1998). Firm competitiveness can be defined as the ability of firm to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities (D'Cruz, 1992). Firm competitiveness processes are those processes, which help identify the importance and current performance of core processes such as strategic management processes, human resources processes, operations management processes and technology management processes. It enhances the ability of an organisation to compete more effectively. Firm competitiveness is of great interest among practitioners. Nations can compete only if their firms can compete, argues Christensen of Harvard Business School. Porter (1998) states that it is the firms, not nations, which compete in international markets. DC (2001) states that competitiveness involves a combination of assets and processes, where assets are inherited (natural resources) or created (infrastructure) and processes transform assets to achieve economic gains from sales to customers. In today's turbulent business environment, dynamic capabilities, flexibility, agility, speed, and adaptability are becoming more important sources of competitiveness (Barney, 2001; Sushil, 2000). O'Farell et al., (1992, 1989, and 1988) have conducted a number of studies on the relationship between sources of competitiveness and firm performance, with focus on price, quality, design, marketing, flexibility, and management.

## 3. The competitive intelligence process as an enabler for firm competitiveness

### *3.1 General perspective*

According to Combs and Moorhead (1993), CI has undergone a groundswell of interest in recent years, an interest in part fueled by an increasing availability of information itself (the much-touted information explosion) and an increase reflected in the proliferation of commercial databases world-wide. In purely competitive terms, no time before ours has presented so many opportunities or dangers (Combs and Moorhead, 1993). Given this changing scene, CI has increased its importance as a source of firm competitiveness. Reliable global information has become central to national success, whether the need is for knowledge of an industry, a market, a product or a competitor. As Frederick the Great once said, "It is pardonable to be defeated, but never to be surprised" (Rouach, 1996 in Bergeron and Hiller, 2002, Kahaner, 1996). With today`s information resources, and CI programmes that reflects the needs of the corporation, surprises can be minimized since CI helps and directs firms in spotting new opportunities or avert disasters as well as empowering them to monitor their developmental cycles. CI has become a worldwide phenomenon.

CI has become a worldwide phenomenon not limited to a few countries or companies in certain industries. Calof (1998) in Viviers et al., (2005) states that most of the Fortune 500 companies use CI extensively as a source of their competitiveness and to sustain their position. Kahaner (1997) in Viviers et al., (2005) states that countries that include France, Japan, Sweden and the USA are more advanced in their embracement of CI as an enabler of firm competitiveness. CI has become an important enabler for achieving firm competitiveness in these countries. The worldwide development of the Strategic and Competitive Intelligence Professionals (SCIP) is another indicator of CI growth globally. The SCIP Chapters have taken root in almost every continent (Viviers et al., 2005). Leaders in the field of CI education are France, Japan, Israel, Sweden, and Korea while Europe is beginning to appreciate the importance of CI as an instrumental source to enhance competitiveness (Viviers et al., 2005).

CI is far from new since for centuries before marketing was a gleam in a Harvard Professor`s eye, firms have at least watched their competition, to learn and pick up useful ideas. Had one asked a Roman or Greek artisan producing spears or amphora whether they studied their competitors they would probably have said, 'of course we do.' West (1999) further states that it is hard today to imagine that any company, other than monopolies or the fatally arrogant, would fail to take at least some account of their competitors when developing their plans or pitching for business.

Competitiveness assumes that a firm's strategy matches internal competencies with external opportunities to provide a source of sustainable competitive advantage through which it can reach certain goals, such as profits generated by the market share. However, for any competitive advantage to be sustainable, the strategy must be acceptable to the wide environment in which the company competes (Werther and Chandler, 2006 cited in Marín, Rubio and Maya, 2012). The concept of CI as a process has long been proposed as an effort to increase a firm`s competitiveness (Montgomery and Urban, 1970; Pearce, 1976; Montgomery and Weinberg, 1979; Porter, 1980 cited in Viviers et al., 2002). Porter (1980) cited in Cuyvers et al., (2008) states that CI is the component of Business Intelligence (BI) aimed at gaining strategic competitive advantage. CI is an information system which many firms make use of to determine their competitiveness (Van Brakel, 2005 in Iyamu and Moloi, 2013, Guimaraes, 2000 in Iyamu and Moloi, 2013, Viviers and Muller, 2004 in Iyamu and Moloi, 2013). According to McGonagle and Vella (2002) state that CI is becoming more and more vital to firm survival in today`s dynamic markets through improved effectiveness and efficiency. In order for a firm to gain its own competitive advantage using information systems such as CI, it has to ensure that its focus is on its structural capabilities (Song and Li-Hua, 2005 in Iyamu and Moloi, 2013).

For many firms, CI is often intended to be a differentiating factor within the market, as it is able to stand in a better position within the market place. Iyamu and Moloi (2013) state that CI as a strategic business tool has long been proposed in an effort to increase a firm`s competitiveness. For a firm to utilize its CI efforts successfully there has to be firm awareness of CI and a culture of competitiveness. Effective information handling is of paramount importance within a firm.

Viviers et al., (2004) state that successful enterprises recognize the value of managing their information assets effectively and efficiently. The effective handling of critical information resources can make all the difference in the enterprise`s survival against aggressive competitors. Viviers et al., (2004) argue that making the most of available information through the CI process is a necessary activity for any business to remain competitive or even survive in a competitive world. According to Fleisher and Bensoussan (2002) in Viviers et al., (2005), the global economy is increasingly characterized as a knowledge and innovation economy where knowledge and innovation are the new currencies. The challenge is now on how to differentiate one firm from the next. Porter (2004) adds that in today`s competitive global business environment, companies need the skill to translate indicators in the competitive environment into business opportunities and to apply the intelligence in decision-making and developing competitive strategies.

### *3.2 African CI perspective*

Limited research has been conducted or published on CI practices in African countries (Viviers et al., 2005). The state of CI remains fragmented in Africa. With the exception of South Africa, though much has not yet been done, other African countries are quite when it comes to CI. SCIP was launched in SA in the mid-1990s and albeit slowly, companies are becoming increasingly competitive minded. Until that time, research into CI in South Africa had also been limited. The first comprehensive research projects [in Africa] were launched in the beginning of the century in South Africa. Before that, only a few papers were written on CI (Viviers and Muller, 2004). Luiz (2006) in Du Toit and Strauss (2010) states that as a result of factors such as history, culture, diversity, geography, and political and institutional landscape, the business environment in Africa is highly complex, and this has affected the competitiveness of the continent and of its firms.

For CI to flourish in Africa and for the discipline to be implemented and used optimally, there has to be an appropriate awareness of CI and a culture of competitiveness. Mersha (2000) in Du Toit and Strauss (2010) points out that African society also tend to be collectivist. Collectivism, in contrast to individualism, refers to a society, in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty (Mersha, 2000 in Du Toit and Strauss, 2010). Without proper empirical evidence of CI as a source of firm competitiveness, awareness and attitudes that favour both CI and information sharing, it is difficult to develop CI programmes within Africa (Viviers et al., 2005). With the exception of a recommendation from Dou, Dou and Manullang (2005) in Du Toit and Strauss (2010) that developing countries should design a national competitive intelligence system (Morocco has already made progress in this regard), no other information on CI practices in other African countries is available.

## 4 Research Methodology

### *4.1 Data Collection*

This paper used a qualitative content analysis as a data collection methodology on all identified journal articles on CI and firm competitiveness. Qualitative content analysis has been defined as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hsieh and Shannon, 2005). Qualitative content analysis hence involves the systematic analysis of social artefacts to provide an in-depth understanding of texts and their specific contexts. Qualitative content analysis was used to explore and identify overt and covert themes and patterns embedded in a particular text. According to Zhang and Wildemuth (2009), qualitative content analysis pays attention to unique themes that illustrate the range of the meanings of the phenomenon rather than the statistical significance of the occurrence of particular texts or concepts.

To identify relevant literature, academic databases and search engines were used. Moreover, a review of references in related studies led to more relevant sources, the references of which were further reviewed and analysed. To ensure reliability, only peer-reviewed articles were used. Trustworthiness ensures the quality of the findings and increases the confidence of the reader that the findings are worthy of attention. Many different strategies are employed in qualitative research to establish trustworthiness (Krefting, 1991) and this paper adopted triangulation to enhance its trustworthiness. This involved the use of multiple sources and perspectives to reduce the chance of systematic bias. The paper achieved this by: source (data was collected from different published and peer reviewed journal articles from different sources), methods (the researcher believed the depth of the journal articles and the methodologies used ensured the credibility of the data), and researcher (the paper was reviewed by the mentor, critical reader and language editor).

## 5 Discussion of findings of literature review

The purpose of this article is to provide an overview, from literature, about how CI can be an enabler towards a firm`s competitiveness. This overview is being done under the background of intense global competition that firms are currently experiencing. To help provide this overview, a qualitative content analysis of articles from peer-reviewed journals was done. Select studies have been categorized according to the Asset-Processes-Performance (APP) framework in Table 1. Table 2 below shows that there have been few studies under Assets, and more studies under Processes and Performance. This highlights the importance of processes in firm competitiveness.

**Table 1.** APP framework for categorization of firm competitiveness

| Main category | Subcategory |
|---|---|
| **Assets** | • Human resources<br>• Firm structure and culture<br>• Technology<br>• Resource Based View (RBV) |
| **Processes** | **Strategic management processes**<br>• Competency<br>• Competitive strategy<br>• Flexibility & adaptability<br>**HR processes**<br>• Design and deploy talents<br>**Technological processes**<br>• Innovation<br>• Systems<br>• IT<br>**Operational processes**<br>• Manufacturing<br>• Design<br>• Quality<br>**Marketing processes**<br>• Marketing<br>• Managing relationships<br>• Persuading power |
| **Performance (Financial and non-financial)** | • Productivity<br>• Finance<br>• Market share, differentiation, customer satisfaction<br>• Profitability, Cost, price<br>• Variety, product range, new product development<br>• Efficiency, Value creation |

*Source: Adapted from Ajitabh & Momaya (2004)*

**Table 2.** Literature review and findings of how CI is an enabler of firm competitiveness

| Author (s) | Themes/elements | Key Findings |
| --- | --- | --- |
| Sewdass and Du Toit (2014); Heppes and Du Toit (2009); Pellissier and Nenzhelele (2013); Du Toit (2004); Lackman et al., (2000); Viviers et al., (2004); Heppes and Du Toit (2008); Mugo et al., (2012); Alstrup (2000); Du Toit and Strauss (2010); Viviers et al., (2005) | **Assets** (HR, firm structure, firm culture, technology, resource based view) | • Firm competitiveness is realized through enhanced CI culture and awareness amongst all employees.<br>• Firm awareness of CI information needs and an enhanced culture of competitiveness through constant sensitization of employees as to their role and function in CI.<br>• Participation of all employees from top management to the lowest personnel to gather intelligence.<br>• Through huge capital investment in technology and sufficient CI analytical resources.<br>• Properly developed CI functions and enhanced firm structures enhance firm competitiveness.<br>• The prominent CI resource requires cultivation and training in how to use internal and external human networks to benefit the firm.<br>• Research has shown sustained level of awareness of CI and a CI culture.<br>• Through RBV. |
| Cory (1996); Bartes (2012); Agnihotri and Rapp (2011); Taib et al., (2008); Weiss & Naylor (2010); Haataja (2011); Muller (2005); Cucui (2009); Peltoniemi & Vuori (2008); Wright et al.,( 2009); Heppes & Du Toit (2008); Du Toit & Strauss (2010); Pellissier & Nenzhelele (2013); Thompson & Strickland (2003); Bateman & Suell (2002); West (2001); Viviers et al., (2005); SCIP (2004); Mugo et al., (2012); SCIPAUST (2004); Du Toit (2004); Muller (2009); Swedass & Du Toit, 2004; Calof & Viviers (2001); Muller (2002); Fleisher and Bensoussen (2002); Mohan-Neill (2006); Nwokah & Ondukwu (2009); Teo & Choo (2001); Vedder and Guynes, (2000 & 2002); Culver (2006); Salvetat and Laarraf (2013); Dishman & Calof (2008); Gilad (2004); Trim & Lee (2008); Courtney et al., (2009) | **Processes** (strategic management, HR, technology, operational, marketing) | • Benchmarking, business process reengineering, competitor profiling, core competence analysis, critical success factor analysis, customer satisfaction surveys, divestment analysis, experience curves, financial statement analysis, five forces industry model, industry scenarios, industry segmentation, issue analysis, management profiles, market signaling, merger and acquisition analysis, multipoint competition analysis, political and country risk analysis, portfolio analysis, reverse engineering, stakeholder analysis and assumption, surfacing and testing, case studies, strategic alliance, strategic group analysis, strengths and weaknesses, synergy analysis, technological assessment, value chain analysis.<br>• Supporting strategic decision-making, supporting strategic planning and implementation, especially in the fields of marketing, IT and R&D<br>• Supporting competitor assessment and tracking<br>• For providing customers with greater value and satisfaction than their competitors, firms must be operationally efficient, cost effective, and quality conscious.<br>• Using advanced CI software provides a |

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| | | vital added value to firms.<br>• Identifying early warning and blind spot of threats and opportunities<br>• CI in strategic business activities also include uncovering business opportunities and problems, providing the basic for continuous improvement, improving speed to market and supporting rapid globalization, improving the likelihood of company survival, increasing business volume, providing better customer assessment, and aiding in understanding of external influence.<br>• Firm awareness of competitors' actions and activities. CI has been described as a strategic tool that helps enterprises to be aware of their competitors' behaviors and plans.<br>• CI in implementation of robust IT systems.<br>• CI has led to high technological innovations in the banking sector. It has led to high complicated banking systems which have seen the introduction of ATMs with functionalities to receive and count cash and credit customer accounts instantly without human intervention.<br>• CI improves the competency and competitive strategy through alerting a firm constantly of changes in the competitive environment.<br>• CI enhances firm`s CA through better predictions of the business environment`s evolution.<br>• Providing better support for the strategic decision making processes. Revealing opportunities and threats by surveying weak signals and early warnings.<br>• Processing and combining data and information to produce knowledge and insights about competitors. Satisfying the information needs of decision making.<br>• Successful strategic management depends on an accurate and thorough evaluation of the external environment. Competitor awareness, competitor sensitivity and competitor intelligence, intelligent exploitation of market developments rather than merely react to them. Monitoring industry and market trends and assessing the impact of political and economic changes, collecting information on competitors and own company`s strengths and weaknesses. Through strategic alliances, i.e., mergers and acquisitions to penetrate other markets and cross-borders.<br>• Through outsourcing CI aspects or total outsourcing.<br>• CI is used for firms to remain cognizant |

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| | | with government legislative trends.<br>• Allows firm flexibility and adaptability of information for decision making.<br>• Predicting with high level of trust customers` requirements and devising marketing strategies. Allows honing marketing efforts to quickly respond to consumers. Mixing of target markets and skillful market segmentation. Through successful market positioning.<br>• Decreasing reaction time in operational processes exerts a significant influence on the ability to innovate and is viewed both as a major source of CA and of new product innovation.<br>• Through skills development as training is conducted on how to conduct different responsibilities. Through well-defined role and responsibilities of CI champion, CI manager and CI analyst.<br>• Through proper analytical skills to integrate a variety of factors internal and external to firms.<br>• Training of CI staff to afford them the skill required to engage at top level and debate or dialogue.<br>• Networking skills proved to be the most important skill that a CI professional should have as well as research skills.<br>• Analytical ability is of great importance especially in the analysis phase of the CI cycle, which in turn is the 'central nervous-system' of the CI process.<br>• It was found that not all CI activities are equally capable of generating competitive advantage (CA).<br>• It was suggested that sustainable CA has the highest probability of being generated from the analysis component of CI activities.<br>• CI plays one of the most important roles in the preparation of the decision of the company when management create new conditions for securing the future success of the company in a demanding business environment, and it is considered as one of the most powerful prospective weapons in the hands of the company management.<br>• Finally companies which actively use CI, show better results. |
| Yap et al., (2013); Wanjau et al.,(2012); Adidam et al., (2012); Karim (2011); Du Toit and Strauss (2010); Santos and Correia (2010); Viviers et al., (2005); Cappel and Boone (1995); Jaworski and Wee (1992); Ngugi et al., (2012); Thompson & Strickland (2003); Mugo et al., (2012); Comai & Joaquin (2007); | **Performance** (Financial and non-financial) | • Results reveal a positive relationship between CI practices and firm performance.<br>• All strategic intelligence practices lead to greater profitability & also reduction in costs for banks, with technology intelligence being the highest contributor.<br>• Firms that exhibit higher levels of CI activities indeed achieve better financial |

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| Trim and Lee (2008), Calof and Wright (2008); Tanev & Bailetti (2008) | | performance results.<br>• There is a highly significant relationship between CBIS strategic plan, cooperation, information, and effective decision making and improved business performance and gained competitive advantage.<br>• There is a positive relationship between CI and financial performance. CI companies outperformed other companies by all three key financial measures in this study.<br>• Results demonstrate clear evidence of how CI contributes to strategy development and corporate performance.<br>• Adoption of CI practices affects the profitability of the banking sector.<br>• Studies have shown that technology, product, market and strategic alliance intelligence practices affect the profitability.<br>• Investing aggressively in CI is a firm`s single most dependable contributor to above average profitability.<br>• Bank profitability realized through product differentiation intelligence, market intelligence, technology intelligence and strategic alliances.<br>• Combining customer value innovation and technology intelligence increased the chance of enjoying sustainable growth and profitability.<br>• Profitability is realized through early identification of risks and opportunities in the market before they become obvious.<br>• Rigorous monitoring and analyzing key competitors also results in profitability.<br>• CI results in increased revenues and profits.<br>• External use of Internet for competitive intelligence practices positively related to quality of competitive intelligence which in turn positively influenced firm performance in terms of revenue generation, cost reduction, and managerial effectiveness.<br>• Productivity has often been termed as a surrogate of competitiveness and good indicator of long-term competitiveness of a firm by many authors.<br>• Competitiveness was defined at the organisational level as productivity growth that is reflected in either lower costs or differentiated products that command premium prices. |

## 5.1 Discussion and analysis

### 5.1.1 Assets

Results has shown that CI Asset perspective has attracted less research attention as an enabler for firm competitiveness when compared to CI process perspective. Sources of competitiveness are those assets and processes within an organisation that provide competitive advantage. The resource based view (RBV) analyzes and interprets internal resources of the organization, emphasizes resources and capabilities in formulating strategy to achieve sustainable competitive advantages. Resources may be considered as inputs that enable firms to carry out its activities. Internal resources and capabilities determine strategic choices made by firms while competing in its external business environment. According to RBV, competitive advantage occurs only when there is a situation of resource heterogeneity and resource immobility (the inability of competing firms to obtain resources from other firms). CI plays a greater role in RBV analysis and interpretation of resources of an organization to achieve sustainable competitive advantage. Research has shown that for a firm to achieve superior performance and competitive advantage, CI should focus on the concept of difficult-to-imitate attributes of the firm as a source of its competitiveness (Barney, 1986; Hamel and Prahalad, 1996). Resources that cannot be easily transferred or purchased, that require an extended learning curve or a major change in the organization climate and culture, are more likely to be unique to the organization and, therefore, more difficult to imitate by competitors. According to Conner (1991), performance variance between firms depends on possession of unique CI capabilities. The RBV takes an 'inside-out' view or firm specific perspective on why organizations succeed or fail in the market place (Dicksen, 1996). CI maximizes on resources that are valuable, rare, inimitable and non substitutable (Barney, 1991) to make it possible for businesses to develop and maintain competitive advantages for superior performance (Collis & Montgomery, 1995; Grant, 1991; Wernerfelt, 1984).

According to RBV, an organization can be considered as a collection of physical resources, human resources and organizational resources (Barney, 1991; Amit and Shoemaker, 1993). RBV competencies can be achieved through highly instituted CI processes and activities. These levels, according to research can be achieved through full embracement of the CI process. Research has shown that firms can achieve high levels of competitiveness to sustain themselves in turbulent and harsh economic environment through the embracement of CI.

To utilize CI efforts successfully, there needs to be an appropriate organizational awareness of competitive intelligence (Viviers, 2005) and culture of competitiveness. Awareness of the importance of CI needs to be created in organizations. Without proper awareness and attitudes that favour information sharing, it is difficult to develop intelligence within an organization and competitiveness. CI is the ability to fully understand, analyse, and assess the internal (RBV) and external environment associated with customers, competitors, markets, industry and use the acquired knowledge to find new opportunities and stay competitive. The heightened awareness of a firm`s competitive environment tends to be one of the bases for organizational learning theory (Garvin, 1993; Sinkula, 1994; Slater and Narver, 1995). To be successful, managers must create a culture within their organisations that promotes a culture of competitiveness and of exchanging knowledge and ideas among individuals and departments (Viviers, 2005). The success of firms requires appropriate policies, procedures, and a formal (or informal) infrastructure allowing employees to contribute effectively to the CI system (Viviers et al, 2005).

Competitiveness is achieved through visible support by management of the CI function`s existing initiatives. A formal CI structure would involve dedicating a CI manager to guide and drive the collection, analysis and dissemination of intelligence within organization. Such a person needs to be trained in developing and running CI and should be well respected at all levels in the company, preferably be a member of the executive team and needs to have an understanding of the industry and organization to also benefit from his/her contact network. Furthermore, CI as a strategic management tool should therefore be situated as close as possible to the strategic decision makers and not in a line functional department (Viviers et al, 2005). An organization`s structure is supported by the appropriate organisational culture. Indeed, research undertaken by Wright et al., (2002) suggest that the overriding influence on firm competitiveness rests on CI activities that facilitates appropriate competitive culture and structure which encourages trust, facilitate communication and encourage the easy flow of information.

### 5.1.2 Processes

Results show that processes perspective has attracted more research attention as an enabler for firm competitiveness. Researchers like, Ghoshal and Westney (1991); Trim and Lee (2008) and analysts Courtney et al., (2009) agree that gathering intelligence is necessary for strategic planning and decision making hence firm competitiveness. CI plays a very crucial role in directing firms to spot new opportunities or averts disasters as well as empowering firms to monitor their own development cycles. Studies have shown that vast majority of the conceptual development of the CI literature is from the developed market perspective. The studies as shown by Adidam et al., (2012) on USA (Subramanian and IsHak, 1998; Tao and Prescott, 2000), Canada (Brouard, 2004; Calof and Brouard, 2004; Tanev and Bailetti, 2008), Australia (Bensoussan and Densham, 2004), New Zealand (Hawkins, 2004), Japan (Sugasawa, 2004), Korea (Kim and Kim, 2004), and Europe (Hedin, 2004; Hirvensalo, 2004; Michaeli, 2004; Milla´n and Comai, 2004; Pirttima¨ki, 2007; Smith and Kossou, 2008; Wright et al., 2004). Additionally, empirical research from other developing and emerging markets, such as the studies on China (Bao et al., 1998; Tao and Prescott, 2000), Russia (Flint, 2002), Lithuania (Stankeviciute et al., 2004), Israel (Belkine, 2004; Barnea, 2006), the Middle East (Feiler, 1999), Latin America (Price, 2000), Kenya (Mugo et al., 2012) and South Africa has also done much (De Pelsmacker et al., 2005; Muller, 1999; Du Toit and Strauss, 2010; Pellissier and Kruger, 2011; Sewdass, 2012; Viviers et al., 2002; Viviers and Muller, 2004; Sewdass and Du Toit, 2014; Muller, 2009; Muller, 2007; Heppes and Du Toit, 2008; Pellissier and Nenzhelele, 2013). Research has also found that CI help firms in numerous ways, such as, providing intelligent estimates, assessments, briefings and foresights about markets, competitors` and firm`s own actions. In a study by Wright et al., (2002) on British businesses, senior management viewed CI activities as good use for the company`s situation, as a crucial and integral part of company success and as a long term investment of increasing importance.

It was also found that successful strategic decision making in firm settings was highly dependent on timely and relevant information. The study by Yap et al., (2013) highlights the essential role of CI in supporting strategic decision making and strategic planning as well as in indentifying opportunities and threats. Yap et al., (2013) identify other synonyms to CI as competitor analysis, market intelligence, and corporate intelligence. The review identified four primary areas where CI is used related to strategy in business firms: supporting for strategic decision making; providing early warning of opportunities and threats; performing competitor assessment and tracking; and supporting for strategic planning and implementation. According to a study by Nwokah and Ondukwu (2009) that examined the relationship between CI and marketing effectiveness in corporate organisations in Nigeria found that the strategic inputs of market place opportunities, competitor threats, competitive risks, core assumptions, and vulnerabilities were found to be positively correlated to marketing effectiveness.

In general, these studies support that CI practices contribute to firm processes that is, strategic management processes, human resources processes, technological processes, operational processes and marketing processes, which subsequently leads to firm competitiveness.

#### *5.1.3 Performance (Financial and non-financial)*

Financial and non-financial elements of a firm have been identified as sources of firm competitiveness. Literature has shown little empirical work linking the impact of a firm`s CI activities on a firm`s performance (Hughes, 2005). However, most literature addressing this issue has been either anecdotal and/or case-based research in the context of the developed markets of USA and Europe (Pirttimaki, 2007; Smith and Kossou, 2008; Subramanian and IsHak, 1998). Nothing much has been done to measure this relationship outside USA and Europe because the concept is perceived new. A study by Adidam et al., (2012) clearly identifies that firms that deploy CI practices are achieving better performance in the market. Researchers agree that better CI improves a firm`s overall performance in the marketplace (Glueck and Jauch, 1994). Studies by Daft et al., 1988; Gordon, 1989; Teo and Choo, 2001 have identified a positive relationship that exists between CI and firm performance. Also a study of 85 US firms by Subramanian and IsHak (1998) has shown that firms having advanced systems to monitor market trends exhibited great profitability. However, Adidam et al., (2012) argue that the positive relationship that exists between CI and firm performance has been empirically tested in the western developed markets context. This study further reveals that Indian firms with high levels of CI activities do perform better, thus indicating a positive linkage between a firm`s performance and level of CI activities. Literature has also revealed that perceived strategic uncertainty relates positively to CI practices, which in turn, relates positively to firm performance and subsequently to firm competitiveness. Scanning activities in terms of frequency, interest and time spent on particular environmental sectors are linked to higher firm performance in accounting and market performance measures, which results support findings by Daft et al., (1988). To support this Analoui and Karami (2002) found that high performance firms put more emphasis on environmental scanning and thus have a formal scanning system with higher frequency of scanning activities. This supports findings from studies by Subramanian et al., (1993) and Subramanian and Kumar (1994). Yap et al., (2012) highlighted the results from a study by Cappel and Boone (1995) that compared performance of 152 CI companies and 1 396 non-CI companies and found that those companies employing CI, on average, out-performed those companies with no apparent CI activities in terms of average sales, market share and profitability. Tanev and Bailetti (2008)`s research findings support those by Cappel and Boone (1995).

## 6 Conclusion and recommendations

The objective of this paper was to provide an overview of how CI can be an enabler towards firm competitiveness. The paper found that CI plays a very crucial role in enabling firm competitiveness and this was found to be achieved through enhancing the factors that affect firm competitiveness as was categorized through the APP framework for firm competitiveness. Furthermore, the hyper-competitive situation that has characterized the last few decades has created the need for an explicit management of firm competitiveness and has provided enough tests on CI as an enabler of firm competitiveness. This period has credited CI as an important and sole enabler of firm competitiveness. CI has managed to provide solutions to many business challenges. Research has shown that those firms that have embraced fully the CI process managed to sustain their competitiveness in turbulent and dynamic environments. Research has also shown that process perspective CI has attracted more research attention when compared to assets and performance perspectives.

The paper recommends the use of the competitiveness process as a key coordinating process among key management processes such as strategic management, human resources management, technology management, and operations management may provide a powerful tool.

The paper also recommends necessity for a firm to define competitiveness as part of its strategy. Competitiveness as a multi-dimensional concept has dynamic weightages of different factors. A systematic evaluation of competitiveness will be of great help to firms. There is need for a research network that can develop better tools to improve competitiveness processes in collaboration with industry.

It is also recommended that the CI unit or function should assist management in developing and reviewing its strategies. The reviews should be ongoing considering the dynamism of the operating environment as well as alerting top management on issues not on the agenda. In the same way that sages kept turning over the Talmud to find new answers, businesses very often find that the solution to a gnawing business problem is right in front of them if they continue to turn it over (Kahaner, 2003).

### *6.1 Areas for further Research*

The field of CI and firm competitiveness is rich in potential future research opportunities. Commentators, business managers and consultants alike are continuously searching for a better way of doing things. For the same reason the subject continues to provide a rich field for future research on almost any element thereof. Some of the current topics that could provide both research stimulation and academic value might include; CI positioning and firm competitiveness, CI as a contributor to knowledge base in firms as well as a review of the methods of CI measurement, measures of CI effectiveness, techniques which firms use to analyse CI, and tools used by firms to acquire, access, store and share CI.

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# IMPLEMENTING NEW PUBLIC MANAGEMENT IN ZIMBABWE: CHALLENGES AND OBSTACLES

**Daniel Chigudu ***

**Abstract**

This paper is an exploratory study of the new public management (NPM)'s implementation in Zimbabwe. The data presented is a review of the government's policy initiatives and research publications. Findings suggest fragmented implementation of NPM reforms without requisite administrative skills, lack of resources, ill timing, and political inertia. This research's underlying significance is that it provides insights to improve NPM and future public sector reforms. It contributes to relevant literature by filling gaps in the research on NPM in Zimbabwe The paper provides policy recommendations necessary for addressing public sector reforms in developing economies particularly in African countries that have a history of political instability.**

**Keywords:** New Public Management, Public Sector Reform, Developing Countries, Structural Adjustment Programme

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## 1. Introduction

Towards the end of the twentieth century there was a shift from the traditional public administration perspectives to a new public management (NPM) paradigm in Southern Africa and many other countries in the world. The departure from the traditional public administration of politics-administration dichotomy, scientific management and Weber's bureaucracy was a move perceived to drift away from the inherent weaknesses .New public management (NPM) appeared to be the best alternative providing diverse service as opposed to government monopolistic service provision. In the 1980s new public management became an international trend with its market-oriented approach to management. Zimbabwe began to implement administrative reforms based on the new public management in the mid-1990s in the public sector. There was need for change from colonial administrative structures to post-colonial structures.

This paper investigates the implementation mechanism of NPM in Zimbabwe. An overview of the Zimbabwe administrative and political structures is presented followed by conceptual and theoretical frameworks. The paper reviews literature on NPM in Southern Africa, strategies of implementation of the reforms in Zimbabwe's public sector and the main factors that have militated against implementation are identified. Policy recommendations are given for improving Zimbabwe's public sector and for other developing economies.

## 2. Aim, Importance and Methodology of the Study

The study represents an assessment of the Zimbabwean experience with the new public management in view of administrative reforms in the public sector. It highlights what has been done, the major challenges, threats and opportunities realised. The significance of this study provides a basis to improve practices and designs of NPM implementation in the public sector in Zimbabwe and other developing countries. While the thrust is not to question the political administrative practices on public management reforms in Zimbabwe, the paper highlights the role played by politics in the implementation of NPM. Further, this research develops literature for developing countries while generating policy recommendations needed to respond to calls for administrative reforms from supranational bodies like the Southern African Development Community (SADC); the African Union (AU); International Monetary Fund (IMF); World Bank, Organisation for Economic Cooperation and Development (OECD) and the European Union(EU).

The paper analyses the conceptual framework of the NPM model that inspired Zimbabwe's administrative reform strategy and the constraints to the implementation. A qualitative approach is employed by examining secondary data obtained through extensive review of documents that relate to new public management in Zimbabwe. These documents include government policy initiatives, reports from non-governmental organisations and research papers from academics.

## 3. Context of Zimbabwe's Administrative Structure

After 1980's political independence government inherited an administrative bureaucracy which (in size, composition, operation and orientation) was heavily inclined towards colonial masters. This structure was not commensurate with socio-economic-politico imperatives of nation building, reconciliation and transformation of the economy along equity lines (Agere, 1998). Zhou (2012) notes that, there was lack of compatibility between the inherited systems and the new socio-economic dispensation. The inherited public bureaucracy had to go through an extensive reconfiguration. The administrative machinery derived its legal existence from the Lancaster House Constitution of 1979.

This provided a governance structure with an executive Prime Minister, a ceremonial President, a bi-cameral legislature, a Public Service Commission, the Judiciary, Office of the Comptroller and Auditor General and the Attorney General among others. The constitution provided checks and balances through separation of power in which the legislative arm enacted laws which were enforced by the executive arm while the judiciary reviewed the legality of legislative and executive actions and decisions. Presidential executive powers were exercised on the basis of consultation with relevant professional bodies such as the Cabinet, Parliament, Public Service Commission, and the Judiciary Service Commission. Amendment number 7 of 1987 provided for a shift from an Executive Prime Minister to an Executive Presidency and abolished the question time in parliament. The question time was a key mechanism for executive accountability to the legislature. The Lancaster House Constitution was amended nineteen times since 1980 until February 2013 when a Constitutional referendum ushered in a new law of the land.

Public administration in Zimbabwe is guided by the interplay between the legislature, judiciary and executive arms of government. The legislature provides law-making and policy approval roles, the judiciary reviews the legality of all government activities while the executive provides decision and policy implementing roles. The legislature's activities have a direct bearing on national public administration. Legislative approval and authorization is needed before any government policy is implemented. Legislative approval is also needed before government funds can be expended. Through these gate-keeping functions, the legislative arm ensures national administrative structures operate within the limits set by parliament. The legislative arm exercises its oversight functions through committees such as Public Accounts Committee and portfolio committee structures, among others (Zhou, 2012). Government ministries are grouped in clusters that are superintended by a portfolio parliamentary committee. Portfolio committees are empowered to invite everyone within their powers to appear before them and give oral evidence on oath. They are also empowered to conduct fact-finding missions.

## 4. Conceptual Framework for New Public Management

Public sector reforms have been driven by internal and external factors the world over. In developing countries the reforms have manifested in three stages. First in the mid-1980s, focusing on structural reform through IMF and World Bank structural adjustment programs. Second in the mid-1990s, focusing on capacity building, improving the work environment and management systems, and third, in the new millennium, emphasizing improvement in public service delivery.

NPM has been coined by Hood and Jackson (1991, 12).It borrows most of its techniques from the private for profit sector. The concept came into ascendancy in the late 1970s and the early 1980s and took centre stage of public administration in many countries, including New Zealand, Canada, Australia, and the United Kingdom (Hood 1989, 349).The Weberian bureaucracy which promoted production during the industrial revolution was abandoned. Weber's bureaucracy produced a government with distinct ethos and impersonal but slow and inefficient according to Osborne and Gaebler (1992). It had to be replaced by a market based public service management. The scientific management model based on the principles of bureaucratic hierarchy, planning, centralization, direct control and self-sufficiency, was succeeded by a market-based public service management.

In Southern Africa and other developing countries it was commonly associated with the structural adjustment programmes (SAPs) which were initiated in the mid-1980s with the support of the Bretton Woods institutions. NPM is sometimes confused with the New Public Administration (NPA) movement in the United States of the late 1960s and early 1970s. New Public Administration's thrust was to bring academic public administration into line with the radical egalitarian agenda that was influenced in United States University Campuses at that time (Osborne and Gaebler; 1992).On the other hand, a decade later NPM had its thrust on managerial issues and it stressed the different techniques managers could engage to improve efficiency of public services. According to Zungura (2014), NPM and

New Public Administration (NPA) have diverging themes hence are different.

Hood developed the term NPM as a set of administrative doctrine denoting specific ideas about what should be done in administration (Hood and Jackson; 1991: 12).Despite the differing names, these various scholars essentially describe the same phenomenon (Hughes 2003). There is controversy on the meaning of the phrase but the basis of NPM is in reversing the two cardinal doctrines of the progressive public administration (Hood; 1991).

## 5. Theoretical Framework

Gruening (2001, 1-25) argues that, NPM has been inspired mainly by theoretical footings such as public choice theory, management theory, classical public management theory, neo-classical public administration, policy analysis, principal agent theory, property rights theory, transaction cost economics and New Public Administration(NPA). Advocates of NPM argue that the line between public and private sectors will be blurred while the same good practices of management will prevail in both sectors.

Turner and Hulme (1997:232) have observed that NPM's proponents have been successful in marketing its key features and .persuading potential patients of its curative powers. These proponents have made claims backed up with empirical evidence of substantial savings in public expenditure and improved services .The NPM prescriptions have tended to be applied through powerful international donor agencies and the World Bank on developing economies. Weaknesses in public administration which gave rise to NPM were identified as; expensive, low-quality service, too far removed from citizens to be able to cater for their interests, corruption, inefficient and ineffective (wasting financial and human resources) (Teehankee, 2003).

Public choice theory has largely influenced the development and implementation of the NPM as alluded above. It developed from the study of taxation and public spending as a branch of economics. The theory hinges on the principles used by economists to analyse people's actions in the trading arena then applies them to people's collective decision making. According to the proponents of the public choice theory, although people in the market-place have concern for others, their main motive is self-interest. In view of that, bureaucrats are motivated by self-interests not public interest. Hughes (2003:12) argues that bureaucrats maximise for themselves and not for the agency. In most cases, the agency is unable to ensure that the principal performs hence poor service delivery. This is the basis for those who argue for contracting –out. Zungura (2014) observes that, public choice theory explains the civil servant (principal)'s behaviour in Zimbabwe's public management where civil servants are on record of rampant corruption due to the inability by the agency to pay them satisfactorily.

## 6. New public management in Southern Africa

Literature provides evidence that in the majority of, developing countries, economic crisis has been the driving factor to the introduction of NPM reforms in the public sector since the early 1980s (World Bank, 1997:151). Economic and fiscal crises preceded economic reforms in Sub-Saharan Africa (SSA) which also prompted public sector management reforms. Some developing economies in Southern Africa experienced unsustainable external and domestic debts, decreasing real terms of trade, increasing real interest rates on international financial markets, high inflation, low levels of savings and investment, and shortages of basic consumer goods (World Bank, 1989). Zimbabwe was not an exception. While aid flows decreased against mounting debts and rising interest rates, a number of countries turned to the IMF and the World Bank as lenders of last resort.

But, going to the IMF and World Bank meant accepting structural adjustment packages (SAPs) with their associated conditions in order to get credits and debt rescheduling.

Hood (1991) notes that, NPM was seen as the first best model for policy implementation; a public management 'for all seasons.' Khodr (2013:1135) argues that, many managerial innovations are well packaged, but NPM was distinctive in that it carried overtones of the end of history. This may, suggest that we were fortunate to be in public management at a time when the truth had been discovered (Osborne & Gaebler, 1992) One precondition for successful implementation of NPM programmes is the state capacity (Hughes, 2003).This means a condition where a country is able to take any reform measure decisively based on institutional, technical, administrative, and political factors.

Institutional capacity is characterised by the ability of a country to uphold the authority of governments, to legislate and implement laws and to hold public officials accountable (Wallis & Dollery, 2001). For technical capacity, it is evident when key decision-making bodies managed by qualified people are isolated from the pressures of unproductive clientele groups (Wallis & Dollery, 2001). Administrative capacity is marked by the ability to undertake basic administrative functions and provide basic social services to society. For Khodr (2013), this is critical in so far as the NPM reform package is concerned. Wallis and Dollery (2001) argue that, administrative incapacity is used as a pretext for some NPM interventions such as privatization, corporatization, and contracting out. However, some have observed that in the absence of the state's efficient role in discharging the minimal functions such as provision of public goods and services, economic infrastructure, law and order, and judiciary, the state is unable to implement such programmes. Political capacity denotes the ability of a state to mediate conflict, respond to citizen demands, allow for representation of interests, promote political stability and enhance basic legitimacy of governance. Southern African countries fail to fulfil most of these requirements on these four capacities.

According to Grueing (2001), the most common attributes of NPM include accountability, customer satisfaction, performance auditing and management, decentralization, privatization, strategic planning and management, flexibility, separation of politics and administration, personnel management, contracting out, changed management style, improved financial management, and more use of information technology. All these attributes coupled with the ten principles introduced by (Osborne & Gaebler, 1992), comprise the set of tools which public officials might be able to use. These could shift public sector organizations from their traditional hierarchal, rules-based, bureaucratic structures toward a more managerial system based on expediency, efficiency, economy, and output calculation. This change is much needed in the public administration of Southern Africa (Zimbabwe included) and developing countries.

There has been no systematic evaluation of NPM outcomes (Khodr; 2013). The most comprehensive overview of NPM-type reforms is offered by Batley (1999). He summarises the conclusions from a five-year review of the changing role of government in adjusting economies. The conclusions have emerged from new approaches to service delivery, including NPM-type reforms in South Asia, Sub-Saharan Africa and South America. The conclusions note that, the effect has been mixed at best with some improvements in efficiency and mixed effects on equity. While on the downside, he notes, in relation to bringing autonomy to service delivery agencies, that the transaction costs of radical reforms tend to outweigh the efficiency gains of unbundling, and that reforms that pursue the separation of purchasers from providers may have decreased accountability while inequity has grown.

It appears literature holds several explanations as to why NPM has delivered less in developing countries than expected. Hood (1991) notes that the social changes observable in the late 1980s are the most plausible explanation of the rise of NPM in the Organization for Economic Co-operation and Development (OECD). These were producing a more white-collar and more socially heterogeneous population (Hood; 1991).Viewed from another dimension, traditional public service values may be eroded if lower trust raises the cost of transactions substantially. The underperformance of NPM in developing countries could be the marginal nature of its impact under any circumstances.

For the case of New Zealand, it may be difficult to assert exactly what has improved as a result of the systemic changes (Boston, 2000). The big money savings was associated with privatization and the associated new public policy In Southern Africa's developing countries, running costs represent a larger proportion of budgetary expenditures than in the OECD. Failure of the NPM reform efforts in the developing countries can also be attributed to politics, organizational culture, and institutional design. Khodr (2013:1137) notes that, while

NPM may have been effective in addressing some administrative issues, but it has not dealt with other types of relevant concerns that are central to public administration and the public sector in particular.

There are some influencing factors that should be considered in the process of the application of national performance review like the national historical background, societal, cultural norms and values, and political systems. NPM proponents have focused attention more on market efficiency and performance, based on benchmarking governments. They have considered NPM applicable to all settings and contexts although some have argued that there is no best model of public management. Mathiasen (1999) contended that, administrative reforms must take into account national differences and local circumstances not only in developing countries but also in OECD countries. For example in countries where patronage and favouritism are the norms, devolution or decentralization might not be feasible.The obstacles to NPM reform in developing countries are often not related to inability to optimize given resources but rather to knowledge questions focusing on how to improve the way special characteristics of knowledge are used in these solution strategies.

While there has been a decline in the popularity of NPM movement and a prominence of the interrelated concepts of governance and policy networks in the public management studies, NPM remains pivotal in reform strategies in the public sector in Southern Africa and other developing countries. Frederickson and Smith, (2003) note that, in spite of the successive failures of NPM in many different countries as a result of the ambiguities of politics and legislation, there have been repeated and continuous efforts to base public sector reform on the NPM.

## 7. NPM Implementation Strategies in Zimbabwe

The Kavran Public Service Review Commission was appointed in 1987 to review the structure and functioning of the public service. A report was presented with the following major findings:

- The services had become too large, cumbersome and wasteful,

- Scarce resources were being wasted through overlap and replication of functions,
- The service was secretive, inaccessible and lacked transparency,
- Services to the public were poor, shoddy and unresponsive,
- The management system had become antiquated, complex, and burdensome to the heads of ministries, and
- There was a substantial number of inexperienced cadres.

The report's findings were adopted and implementation was done in stages. The first stage started from 1991 to 1996 and was dominated by the United Nations Development Programme (UNDP) scheme for improving government efficiency and effectiveness. The outcomes of the project included the following:

- Performance management training was conducted in some ministries,
- Job evaluation was conducted and compensation levels reviewed,
- Public Service Commission (PSC) regulations and procedures were redesigned to support performance management
- A training policy for civil servants was developed, and
- Client charters and mission statements were developed in all ministries.

The implementation of the economic structural adjustment programme (ESAP) started in 1991. The attendant ESAP's austerity measures like cost cutting and cost recovery influenced many adjustments in the public administration .The public service pay roll was reduced by twenty five thousand.. The second stage (1998 to 2004) coincided with the beginning of preparations towards the attainment of Vision 2020, through the goals of the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST).The Public Finance Management (PFMS) System was introduced to ministries and state-owned enterprises (SOEs) in 1999.Performance standards by way of key result areas (KRA) were also introduced about the same time. The new performance appraisal system required employees to set objectives which were measurable, achievable and realistic. Financial rewards and promotions were linked to performance. In stage three of the civil service reform (2004 to 2014), the government approved the introduction and implementation of the results based management (RBM) system in the public sector, given effect by General Letter Number 6 of 2005 to all heads of ministries.

According Larbi (1999), unlike the context of NPM in developed countries, the political situation in some developing countries in Africa was characterised by policy inaction. He argued that, in countries such as, Zimbabwe, Zambia, Malawi and Ghana, the political leadership's orientation was not in favour of the private sector and related policies. .Perhaps, this may explain the reason why economic reforms took longer than was expected.

The Zimbabwe civil service has been cut by about 12 per cent (23,000 out of 192,000) since the commencement of its civil service reform in 1991 (Makumbe; 1997:21). Over 30 Sub-Saharan African countries have managed to reduce their average nominal wage bill from over 7 per cent of GDP in 1986 to just fewer than 6 per cent in 1996, following massive downsizing.

A study of reforms in Zimbabwe's health sector also noted that the governance and institutional contexts pose severe constraints in decentralizing management (Russell et al., 1997). Non-clinical health services such as cleaning, laundry, catering, security, maintenance and billing were contracted out, while clinical services were contracted out on a limited scale (Russell et. al., 1997). Zimbabwe also embarked on widespread contracting out of municipal services, partly on the initiative of the central government in response to its economic structural adjustment programme.

In a bid to reform the public sector the government of Zimbabwe requested the World Bank in 2009, to assist in implementing the Human Resource Management Actionable Governance Indicators Instrument (HRM AGI) The HRM AGI is a subset of the World Bank which assesses the institutional arrangements and organisational capacity of a human resources management regime. The assessment is based on agreed principles of good human resources management design and effective practice. This instrument is designed to diagnose potential areas of concern, assess the problem, provide feedback to initiate or further reform, and provide learning on good HRM practices.

Aziz, (2010) argues that, although the report produced does not highlight implementation issues, the fact that these reforms were driven by the government of Zimbabwe suggests political buy-in by the inclusive government. This is critical for effective reform. The HRM AGI reported that the current system has a number of strengths and weaknesses. The report identified weak accountability for HRM practices, recruitment procedures which lacked credibility and competition, HRM policies that failed to ensure retention of the best staff and poor wage bill management.

Some scholars criticise reforms meant to improve public administration that are externally-driven .Instead, emphasis should be on creating space in which reform can take place as opposed to pushing reform technicalities ,Andrews(2010) He, criticised the idea of what he termed 'institutional isomorphism' of public administration. This would imply attempting to produce institutions in developing countries identical to those in developed countries. He argues that there may be natural limits to which institutions in developing countries change, and that these limits should be respected.

The HRM AGI reports that the Zimbabwe civil service is characterised by a plethora of instruments, regulations and procedures that govern various dimensions of the management of its human resources. Although the instruments cover most aspects of HRM, there are numerous and sometimes serious gaps where policies and procedures are inadequate to guide sound practice and instead lead to ad hoc decisions on specific issues. The political and socio-economic crisis that Zimbabwe has experienced over the past several years has also contributed significantly to deterioration in the functioning of the rule-based system. In terms of some key components of the NPM the HRM AGI reported that;

- There is considerable delegation to line ministries to carry out day-to-day management of civil servants.
- There is weak accountability for HRM practices, with high levels of discretion afforded to both politicians and senior civil servants without the necessary checks and balances.
- Recruitment procedures are often not openly competitive and selection stages are monopolised by the PSC. Most senior positions are only open to officers who are already in the system. There seems to be considerable confusion regarding selection procedures, which could contribute to unethical conduct among those selecting candidates for promotion.
- Although there is widespread use of performance appraisal, there is limited evidence of it improving employee motivation through strengthening the link between performance and career growth prospects.
- There is poor wage bill management and regular audits have not been effectively linked to meaningful management of the wage bill

A classification of 29 Sub-Saharan countries by levels of Civil Service Reform efforts in the Economic Commission for Africa (ECA) report (2010:45) shows that, Zimbabwe is a hesitant reformer in Group C. Group A has advanced reformers, Group B committed reformers, Group C hesitant reformers and Group D beginners and non-starters. For Southern African countries, in the 29 selected countries, Zimbabwe ranked lowest. Those in Group A are Botswana, Mauritius, Namibia and South Africa while those in group B are Zambia and Tanzania.

## 8. Challenges and Obstacles to the NPM's Implementation

The adoption of NPM in the 1990s was mired with several challenges and obstacles. The first phase of performance management implemented in 1992/3 met with stiff staff resistance to change. There was lack of effective communication between politicians and public administrators and inadequate training until the first phase was abandoned (Zungura; 2014).

Between 1997 and 1998 the second phase was launched in which Ministries developed visions, mission statements, organizational goals, corporate plans and client charters Financial and material resources were not readily available to sustain the programme as well as lack of skilled human resources hence the second phase failed. Public officials were not clear on the distinction between performance management and appraisal.

As a result, the benefits of implementing performance management such as increased job satisfaction, improved service delivery and improved supervision have not been realized. Performance management has greatly been resisted by civil servants as it has tended to be used as a whip of control by management instead of improving performance The results have not been plausible. Further, due to lack of budget support, performance incentives have been too weak to produce tangible impacts.

NPM gave rise to the practice of outsourcing and tendering as the government sought to improve efficiency through competitiveness in public services provision. In some cases, this did not yield desired results as the tender process became fertile ground for corruption. In the Herald a State owned daily newspaper (7 August 2014) the Minister of Finance and Economic Development described the State Procurement Board (SPB) as the 'capital city of corruption'. This is supported by Hughes (2003; 149-164) who contends that, in some cases the tender process can cost more than the saving achieved through competition. Zimbabwe has not benefitted much from the competition due to its ailing economy.

One of the common elements of new the NPM adopted by Zimbabwe was privatization. The privatization authority of Zimbabwe (PAZ) spearheaded the programme. The impact of privatized companies did not influence changes in the economy substantially. There was partial implementation of privatisation which could be attributed to political inertia (lack of political will).

NPM's concept of delegation provides greater flexibility and discretion to lower levels in the production of goods and services. Air Zimbabwe, National Railways of Zimbabwe and the Grain Marketing Board were delegated greater authority to spend money in the accomplishment of policy goals. It appears that these state owned enterprises have become a liability to the state which created them.

## 9. Conclusion and Recommendations

The study undertaken for the purpose of this paper provides an interesting insight into the challenges that Zimbabwe faces in the implementation of NPM There have been a myriad of problems and limitations in the implementation and yet it remains imperative to transform the traditional public sector institutions into more accountable and efficient public entities.

Zimbabwe has not committed itself fully to NPM. The country attempted to implement the new public management initiatives on a piece-meal basis. Although Bretton Woods attempted to introduce the concept, this did not yield desired results due to lack of funding, lack of political will for change of structures, administrative incapacity and corruption. The study shows a lack of technology as well as the administrative capacity to use the technology for monitoring of civil servants' performance.

There is an urgent need for improving synergy among state owned enterprises and ministries involved in administrative reform through funding and training. While few ministries like Health have developed their own modes of cooperation with foreign donors, there is need for improved synergies with sister ministries and departments. Zimbabwe may consider establishing a national framework for public administrative reform different from the Kavran Public Service Review Commission of 1989 which was an ad hoc entity whose recommendations were never implemented in full.

Treasury must set up a separate fund for public sector reforms until desired results are achieved. This national framework should be country specific, civil service driven and requires political buy-in. If properly developed and implemented the reform strategy may provide a template for developing countries that share the same concerns.

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# THE OBLIGATION TO CONTRACT IN BRITISH LAW

*Verena Klappstein* *

**Abstract**

Nowadays the obligation to contract is rarely looked upon. Without reason though, because it is neither outdated nor inoperable. Based on three common law doctrines the obligation to contract goes back to the Middle Ages. It has not lost its relevance, as it can still be found in modern statutory law, such as in the electricity and mail sector. What is more, it is a fundamental institution with a great impact. The analysis showed that the five chosen forms of obligations to contract bear analogical requirements but very similar rationales and economic consequences. It sets impaired market power right and it overstrikes irrational behaviour of market participants. As overall achievement it aligns the range of property, freedom of contract and freedom of competition.

**Key Words:** Obligation to Contract, Common Calling, Business Affected With a Public Interest, Prime Necessity Doctrine, Supplying Electricity, Collecting And Delivering Mail

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## A. Introduction – freedom of competition via freedom to contract

The freedom of competition is one of the main objectives of the European Union (EU). This objective has its basis in the preamble and in Art. 101 TFEU et seq. In a well-functioning, free market the movement of goods takes place smoothly, without the need to intervene by the sovereign. The commodity flow occurs in a way that gives everyone access to the goods or services needed at a fair price. The goal of a free and prosperous market as result of a free competition is in reality, however, disturbed, e.g. by natural, legal or virtual monopolies, and the market dominance exercised by individuals. Dominant market power may lead to a restriction of the availability of goods or services from interested parties for whatever reasons. In the end they cannot gain access on the same conditions. Therewith the commodity flow is impeded. This potential restriction is counteracted with the obligation to contract as a legal consequence. In this article it will be analysed to what extent a general principle of the obligation to contract exists in British law for the consumer.

## I. The obligation to contract – a principle to understand the freedom of contract

The obligation to contract is the duty to conclude a contract with a person who is in need of the subject matter hereof – despite the contrary will of one of the parties. To decide whether and under which circumstances such a constraint against the supposed free will of the entities is compatible with the freedom of contract in British law 1. its requirements, 2. rationales, 3. legal consequences and 4. economic consequences will be analysed.

As such the obligation to contract is neither an entirely private or contract law phenomenon, nor only to be seen in public law. It is inter tangled in those areas of law. The obligation to contract itself as a matter to limit the freedom to contract belongs to public law, whereas the consequence, the contract, is private law. The legal consequences have, due to this interrelatedness, unusual facets: it enables one person to fully leave the freedom to contract by forcing another to conclude a contract that he never has wanted to conclude in the first place. This leads as well to a reduction of the owner's exclusivity. To ensure that such a legal construct does not entirely infuse the legal system, it must have certain boundaries.

The purpose of this article is to find out, whether there is in British private law a general principle that has as legal consequence the obligation to contract and analyse it with regard to the four set parameters. Private law is the chronological starting point as it is much older than competition law and has influenced any later branch of law. To reach this goal one has to research utility law which holds the duty to supply to the end-consumer.

## II. Private & public laws' development over time

To examine the obligation to contract there are two main criteria one has to assess: the two branches of law, private and public law, and their development over time.

The obligation to contract in British private law seems to be part of both private and public law. Though the adjectival attributes hint that both branches are contradictory, the relationship of both branches is not easily explained. It depends on how they are defined. Under the premise of their existence howsoever they are defined, one has to admit that they must interact. Thus the question arises in any jurisdiction – common or civil law – whether the public law values and principles can be extended to private law and *vice versa* and of course, whether competition law holds the necessary analytical tools to deal with the conflicting interests of freedom to contract, competition and property.

Over time law changes. As economics, law and politics are the way of how life is organised in a society. Law must change mimicking both, economics and politics. Thus the keywords of privatisation, commercialisation and deregulation label the legal and economic changes over the last three decades in the British and European utility sector. But what happens to the law and the ideas leading to it after a change had taken place? Both are never entirely lost, they can simply be rediscovered for legal and political argumentations.

## III. Viewing the obligation to contract in British law, through the lenses of Law & Economics

### *1. The fields of law*

Due to the development over time the researched fields of law are private and public law. The article focuses on the interaction of private and public law, to guarantee that consumers have access to the goods and services needed. The obligation to contract can be found in common law or in statutes.[1] To outline the process and development of the obligation to contract the starting point has to be private law and the British principles that lead to an obligation to contract, as this legal consequence first occurred in the common law (C.I.). Merely it can be found in British utility law, too (C.II.). Hence British public law is of interest for the questions asked.

### *2. The legal and theoretical scope*

The obligation to contract will not only be looked at through the legal lens but as well through an economic one by assessing the micro- and macro-economic consequences of it. Only by doing this it is possible to fully assess its function and value for the legal system.

## IV. Outline of the article

Before the actual analysis starts, the relevant terminology has to be exemplified (B.). Starting in a chronological way, the common law doctrines which lead to an obligation to contract have to be looked at in a first step (C.I.). They will be analysed with regard to four parameters: parameters (requirements, rationales, legal and economic consequences). Having done this it is possible to evaluate the British utility law, that might lead to an obligation to contract as well (C.II.). The two fields of law where an obligation to contract occurs can then be compared (D.), to analyse differences and similarities. The article will end in a conclusion (E.).

## B. The terminology exemplified

The exemplified relevant terminology are the freedom of contract (I.), the obligation to contract (II.) and monopoly (III.).

## I. Freedom of contract

In the 19th century following *Adam Smith's* doctrine of *laissez faire* economics the idea developed that contractual parties ought to be free to negotiate the terms and conditions they wish to be in the contract.[2] The common law followed this principle, though there is no constitutional basis for it.[3] Nevertheless the freedom of contract has since then given and still gives rise to many problems, as the conditions of reality do not allow its ideal exercise. To name but a few there is the inequality of bargaining strength, the use of standard form contracts and acceptance of implied terms or consumer protection's statutes.[4]

Hence the freedom of contract rules not unexceptionally, but restraints are possible. There are three main techniques to limit it: first the *procedures* for making contracts, secondly rules to regulate the *content* of contracts and thirdly the possibility to *impose* an entire contract.[5] Thus an inequality of bargaining strength has to be equalized to guarantee a

1 Rudden, in: Harris/Tallon, Contract Law Today, Oxford 1989, p. 81, 82.

2 Atiyah, The Rise and Fall of Freedom of Contract, Oxford 1985, p. 221 & 299; Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, pp. 9; Juss, in: Freedom of Contract and Constitutional Law, Jerusalem 1998, p. 245, 247; McKendrick, Contract Law, 9th edition, East Kilbride 2011, pp. 2-3; Mulcahy, Contract law in perspective, 5th edition, London 2008, pp. 26-27; Pound, 18 Y. L. J. 454, 456; Rudden, in: Harris/Tallon, Contract Law Today, Oxford 1989, p. 81, 84; Trebilcock, The Limits of Freedom of Contract, London 1993, pp. 21, 241. Further detailed history: Aronstam, Consumer protection, freedom of contract and the law, Cape Town 1979, pp. 1-25.

3 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 10; Juss, in: Freedom of Contract and Constitutional Law, Jerusalem 1998, p. 245, 248, both with more references.

4 Atiyah, The Rise and Fall of Freedom of Contract, Oxford 1985, pp. 729; Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, pp. 11-20; Mulcahy, Contract law in perspective, 5th edition, London 2008, p. 29; Murray, Contract law, the fundamentals, 2nd edition, London 2011, p. 9.

5 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, pp. 6-9.

certain freedom of contract for the inferior party. As such the obligation to contract is some kind of an anti-discrimination principle as well. In the end a stronger party might have to comply with contractual obligations – or even has to enter into a contract – that she would not have chosen for herself.

## II. Obligation to contract

The obligation to contract – or obligation to conclude – is a legal duty that justifies the conclusion of a contract, i. e. another obligation. A contract is "a promise or set of promises which the law will enforce"[6]. Putting both together the obligation to contract seems to be contradicting the principle of private autonomy, especially property and freedom to contract. As these are important principles, based on the general idea of human freedom, it can only be allowed in exceptional cases. However, it secures the freedom of contract and property as well, *scilicet* the one of the consumer, as he is enabled to contract. In the scope of private law an already concluded preliminary agreement provides such an exceptional case.

## III. Monopoly

The obligation to contract is intertwined with monopoly situations. The word derives from Greek μόνος (monós) meaning alone or single and πωλεῖν (poleín) meaning to sell[7]. Monopolies exist where a person or enterprise is the exclusive supplier of a particular commodity in a certain market, that can change the price by changing the sold quantity.[8] A monopoly's effect is that the products output is smaller and that some consumer might switch to a substitute to satisfy their demands, substitutes, which cost society more to create than the monopolized product.[9] Whereas in law[10] mere significant market power to charge high prices might already constitute a monopoly, in economics[11] a single seller is needed. Natural monopolies have so great economies of scale that already two competitors cannot be viable, thus efficiency leads to a single firm – in legal monopolies the right to expel rivals is derived by law.[12]

6 Pollock/Winfield, Pollock's Principles of Contract, 13th edition, London 1950, p. 1.
7 Hoad, The Concise Oxford Dictionary of English Etymology, Oxford 1996, headword monopoly.
8 Hoad, The Concise Oxford Dictionary of English Etymology, Oxford 1996, headword monopoly; Posner, Antitrust Law, 2nd edition, London 2001, p. 9.
9 Posner, Economic Analysis of the Law, 7th edition, New York 2007, pp. 282-284.
10 Law/Martin, A dictionary of law, 7th edition, Oxford 2009, headword monopoly.
11 Black/Hashimzade/Myles, A Dictionary of Economics, Oxford 2009, headword monopoly.
12 Whish, Competition Law, 7th edition, Oxford 2012, p. 10.

# C. The obligation to contract in British law

## I. Three common law doctrines and their political and regulatory consequences

In common law there are three[13] doctrines composing the common law anti-discrimination principle that leads to an obligation to contract: the common calling doctrine (1.), the principle of the business affected with a public interest (2.) and the prime necessity doctrine (3.). To understand the essence of each of the former three, their requirements (a)), legal consequences (b)), rationales (c)) and economic consequences (d)) will be assessed. This part concludes with an outlook of the three doctrine's political and regulatory consequences (4).

### *1. The common calling doctrine*

The medieval common calling doctrine led to the idea that there existed a set of rules to be used for common callings, imposing a duty to serve.[14]

#### *a) Requirements – What exactly constitutes a common calling?*

The requirements are simple, there only has to be a rather simple *common*/*public calling*. But what constitutes such a calling? The noun *calling* means an invitation to come to the premises to do business.[15] The adjectival attribute *common* as used in the medieval cases hints at the idea that the service at stake is available to or for the public.[16]

An availability *to* the public means that whoever renders his or her services to be available for the public, is *common.*[17] As the doctrine of common calling is not restricted to persons practising a skilled profession, any profession is suitable, e.g. attorneys, carriers[18] or innkeepers[19].[20]

An availability *for* the public is however something different. One needs the antonym of private callings to understand it.[21] Whereas private callings aim at serving private purposes in a private

13 Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 6.
14 Simpson, A history of the common law of contract, Oxford 1975, pp. 229: asserting that this idea is mistaken as there could not be a rule that can be used for *all* public callings.
15 Blackstone, Commentaries on the Laws of England, Volume II, Philadelphia 1860, p. 165.
16 Simpson, A history of the common law of contract, Oxford 1975, p. 230, citing the relevant case law.
17 Craig, 1991 P. L. R. 538, 540; Craig, Administrative Law, 6th edition, London 2008, p. 349-350.
18 Halsbury's Laws of England, 5th edition, London 2008, 7 [2, n3].
19 Halsbury's Laws of England, 5th edition, London 2008, 67 [186].
20 Adler, 28 Harv. L. R. 135, 149-151; Arterburn, 75 U. Pa. L. Rev. 411, 421; Reichman, in: Human Rights in Private Law, Oxford 2001, p. 245, 249-250; Simpson, A history of the common law of contract, Oxford 1975, pp. 231.
21 Wyman, 17 Harv. L. Rev. 156: going even further as to assuming that the private calling is the rule, public calling the exception.

business and interest, public callings aim at serving the public in a public business and interest.[22] The "characterizing thing […] in the private calling […] is that [of] virtual competition, while in the public calling […] is that of virtual monopoly"[23]. Thus whatever service is for the public leads to a common attorney, common carrier or common innkeeper calling. By deciding to be a common attorney, carrier or innkeeper, the person decides as well to be held by the legal consequences following that profession. The basic contractual prerequisite of self determination is consequently followed.

***b) Legal consequences – obligation to contract in contract theory***

The effect is thus that a person having a common calling profession is "subject to control by the state […, is] under peculiar public duties and this […, is] explained on the basis of some exceptional relation to the public"[24]. Those special duties are a matter of public policy; the basic idea is that the services were necessities that needed to be supplied.[25] Hence those persons have the duty to first *serve all* comers and to secondly *charge reasonable* prices.[26] In other words the common calling professionals were not able to exercise their profession and make up rules of their own in a way that was contrary to their purpose as a common calling professional.[27] A breach of any of those duties gives rise to common law causes of action.[28]

However it is unclear, how these legal consequences are to be achieved. To escape the dilemma of either giving the obligator too much power to refuse or to entirely deny him this ability, the court came up with the premise that neither a previous[29] nor a special[30] contract is needed to form an obligation to contract. Nevertheless one can think of two solutions (See Table 1). The first one is that holding the common calling profession is the *invitation to treat*, to step inside and offer money is the *offer* amended in a way that no receipt of the acceptance is needed and the acceptance is replaced by the obligation to contract. The second solution is the following: the mere holding of a common calling profession is the *offer*, to step inside and offer money is the *acceptance*, any refusal to do business already a breach of contract.[31]

The second solution seems indeed to be the favourable legal construction, as it gives the holder of the common calling profession less power to refuse the contract. But it is hard to understand then how the obligator is able to refuse the contract, which he is allegedly able to do, e.g. if his capacities are fully booked. Furthermore it does not fit with the ordinary contract theory where an offer has to be sufficiently specified, with regard to the contracting party. Of course it is possible to reduce the requirements in the case of a common calling situation for the offer. And again one can think of an exception considering the former example of the ability to refuse the contract, if the offer has the implied term that it expires after stock has run out. What is more, the first solution though being in line with common contract theory concerning the invitation to treat and the offer, it is rather exceptional with regard to the acceptance, which is entirely exchanged by a mere legal obligation. The otherwise hold up requirement of determination and free will as the driving force for a valid contract[32] would have to be abandoned. Hence the second solution – adjusting the offer with the implied term that it expires after stock has run out – is favourable.

***c) Rationales – public function, voluntary implication or both?***

The provision of an obligation to contract in the situation of a common calling has different rationales. There are three classes of rationales: the public function, the voluntary approach and a combination of both.

Within the rationale of the public function, there are the purpose of the profession,[33] the necessity (necessities that needed to be supplied)[34] and the particular form of property[35]. Each of the rationales applies one certain attribute (profession, necessaries, property) as concept to have a public function of the common calling, therewith implementing in the profession or the good already a decrease of the relevant right. This is consistent with the historic development as the common calling doctrine counteracts the abuse of market power, especially in times of social hardship, e.g. the time following the Black Death.[36]

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22 Wyman, 17 Harv. L. Rev. 156, 167.
23 Wyman, 17 Harv. L. Rev. 156, 161.
24 Adler, 28 Harv. L. R. 135, 146.
25 Oliver, Common values and the public-private divide, London 1999, p. 201.
26 Arterburn, 75 U. Pa. L. Rev. 411; Craig, Administrative Law, 6th edition, London 2008, pp. 349-350; Oliver, Common values and the public-private divide, London 1999, pp. 201; Wyman, 17 Harv. L. Rev. 156, 161.
27 Reichman, in: Human Rights in Private Law, Oxford 2001, p. 245, 249.
28 Wyman, 17 Harv. L. Rev. 156, 158.
29 *Parker v Flint* (1699) 12 Mod Rep 254.
30 *Saunders v Plummer* (1662) O Bridg 223; *Thompson v Lacy* (1820) 3 B & Ald 283.
31 Bird, The Laws Respecting Travellers and Travelling, 2nd edition, London 1808, p. 51; Blackstone, Commentaries on the Laws of England, Volume II, Philadelphia 1860, p. 165; Singer, 90 Nw. U. L. Rev. 1283, 1309.
32 Instead of all: Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 37; Hogg, Promises in Contract Law, Cambridge 2011, pp. 3 & 86 et. seq.
33 Reichman, in: Human Rights in Private Law, Oxford 2001, p. 245, 248-250.
34 Wyman, 17 Harv. L. Rev. 156, 161; arguing that this is due to the monopoly: Beatson, 117 L. Q. Rev. 247, 258.
35 Singer, 90 Nw. U. L. Rev. 1283, 1310.
36 Craig, Administrative Law, 6th edition, London 2008, p. 350.

**Table 1.** Legal construction of the obligation to contract in common calling situations

| | ***invitation to treat*** | ***offer*** | ***acceptance*** |
|---|---|---|---|
| **possible modifications** | implied that the offer expires after supplies run out | written/verbal/of conduct | not needed/written/verbal/of conduct |
| | | conditional/termed/no receipt of acceptance needed | conditional/termed |
| **Solution I** | holding the common calling profession | stepping inside & offer money & no receipt of the acceptance is needed | replaced by the obligation to contract |
| **Solution II** | – | holding of a common calling profession | stepping inside & offer money |

The voluntary implication is that people voluntarily want to serve all persons who come and want to be served.[37] Thus the duty to serve is not only on the notion that inns or common carriers constitute monopolies[38] or that they fulfil a "public function" fundamentally different from that performed by other private actors. Rather, *Blackstone* rests the duty to serve when they "hang out a sign" and "open [...their] house[s] for travellers," they thereby impliedly "engage [...] to entertain all persons who travel that way"[39]. This voluntary implication fits with the first solution and assumes rational and profit making behaviour of the acting people.

A combination of the public function and the voluntary approach can as well be found.[40] This combination does not lead to a paradox. It should be favoured as with it the justification can be adjusted for each specific case. What is more, is that all the four rationales hold a reasonable explanation for the obligation to contract. The voluntary implication even upholds the important aspect of the self determination as the constituting factor of a binding contract and thus the justification for a decrease in the relevant right.

### *d) Economic consequences – enforcing rationality*

To begin with, the economic consequence of two parties freely agreeing to contract an exchange is that both think they would be better off with the exchange than without it; thus the social wealth at large is improved by contracting.[41] Contract law helps to ensure this by securing the needed human cooperation.[42] It has furthermore five more functions: it prevents opportunism, interpolates efficiency both on wholesale and retail basis, punishes avoidable mistakes in the contracting process, allocates the risk to the superior risk bearer and reduces transaction costs.[43] However the obligation to contract leads in general to a situation which the economic analysis of the law assumes in its model to be true: the rationality of the competitors to reduce transaction costs.[44] Thus the legal consequence of the common calling doctrine forces the competitors to behave rationally, correcting their irrational behaviour by maximising their profit.

The economic consequences of the common calling doctrine can be categorised with regard to two criteria: the object (direct/indirect) and the subject (obligor/obligee/public).

In a nutshell the relevant resources will be allocated in a more efficient way, not only for the obligor but as well for the obligee. The resources though vary whether the effect is direct or indirect:

- the direct effect is linked to the resource the obligor publicly offers, which are the goods or services;
- the indirect effect is linked to the resources, manpower and time, the obligor and obligee would spend to either deny or to look for the directly involved resource.

The public welfare will be gained through the provision of more and faster fluctuation of resources, goods and services, and more efficient use of time. It leads furthermore to a certain amount of price stability, as the terms for the obliged contract must be fair.

37 Singer, 90 Nw. U. L. Rev. 1283, 1309 citing: Blackstone, Commentaries on the Laws of England, Volume II, Philadelphia 1860, p. 165.

38 Though for this rationale: Beatson, 117 L. Q. Rev. 247, 258.

39 Blackstone, Commentaries on the Laws of England, Volume II, Philadelphia 1860, p. 165.

40 Wyman, 17 Harv. L. Rev. 156, 161.

41 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 3; Schäfer/Ott, Lehrbuch der ökonomischen Analyse des Zivilrechts, 4th edition, Berlin 2005, p. 393.

42 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 4.

43 Kronman/Posner, The Economics of Contract Law, Toronto 1979, pp. 1-7; Posner, Economic Analysis of the Law, 7th edition, New York 2007, p. 99.

44 Posner, Economic Analysis of the Law, 7th edition, New York 2007, pp. 98-99; Schäfer/Ott, Lehrbuch der ökonomischen Analyse des Zivilrechts, 4th edition, Berlin 2005, pp. 393.

**Table 2.** Common callings' economic consequences

| | obligor | obligee | public |
|---|---|---|---|
| **direct effect** | more efficient allocation of resources (goods, services) | | more and faster fluctuation of resources (goods, services) |
| **indirect effect** | more efficient allocation of resources (manpower, time) | | more and faster fluctuation of resources (goods, services), more efficient use of time |

## 2. The principle of the business affected with a public interest

The principle of the business affected with a public interest was developed for the professions of "cranage, wharfage, housellage, pesage" in the 17th century by *Sir Matthew Hale*.[45] In *his* Analysis of the law *Hale* splits the rights of things into *ius publicum* (things that "at least in their own use, are *common to all* the king's subjects"[46], such as common highways, bridges or ports) and *privatum* (things personal, such as express and implied contract, and things real[47]). However the ordinary pursuit of trade or commerce is neither *ius privatum* nor *publicum.*

Giving the example of a small river in the public use for boats, they are *prima facie iura publica*.[48] But if a private person uses his ferry on this river for the use of all, that ferry gets as well "a thing of publick interest and use"[49] so that this ferry takes over the function of *ius publicum* and thus has to serve all who want to use it for a reasonable toll.[50] In other words the "*ius privatum* […] must not prejudice the *ius publicum*"[51]. So far only *ius privatum* and *publicum* were concerned. In the situation of licensing the *ius regium* comes into play.

*Blackstone* does not comment on *Hale's* principle,[52] nevertheless British judges, though less frequent than the Americans,[53] used it twice[54].

45 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 77-78; Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 6-7.

46 Hale, The History of the Common Law of England, 6th edition, London 1820, p. 41.

47 Hale, The History of the Common Law of England, 6th edition, London 1820, p. 76.

48 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 8-9.

49 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 6.

50 McAllister, 43 Harv. L. Rev. 759, 762.

51 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 22.

52 Blackstone, Commentaries on the Laws of England, Volume I, Philadelphia 1860, §§ 370-371; McAllister, 43 Harv. L. Rev. 759, 766.

53 *Munn v Illinois* (1877) 94 US 77; McAllister, 43 Harv. L. Rev. 759, 767; Taggart, in: The Province of Administrative Law, Oxford 1997, p. 7.

54 *Bolt v Stennet* (1800) 8 Term Rep. 606; *Allnutt v Inglis*, 12 East 528.

### a) Requirements – a monopoly while providing services to the general public

Persons who had either a *de iure* or a *de facto* monopoly while providing services to the general public had a duty to serve. However a mere monopoly was not sufficient to render the obligation to contract. Those monopolies had to be "in the public interest".[55] Yet it is not exactly defined what the public interest is composed of. This is why the principle of the business affected with public interest is best understood as it was applied by the British courts in two cases, each involving port facilities.[56]

In the first one the defendant's justification, who had used a crane in a port without permission, was acknowledged. He claimed the crane to be necessary to land goods and wanted to use it on payment of reasonable compensation.[57]

In the second case the defendant run the only London warehouse in which the plaintiff's wine could have been stored in a duty free manner. The plaintiff rejected to pay the fee and had to pay the bond duty. He thus sued for damages. As the defendant had a monopoly due to a licence of the crown, the property became an instrument of the general benefit[58] and must "perform the duty attached to it on reasonable terms"[59]. The defendant had to rend the warehouse for a reasonable compensation only.[60]

The requirements of the principle of the business affected with a public interest are that the public has a right for a particular purpose to use a (legally) monopolised facility. The public interest in it lies with the *virtuality* of the monopoly.

### b) Legal consequences – the origin of the duty for reasonable and moderate rates

Where a person has the benefit of a monopoly, she has the responsibility to enter into a contract and to charge only a reasonable price for the offered

55 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 77-78; Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 7; Bolt v Stennet (1800) 8 Term Rep. 606; *Allnutt v Inglis* (1810) 12 East 528.

56 *Bolt v Stennet* (1800) 8 Term Rep. 606; *Allnutt v Inglis* (1810) 12 East 528.

57 *Bolt v Stennet* (1800) 8 Term Rep. 606.

58 *Allnutt v Inglis* (1810) 12 East 528, 532.

59 *Allnutt v Inglis* (1810) 12 East 528, 538.

60 *Allnutt v Inglis* (1810) 12 East 528, 538–539.

service.[61] Here the same questions are risen as within the legal consequences of the common calling. However they are a little more interesting, as the statutory law providing for the licensing did not require the obligatee to contract but to give a reasonable compensation.[62]

One can develop from the legal consequence to ask only for a reasonable compensation an argument *a fortiori* (*a maiore ad minus*) for an obligation to contract. This can be illustrated by an example: because the bottleneck of the cranage, etc. was licensed by the king and regulated with regard to moderate rates to be accessible, it had as well to be accessible for everyone via contract. Otherwise the king would have set the rate beforehand. Regarding the actual contracting there exist the same two solutions as with the common calling doctrine, where here again the second one is favourable.[63]

***c) Rationales – ius publicum, ius privatum and ius regium***

The rationales of both decided cases lie in the function of the *ius publicum*. Though the statute that required the goods to be warehoused in the Dock Company did not explicitly state an obligation to contract, it was not passed for the sole benefit of the Company but also for the benefits of trade and the public in general.[64] However the rationales within *Hale's* principle derive from the situation of a monopoly, be it natural or virtual. In both decided cases[65] there was a monopoly, in the latter case it was one of parliamentary granted public privilege. Thus the *ius publicum* had to succeed over the *ius privatum* that might have been enhanced and guaranteed via the *ius regium*. It is this enhancement and guarantee with the licensing process, that gives the rationale of the obligation to contract: A contracted out public function has to be accessible to everyone. This is why the *ius publicum* is enhanced and reigned by the *ius regium*.

***d) Economic consequences – an enhancement of the common calling***

The economic consequences are overall the same as the one of the common calling[66]. However due to the dissimilar rationale they are just in the slightest way different: whereas in the common calling situation the goods were *per se* open to all, due to the licensing process the state itself constituted the situation for the monopoly. There must have been a reason, why government did this (e.g. to have some sort of meta-regulation in place, reducing the risk of abuse by setting meta-rules of how to pick the right person in a procurement procedure, or there must be a certain standard for the supply of the good as it is so dangerous to handle, etc. Thus the reasons can be object, subject or process related). To be sure due to the premise to reach an equal treatment and thus "distributional fairness", and to ensure that the good and service is distributed to all at reasonable consideration, there must be an obligation to contract. As such the economic consequences vary according to the goods or services that are provided. On a macro-economic level price stability is enhanced.

## 3. The prime necessity doctrine

Emerging from both, the common calling and the principle of the business affected with a common interest is the third common law doctrine having as legal consequence an obligation to contract: the prime necessity doctrine.[67] As it is prevailing in Commonwealth law[68] but is not adopted by British courts, its requirements, legal and economic consequences and rationales will only be briefly reviewed.

According to this doctrine suppliers of "prime necessities" with a virtual monopoly have the implied duty to supply these to anyone who requires the prime necessity and is ready to pay a fair and reasonable price.[69] Its rationales are to provide the public with the prime necessities, even if there was no monopoly for the relevant necessity. This raises the definitional question, what exactly constitutes a prime necessity. The court does not do this with any word. It merely says, that water is one and that the rights and obligations of the appellant, which could neither be based upon the liability to water taxation or a monopoly of water supply, had to be "derived from the circumstances and from the relative positions of both parties"[70]. The economic consequences are obvious: the obligation leads to a distribution of the prime necessity to everyone, as long as the obligator is willing to pay the reasonable price, hence here again rationality is restored with the same economic consequences as with the common calling doctrine[71].

## 4. Political and regulatory development due to the three common law doctrines

A terminological problem arises for the question what a "prime necessity" constitutes, which is only stated but neither defined nor explained, as well as for the terms "public interest" or "common". The legal consequences are that to hold the relevant profession

61 *Allnutt v Inglis* (1810) 12 East 528, 538–539.
62 Hale, A Collection of Tracts Relative to the Law of England: From Manuscripts, Volume 1, Dublin 1787, pp. 77–78.
63 See above: C.I.1.b), p. 53.
64 Craig, Administrative Law, 6th edition, London 2008, p. 439.
65 *Bolt v Stennet* (1800) 8 Term Rep. 606; *Allnutt v Inglis* (1810) 12 East 528.
66 See above: C.I.1.d), p. 54.
67 Oliver, 1997 P. L. 630, 633 & 634; Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 7.
68 *Minister of Justice for the Dominion of Canada v City of Levis*, 1919 AC 505.
69 *Minister of Justice for the Dominion of Canada v City of Levis*, 1919 AC 505.
70 *Minister of Justice for the Dominion of Canada v City of Levis*, 1919 AC 505, 513.
71 See above: C.I.1.d), p. 54.

is already the offer, to step inside and ask for the good or service the acceptance. Economically all the three common law mechanisms restore rationality and thus annihilate market failure. The rationales can be seen in the overtaken public function, or, as in the common calling situation, in the voluntarily taken profession implying a public function. Only with regard to the prime necessity doctrine the rationale could be found in the distribution of the necessity.

Merely the common calling doctrine was extensively used by British courts and even extended to many professions, such as hotels or taverns.[72] The American courts were far more restrictive in extending the common calling doctrine to different professions. But already in the 19th century the common calling status was broadened by American courts to the newly developing public utilities sector, e.g. gas, railroad, telephone, water, via two arguments: an analogy to the common carrier and in developing the principle of the business affected with a public interest and the prime necessity doctrine.[73] The British courts refused to do so, hence the legislature had to especially regulate the utility sector, which will be looked at in the following part.

## II. Statutory law

An obligation to contract is expected to exist in the area of utility law in sectors like electricity, gas, mail, telecommunications, transportations or water. Only two of them will be analysed here. The decision fell on electricity (1.) as it is a very important resource that is in Great Britain supplied via a network, a subsidy for other heat producing sources and privatised since 1989. The second sector chosen is one that is a descendant of the common calling profession of a common carrier, the royal mail system (2.). Furthermore it was recently privatised in 2013 and is as such of further interest.

### *1. Supplying electricity*

The main aim of the 1989 privatized electricity sector is according to section 13 para II lit a Utilities Act 2000 to "secure that all reasonable demands for electricity are met". Any person who wants to generate, transmit, distribute or supply electricity needs a license, each having a special set of conditions and duties, section 4 Electricity Act 1989. Public service obligations were introduced to progress "services of general economic interest"[74] due to the European Directive[75], so that common minimum standards, regarding consumer protection and the security of supply are met all over the EU.[76]

#### a) *Requirements – providing for an obligation*

Only the distribution and actual supply of electricity to the end costumer is within the scope of this article's topic. The distribution systems are the actual networks that bring electricity to the end users. Supplying electricity means to purchase it from the generators and selling it on to customers, which includes customer services, such as billing; suppliers have to contract with distributors to move the purchased electricity through the networks to the customers' premises.[77]

The licence conditions of relevance are: condition 3 to regulate the prices charged to costumers, condition 8 to set out statements that hold the information about the charges which will be made and condition 8A, which imposes a duty not to discriminate as between any person or class of person while providing those services.[78]

There are three levels of explicit duties the licensees have to fulfil. First there is a "duty to connect on request" for the electricity distributors, section 44 Utilities Act 2000 amending section 16 Electricity Act 1989. Thus the electricity distributor has a duty to connect the premises of the owner, following a certain procedure. Having connected the premises to the net, secondly the electricity distributors have to maintain the connection, section 44 Utilities Act 2000 para IV. Under normal circumstances after having provided for the connection and necessary tools such as a meter, there follows the contracting to supply electricity with the supplier. But what happens, if there is no contract, which leads to the third set of rules? The supplier is thirdly deemed to have contracted and can charge accordingly, even if there was no contract, Schedule 6 Utilities Act 2000.

Though the former *National Consumer Council* pleaded for an absolute "obligation to supply"[79] according to the wording of section 44 Utilities Act 2000 amending section 16 Electricity Act 1989 there is no explicit obligation to contract and thus to supply the end-users with electricity.[80] However one can reach such an obligation with an interpretation of the first and last duty, together with condition 8A and the general principle as the overall *telos* of the Utilities Act 2000.

72 Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 7.

73 Taggart, in: The Province of Administrative Law, Oxford 1997, p. 1, 7.

74 Art. 14 & 106 para II TFEU; *EC* of 21 May 2003, Green Paper on services of general economic interest, COM (2003) 270; *EC* of 12 May 2004, White Paper on services of general economic interest, COM (2004) 374.

75 DIRECTIVE 2003/54/EC of 26 June 2003, OJ L 176/37.

76 Brothwood, 3 I. E. L. T. R. 48.

77 For this: Hassan, 9 I. E. L. T. R. 231, 232; Simmonds, Regulation of the UK Electricity Industry, Bath 2002, p. 19.

78 Cross, Electric Utility Regulation in the European Union, Chichester 1996, p. 264 & 268.

79 NCC, In the absence of competition, London 1989, p. 169.

80 With no further argument for such an obligation with regard to section 16 Electricity Act 1989: Bailey/Tudway, Electricity, Law and Practice, London 1992, Part B 7.02; Beatson, 109 L. Q. Rev. 401, 415.

The duty to connect on request would not lead to a reasonable result if it did not imply a duty to supply. The first duty simply does not make sense, as the establishing of the connection in itself is only costly, without the supply there is no benefit to either party to it. Thence both sides, the supplier and the end-consumer are rather interested in contracting. Though the Utilities Act 2000 does not provide for a special obligation to supply, it nevertheless regulated the situation if there was no contract providing for the charges as if contracted and thus for a fiction. Concluding *a fortiori* (*a maiore ad minus*) from this the obligation to supply is the basis for this fictional legal consequence.

As condition 8A provides for a non-discriminating fulfilment of the licensees duties this leads the argument as well to an obligation. In the light of the authority's duty of consumer protection concerning prices and the terms of supply the duty to connect has to lead to an obligation to supply.

This rules even though the duty to connect is addressed to a different person – the distributor – than the one holding the licence – the supplier. The reason for this is that the obligation to contract is not only hooked on the back of the duty to connect, but flanked by condition 8A and the protection of the financial interests of the supplier in Schedule 6 Utilities Act 2000, who can charge accordingly.

The requirements to trigger an obligation to supply are a connection to the network and the willingness and ability to pay reasonable prices.

***b) Legal consequences – A contract needed?***

At first glance it seems that there is not exactly a contract needed, as Schedule 6 Utilities Act 2000 provides the electricity supplier with the terms needed. Nevertheless one can see the formation of a contract.[81] Starting off from this situation, the offer can be seen in keeping the electric flow up and thus potentially supplying, the acceptance in actually using the supply. Thence both, offer and acceptance are non-verbal and of conduct. Therefore Schedule 6 Utilities Act 2000 makes only clear that the provider can charge accordingly. If the electric supplier caps the electricity distribution, but the owner wants to have access to electricity he has to pursue both, keeping up the electric flow and contracting.

The obligation to supply can be thought of as being statutory as well, regarding section 49 Utilities Act 2000's wording (special agreement) and Schedule 6 Utilities Act 2000.[82] However, case law dating back to the midst of the last century have the same *ratio decidendi*.[83] Thus the application to be supplied with electricity can only trigger the supplier's statutory obligation to supply; this is in accordance with the fact that contractual remedies are not available for the customer according to the still valid section 27 Electricity Act 1989.[84] In fact such an obligation by statute has the same consequences as if one affirms to use a contract that is reduced by certain remedies via statutory law. The distributor is obliged to supply electricity after the owner or proprietor applied for it. The function of such a statutory duty is the same as an obligation to contract, where the acceptance or offer is forced upon the distributor.

***c) Rationales – controlling power while distributing electricity to everyone***

The Utilities Act 2000 holds the rationales for this obligation. They are indeed similar to the one in the prime necessity doctrine and *Lord Hale's* principle: licensing the distribution of such an important resource is, because it is distributed through a physical network, advisable, but will lead to a conglomeration of market power. To control this virtually produced power and ensure an overall distribution of the resource needed, several mechanisms are used, such as the duty to connect or the anti-discrimination condition. Hence the main *telos*, to secure that all reasonable demands of electricity electricity can be met according to section 13 Utilities Act 2000 para II lit a, is the rationale underlying this obligation. It leads to the last piece needed in the view of the end-consumer to achieve the overall *telos* and thus regulating this privatized and licensed sector.

***d) Economic consequences – basic services for everyone***

The economic consequences of this obligation are similar to those of the common law doctrines.[85] However this is reached in two steps, the duty to connect and the obligation to supply. The duty to connect forces upon the distributor maybe an uneconomic decision to connect the owner's premises. But according to section 19 Electricity Act 1989 the person requiring the connection has to pay for "any expenses reasonably incurred" the burden of uneconomic use is shifted to the owner. After being connected to the network, the obligation to contract of the suppliers again leads to the reduction of irrational and uneconomic behaviour, as the provision of electricity to one more user in itself after being connected to the network, only leads to a better usage of the network.

81 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 88.

82 Bailey/Tudway, Electricity, Law and Practice, London 1992, Part B 7.03; Tillotson, Contract Law in Perspective, London 1995, pp. 138-139.

83 *Norweb plc v Dixon* 1995; Bailey/Tudway, Electricity, Law and Practice, London 1992, Part B 7.03 citing further case law.

84 Bailey/Tudway, Electricity, Law and Practice, London 1992, Part B 7.03.

85 See above: C.I., pp. 52-57.

## 2. Collecting and delivering mail

Royal Mail, established 1516 by Henry VIII, was only available for royal letters. Private letters were explicitly excluded. With the 1583 Orders in Council Royal Mail claimed exclusive responsibility over private letters.[86] In 1837 a first concept of universal service was established with the "Uniform Penny Postage".[87] After having developed into a government department Royal Mail became in 1969 a statutory corporation turning in November 2001 into a public limited company. Royal Mail was for 350 years the monopolist on the British postal market. With the Postal Service Act 2000 the postal service was licensed, thus the Postal Service Commission (Postcomm) was able to offer licenses to private companies. Transforming European Directives[88] since April 2004 the postal market opened to competition.[89] With the new authority, OFCOM, there is no longer a need for licenses but since October 2011 a general authorisation procedure according to the new section 28 Postal Service Act 2011.

### a) Requirements for the universal postal services

The starting point is the idea of the common carrier and the *common calling* doctrine. Though there was an obligation to contract for common carriers, this ceased at least for Royal Mail since the Post Office Act 1969, as according to section 7 para IV, the Post Office was explicitly stated to not be a common carrier. This was upheld in section 99 Postal Service Act 2000. Even more, although in section 9 para I Post Office Act 1969 the duty of the Post Office was described to "meet the social, industrial and commercial needs", according to para IV any form of duty or enforceable liability should not be construed due to this section. All the three provisions are still valid law.

This is why the obligation to contract cannot derive from the common calling doctrine for Royal Mail. Nevertheless since Royal Mail is no longer a monopoly and newly privatised, the provision of the acceptance and delivery of mail had to be secured. Hence there is a bundle of rules to guarantee a universal postal service via the Postal Service Act 2011 and OFCOM's The Postal Services Order 2012. Not the Royal Mail, but first of all OFCOM has the duty to secure the provision of universal postal service as it has to carry out its duties to secure "sufficient access points to meet the reasonable needs of users of the universal postal service", section 29 para VI Postal Service Act 2011. Section 31 Postal Service Act 2011 sets out seven minimum requirements that have to be included in a universal postal service, such as that there should be at least one delivery and collection of letters every Monday to Saturday. These seven requirements are further specified in OFCOM's The Postal Services Order 2012. Instead of being under a contractual obligation to deliver mail, as the only universal postal service provider, Royal Mail has to fulfil universal postal service obligations, section 35 Postal Service Act 2011. Thus there are obligations imposed by written law.

### b) Legal consequences – Royal Mail's five schemes

Royal Mail has to fulfil the universal postal service obligations. Being universal they are available to every resident. Hence it is under statutory obligation and – according to Royal Mail – not under a contractual obligation to deliver the mail. Royal Mail names the universal postal service obligations "non-contract services", such as the delivery of inland and overseas letters and parcels.[90] Those "non-contract services" are governed by five schemes Royal Mail is empowered to pass, section 89 para I Postal Service Act 2000. They are read as if they were general terms and conditions of a contract.

Yet, does posting a letter or parcel in legal terms lead to a non-contractual relationship as announced by Royal Mail? One can think here again either way, of a contract and of an obligation by law. Within a contractual approach[91] putting up mailboxes and post offices are the invitations to treat, posting the mail the offer and emptying the mailbox or accepting the mail in the post office the acceptance. If a mailbox is used the offeror waives the requirement to receive the acceptance. As can be seen in section 33 Postal Service Act 2011 and sections 7 & 8 and Schedule 1 of The Postal Services Order 2012, it is only under limited conditions possible for the universal postal service provider to refuse the services. If it does, OFCOM may impose a designated universal service provider condition to make sure the universal postal service is secured, section 36 para III Postal Service Act 2011.

However if one favours an obligation by law, the obligation comes to existence by posting the letter.

The mere possibility to understand mailing along the lines of contract theory in itself is no argument for or against such an approach. However that Royal Mail is now privatized might lead to an argument to the contrary. But there are four and more qualified arguments for an obligation by the law. First the common calling doctrine is permanently excluded via statutory law. Thus the legislator had the aim not to enter the sector of contract law. Secondly the

86 Campbell-Smith, Masters of the Post, London 2011, pp. 15-17.

87 Campbell-Smith, Masters of the Post, London 2011, pp. 123-133; Dnes, 4 E. J. L. & E. 93 & 94.

88 Directive 97/67/EC of the European Parliament and of the Council of 15 December 1997, OJ L 15/14; DIRECTIVE 2002/39/EC of 10 June 2002, OJ L 176/21.

89 Marchini/Grant, 38 Euro. Law. 14.

90 The Schemes are available at: http://www.royalmail.com/non-contract-terms-and-conditions.

91 Atiyah/Smith, Atiyah's introduction to the law of contract, 6th edition, Oxford 2005, p. 88.

legislator used the term "universal postal service", which in itself means that the service must be available to every individual,[92] providing for a baseline of service. Thirdly Royal Mail is as universal postal service provider empowered to set up schemes. Though those schemes regulate the relationship to the same extent as general terms and conditions of a contract would do, they are statutorily legitimated to do so. Furthermore, the schemes need to be detailed to a similar extent as general terms and conditions, as they are intended to provide for the concrete regulation of the mass services of delivering mail. This is why the empowerment to rule out the schemes for the universal postal services is so far and covers as well "other terms and conditions which are to be applicable to the services concerned", section 89 para II lit b Postal Service Act 2000. What is more, Postcomm and now OFCOM has the power to specify the products needed, sections 3 & 13 Postal Service Act 2000, though Royal Mail denied that[93]. Fourthly and most important both solutions lead to the same consequences, which is that Royal Mail is obliged to fulfil the services as set out in the scheme, with a reduced liability according to section 90 Postal Service Act 2000. Only under very limited conditions it is possible to refuse services, e.g. if the mail holds dangerous items.

***c) Rationales – universal postal services as a guarantee for consumer protection***

The postal services are considered a "service of general economic interest" by the *European Commission* (*EC*). As part of the Lisbon Agenda the European's postal policy is to enhance a Single Market and ensure high quality universal postal services.[94] Transforming the European Directives on postal services, the rationale for the universal postal services is to ensure that while the market is opened via licenses for other postal services providers, a minimum standard of postal services is available for every individual. Instead of using contractual obligations and an obligation to contract, the legislator ensured the availability of postal services with the force of public law. Not only has the legislation lifted the burden from the consumer to enforce the conclusion of the contract in court, it has also imposed OFCOM as an authority and regulator to secure universal postal services. Hence the rules of the universal postal services go even further than a mere obligation to contract, as they force upon the universal postal service provider obligations by law. Though they are able to set out schemes for the universal postal services, the boundaries as to what the actual content of the obligation by law is, are narrowly set by the legislator and OFCOM beforehand. Furthermore the prices are being monitored.

***d) Economic consequences – basic postal services for everyone***

So far only the beforehand authority, Postcomm, provided for a brief impact assessment and consumer consultation of the restructuring of postal services with the provision of universal postal services. OFCOM itself was not required to carry out any assessment of the universal postal service order before it was put into place, but has to undertake a review now in 18 months, section 30 para IV Postal Service Act 2011. However what Postcomm elaborated, is only a confirmation and specification of the universal postal services after having consulted the consumers in 2005.[95] The universal postal services' specification is needed to "reduce uncertainty in the transition to a new regime"[96]. The authorisation system and the specific universal postal services secure both, the opening of the market for new competitors while ensuring at the same time that everyone can use the universal postal service. Potential competitors can calculate in a better way, which costs and cross-subsidizing strategy they need, before they enter the market. A Single Market is thus created while opening up trading and securing the needed services for everyone.

Looking at the economic consequences, they are at the first glance the same as those where an obligation to contract exists in private law: in the economic analysis of the law assumed rationality is forced upon the universal service providers. However they do not have the choice to not collect or deliver mail in remote and not so frequently toured areas. The universal service obligations force the universal service provider to provide for services that would otherwise not be available out of efficiency reasons at all. The economic consequence is the upkeep of uneconomic services for the sake of individuals.

## D. The implications of the obligation to contract

### I. Requirements – indistinct normative terminology

With regard to the requirements all the five areas of research use normative terminology[97]: a *common* calling, the business affected with a *public interest*, the *prime necessity*, the *public* service obligation or

92 In this sense: Postcomm, The building blocks for a sustainable postal service, London 2011, p. 9.

93 Postcomm, The building blocks for a sustainable postal service, London 2011, p. 8.

94 Article 1 DIRECTIVE 97/67/EC of 15 December 1997, OJ 1998 L 15/14; Preamble para II of the DIRECTIVE 2002/39/EC of 10 June 2002, OJ 2002 L 176/21; Preamble paras I & V of the DIRECTIVE 2008/6/EC of 20 February 2008, OJ 2008 L 52/3.

95 Postcomm, The building blocks for a sustainable postal service, London 2011, pp.7-12.

96 Postcomm, The building blocks for a sustainable postal service, London 2011, p. 8.

97 See below: Table 3, p. 62.

the *universal* postal service. Either they start right from the distributional obligation that they need to serve everyone (*common,* business affected with a *public* interest, *universal* and *public* service obligation) or they hold in the first step the importance of the service or good (*prime necessity*) which leads in a second conclusion to the consequence that they should be obliged to serve everyone. As all terms are to be filled normatively, it is hard to find a definition that can be used to subsume. This could be especially seen if the latter course of action was taken. But why is it that the first way seems to be clearer? This is due to the fact that the important service was either already firmly set – to serve electricity, to deliver mail in the largest sense or another service provided for in with a legal monopoly – or linked to the chosen profession. But what exactly constitutes a prime necessity, thus distinguishes one service or good from all the others leading to a possible reduction of the exclusivity of property and the right to choose a contractual partner, is not stated at all.

The core problem lies in the definition of the service or good, that should lead to an obligation to contract. In the first solution this question is not raised at all, but already affirmed. Prime necessity is a term that is and must be open to every service and good, which is why the definitional problem arises.

Merely instead of being clearer, the first solution blurs the underlying rationale and core problem of the obligation to contract. The regulator himself had already decided what universal services the public needed, undergoing a tedious process. He held it up against what already existed as services and what the needs of the consumers might be, thus deciding in advance for the essentiality and necessity of the good for the people. Whereas the regulator has the necessary resources – manpower and time – to decide upon the question, which service or good shall fall within the obligation to contract, courts lack those. Though courts are able in common law jurisdiction to decide with their *ratio decidendi* on a general applicable rule, they have first and foremost to decide the case. Hence they look at what the service or good means for the specific applying potential obligee.

What do the goods or services have in common that provide for an obligation to contract in the five areas of law? They are all goods or services that were served in a more or less dominant position, that are not or at least not easily exchangeable. Both criteria give the potential obligor the power to exclude the potential obligee. It is this power that gives rise to the similarity of the situations. Furthermore the potential obligee is in need of the good or service. This need can be further specified as core human survival needs (physical and security), social human needs or process related needs.[98] Though the EC looked in more detail into the "services of general economic interest" it did not define as well what exactly constitutes such a service. *Plato's* and *Maslow's* proposed classification of human needs might be taken as another basis to approach and explain what the needed requirements for the goods and services of relevance are.

## II. Legal consequences – obligation to contract or statutory obligation

The legal consequences of the five analysed legal relationships are either a contract to be concluded at reasonable and fair terms by the parties or a statutory obligation.[99] In the first case the parties can still decide on how the contract will look like and the courts can only decide on its reasonability and fairness. In the latter the regulator had in advance decided upon the legal relationship's broader design, though given the provider the possibility to arrange for "general terms and conditions" schemes, to provide for the more specific obligation. Both are ways of compensation for the loss of being able to choose the contractual partner on a first level. On a second level in each of the five areas of law it is still possible under certain conditions to refuse to contract.

Whereas a statutory obligation leads to the same advanced set rules, which grants for more equal treatment, if the legal consequence is a contract to be negotiated the obliged party has more leeway in the specific case while contracting. Nevertheless equal treatment is held up due to the requirement that the contract must be fair and reasonable.

The underlying principles with regard to the requirements of a dominant position and the need for the good or service is that the more dominant the position and the more needed the good or service is, the more justified is an obligation to contract. This construction is preferable to grant the obligator a certain amount of negotiability in every case, thus compensating for the restraint of the previously granted exclusivity. Though having already given some kind of leeway for setting up "general terms and conditions" to specify the legal relations, another method could be allowing the obligator to set up schemes beforehand, especially if the good in want is needed by everyone in a mass scenario.

## III. Rationales – the public interest, the interest of the obligee and of the obligor

The rationales for all five areas of law[100] aim to balance the interests of proprietor/service provider, obligee and the public. The exclusivity of property which leads to private property, excludes others – hence the public – for the sake of the individual. It is

98 This idea goes back to ancient Greek philosophy (Plato, Politeia, Platon's Werke, Zehn Bücher vom Staate, Stuttgart 1855, Book II at 369-371) and was picked up by psychology and economics in the 20th century (Maslow, 50 Psychological Review 370; Welzel, in: Oxford Handbook of Political Behaviour, Oxford 2007, pp. 192-193).

99 See below: Table 3, p. 62.

100 See below: Table 3, p. 62.

institutionalized and protected by the state. But it has as well to serve the public. For such a purpose the granted exclusivity can be restrained. This strain of thought can be seen in each an every situation of the five areas of law. The more important or necessary the good or service is for the obligor, the easier it is to restrain the right. This is most obvious in the situation where the state created a virtual monopoly by licensing, which is the case in the business affected with a public interest, the supply of electricity, the delivery of mail.

Though only the first doctrine of the common calling provided in one approach for a voluntary implication while choosing the profession, all the five have as underlying rationale the public interest that is to be served by providing for an obligation to contract. It is indeed the public interest that justifies the restraint of the exclusivity.

## IV. Economic consequences – more efficient resource allocation

The economic consequences of the obligation to contract are in all five fields a restored rationality of the participants and thus more efficient resource allocation. Part of the effects of the dominant position and its market failure can be annihilated with the obligation to contract. Hence the power of the dominant undertaking leading to the potential market failure is corrected. The obligation to contract has a negative potential as well in non-regulated areas: it might lead to a reduction of innovation. It can furthermore be circumvented by an inefficient reduction of the stock.

**Table 3. Summary of the five areas of research and the four criteria**

| | **Common calling doctrine** | **Business affected with a public interest** | **Prime necessity doctrine** | **Duty to supply – Utilities Act 2000** | **Universal postal service obligations – Postal Services Act 2011** |
|---|---|---|---|---|---|
| **Requirements** | common calling | monopoly | prime necessity | public service obligator, network connection | universal postal provider, stamping |
| **Legal consequences** | obligation to contract | | | statutory obligation to contract | |
| **Rationales** | public interest / voluntary implication | *ius publicum* pushes back *ius privatum* with an enhancement by the *ius regium* | distribution to everyone | secure that all reasonable demands of electricity are met | minimum standard of postal services is available for every individual |
| **Economic consequences** | more efficient allocation of resources, restoring rationality | | | more efficient allocation of resources, restoring rationality, shifting connection costs to the owner, upkeep of uneconomic services for the sake of the individuals | |

## E. Conclusion

The problem of access to certain goods and services is not a new, but a very old one dating back to medieval cases to a time where competition law was unknown.

The obligation to contract has only in areas where the good or service that should lead to an obligation to contract subsumable requirements. If the question whether or not to provide for such an obligation was answered beforehand, it can provide for a good principle to reduce market failure. However the legal consequence does not have to be a contract concluded by the parties, but can be as well a statutory obligation as could be seen in the sector of electricity and posting mails. The overall rationales are to distribute the public with the good or service and thus to grant access in a broader sense. Interestingly in the first doctrinethe common calling, the underlying idea is that a special/peculiar responsibility comes with the dominant position.[101] The economic consequence leads overall to more rational behaviour of the market participants.

Though *Hale's* doctrine is no longer used, it actually is the first to show the implications of private, public and the regulatory law in the context

101 See above: C.I.1.d), p. 56.

of the obligation to contract. It already stated a universal service idea following privatisation, namely that a contracted out public function has to be accessible to everyone. As competition law and the regulatory authorities have the legal and economic tools to weigh the involved private and public interests, it is the right branch of law to deal with this problem.

The brief glimpse into the underlying rationales of need showed that a psychological, political and economical research on the obligation to contract will shed further light into the specification of the goods and services concerned.

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# MILITARY EXPENDITURE AND THE ECONOMY OF ZIMBABWE

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**Abstract**

This study examines the causal relationship between military expenditure and economic growth in Zimbabwe. The causality relationship between government military expenditure and economic growth has so far received attention from many economists, the dominant ones being Wagner (1890) and Keynes (1936). According to literature, there currently exist four perspectives around the causality relationship military expenditure and economic growth. The first perspective by Keynes (1936) suggests that military expenditure spur economic growth whilst the second perspective by Wagner (1890) mentions that economic growth affects military expenditure. The third perspective says both military expenditure and economic growth affects each other whilst the fourth perspective suggests the existence of no causality relationship at all between military expenditure and economic growth. The results of this study proves that military expenditure does not directly influence economic growth whilst economic growth does also not directly influence military expenditure both in the short and long run.

**Key Words:** Zimbabwe, Military Expenditure, Economic Growth, Co-Intergration

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## 1. Introduction

The study investigates the causality relationship between government military expenditure and economic growth in Zimbabwe. Though there have been quite a number of empirical studies on the causality relationship between government military expenditure and economic growth, the results are not yet conclusive. Wagner (1890) and Keynes (1936) are the two most dominant economists with their opposing perspectives in as far as the causality relationship between government military expenditure and economic growth is concerned.

The Keynesian perspective which was advocated for by Keynes (1936) suggested that government military expenditure is crucial in stimulating economic growth. A panel data analysis by Wijeweera and Webb (2011) discovered that military expenditure had a positive but negligible influence on economic growth across all South Asian countries that include India, Pakistan, India, Bangladesh, Sri-Lanka and Nepal. A 1% increase in military spending was found to have positively impacted on economic growth by a mere 0.04% in all the five South Asian countries (Wijeweera and Webb, 2011). According to Pieroni (2009), military spending impacted negatively on economic growth in countries with a huge defense budget. On the contrary, military expenditure had an insignificant positive influence on economic growth in countries whose defense budget is small both in the short and long run, revealed Pieroni (2009).

According to Wagner's theory (1890), economic growth positively influences government military expenditure. Using panel data analysis, Kollias et al (2004) discovered that economic growth positively influenced military expenditure across all the European Union countries that were under study. The feedback perspective explains that both government military expenditure and economic growth affect each other. In the long run, both military expenditure and economic growth were found to have influenced each other in Turkey (Karagol and Palaz, 2004). Kollias et al (2007) however discovered that both military spending and economic growth influenced each other in the long run in all the EU15 group of countries.

According to the no relationship perspective, there is no relationship at all between government military expenditure and economic growth. Kollias et al (2004) discovered no causality relationship between government military expenditure and economic growth in either direction in five European Union countries.

For a country like Zimbabwe whose yearly government military expenditure budget eclipses other government civilian expenditure budgets, the role of military expenditure on economic growth requires a thorough investigation. It is for this reason that the current study attempts to examine the relationship between government military expenditure and economic growth in the context of Zimbabwe, using the Auto Regressive Distributed Lag (ARDL) bounds testing approach. The findings from this study will not only be helpful to Zimbabwe economic policy makers but also to the academia in form of an additional empirical study.

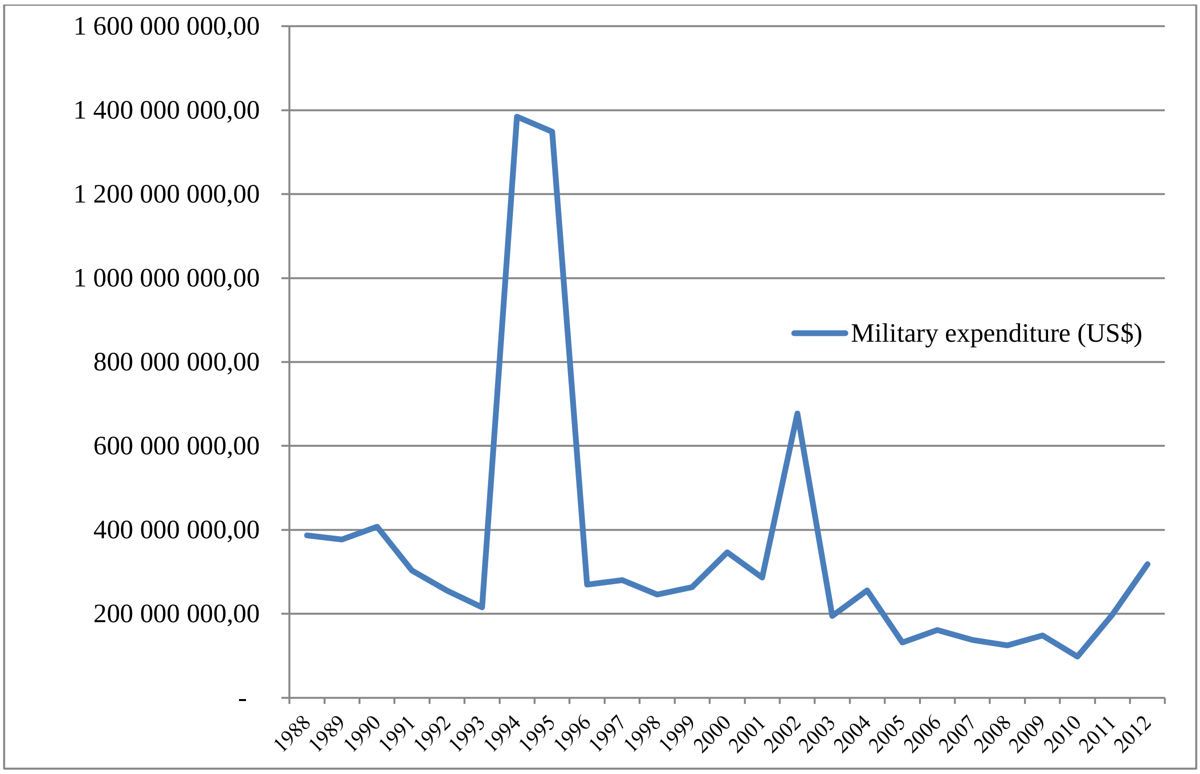
Time series data ranging from 1988 to 2012 is used to examine the causality relationship between government military expenditure and economic growth. Stationarity tests of both sets of data is first performed to determine the extent of data volatility and then followed by the co-integration test (ARDL-bounds testing procedure) to determine the existence of a long-run relationship between government military expenditure and economic growth. Granger causality test is then lastly done to examine the directional causality relationship between government military expenditure and economic growth.

The study employs military expenditure (% of GDP) as a proxy for military expenditure and GDP per capita as a proxy for economic growth.Part 2 looks at the military and economic growth trends in Zimbabwe whilst part 3 presents a review of related literature. Part 4 deals with research methodology, part 5 conclude the study whilst part 6 looks at the bibliography.

## 2. Military Expenditure and Economic Growth Trends in Zimbabwe

The military expenditure for Zimbabwe during the period between 1988 to 2012 is characterized by fluctuations (see Figure 1).

**Figure 1.** Military expenditure (US$) trends for Zimbabwe (1988-2012)



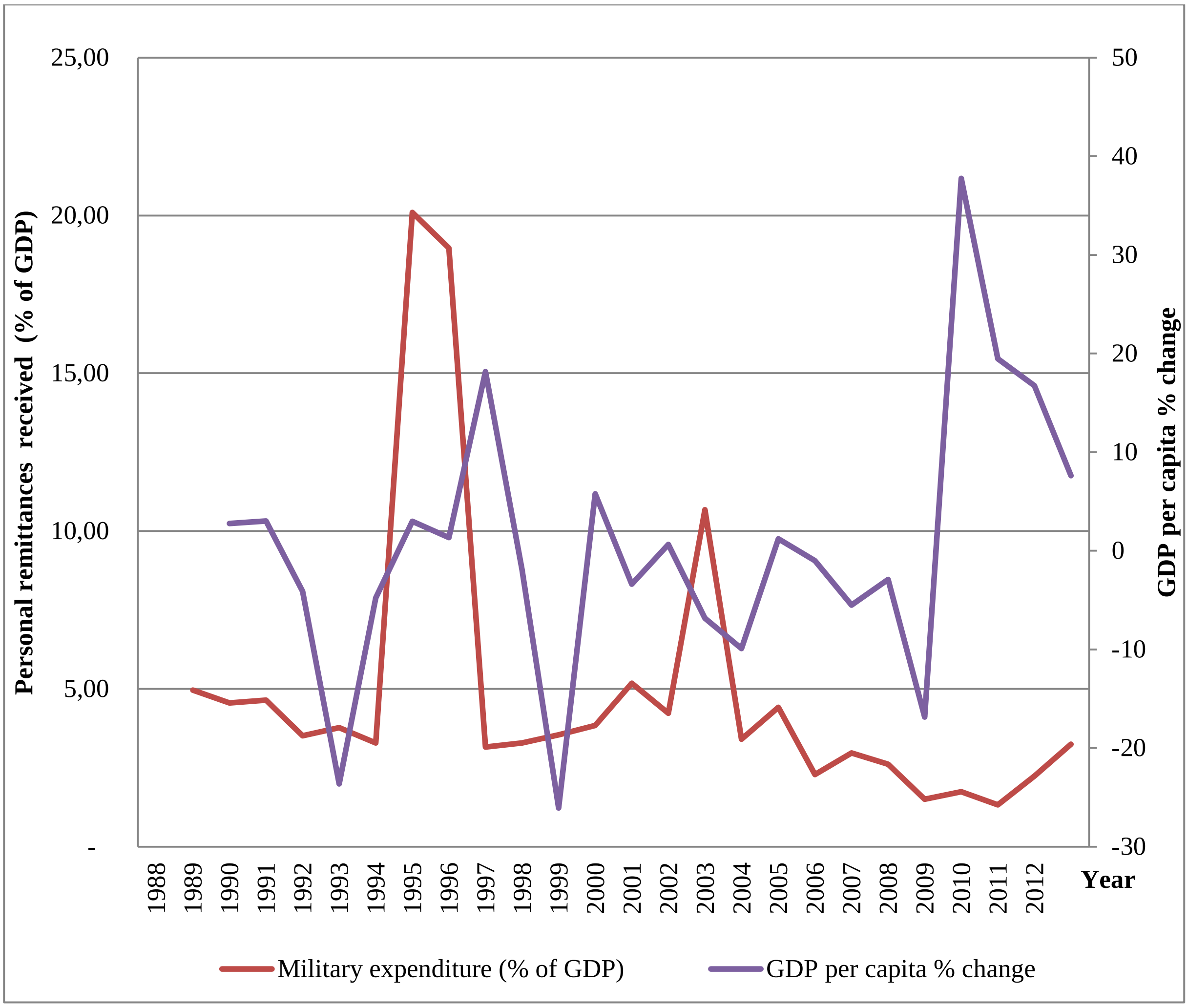

Source: World Bank (2012)

World Bank (2012) statistics shows that military expenditure went up by 5.21%, from US$387.23 million in 1988 to US$407.41 million in 1990, whilst GDP per capita increased from US$793 to US$839 during the same period. The period from 1990 to 1995 saw military expenditure growing by a massive 231%, from US$407.41 million to US$1.349 billion. The same period saw GDP per capita declining by 27.23%, from US$839.61 in 1990 to US$610.97 in 1995. The subsequent five-year period recorded another decline in GDP per capita from US$610.97 in 1995 to US$535.04 in 2000 whilst military expenditure also declined from US$1.349 billion to US$346.31 million during the same period.

Military expenditure plummeted further by 62.06% between 2000 and 2005, before experiencing another huge decline, by a further 25.19%, from US$131.40 billion in 2005 to US$98.30million in 2010. On the other hand, GDP per capita went down by 15.37% between 2000 and 2005. The next five year period saw GDP per capita increasing by 25.54%, from US$452.79 in 2005 to US$568.43 in 2010. Both military expenditure and GDP per capita recorded positive growth between 2010 and 2012.

Military expenditure grew by a massive 223.50%, from US$98.30 million in 2010 to US$318 million in 2012. GDP per capita went up from US$568.43 in 2010 to US$714.23 in 2012, representing a 25.65% increase.

**Figure 2.** Military expenditure (% of GDP) and GDP per capita % change trends for Zimbabwe – 1988 to 2012




Source: World Bank (2012)

Military expenditure (% of GDP) went down from 4.96% in 1988 to 4.64% in 1990, representing a decline by 0.32 percentage points. However, military expenditure 9% of GDP) recorded a massive growth by 14.33 percentage points during the period 1990 to 1995 before plunging by a 13.79 percentage points, from 18.97% in 1995 to 5.18% in 2000. Moreover, military expenditure (% of GDP) continued on a downward spiral between the period 2000 and 2005 and 2005 and 2010. The period 2000 to 2005 was characterised by a 2.89 percentage points decline in military expenditure (% of GDP), from 5.18% in 2000 to 2.28% in 2005. The period 2005 to 2010 recorded a marginal decline in military expenditure (% of GDP) in Zimbabwe, from 2.28% in 2005 to 1.32% in 2010.

Last but not least, an increase by 1.92 percentage points in military expenditure (% of GDP) was recorded between the five year period 2010 to 2012. The latter period saw military expenditure (% of GDP) increasing from 1.32% in 2010 to 3.24% in 2012 (see Figure 2). This trend is consistent with the report by IMF (2013).

## 3. Review of Related Literature

The Keynesian, Wagnerian, feedback and the no relationship perspective are the four dominant theoretical perspectives that explain the relationship between government military expenditure and economic growth. According to the Keynesian perspective, government military expenditure positively influences economic growth. Economic growth boosts government military expenditure according to the Wagner's perspective whilst the feedback perspective maintains that both government military expenditure and economic growth affect each other. The no relationship perspective says there is no relationship at all in whatever direction between government military expenditure and economic growth.

The Keynesian perspective which was advocated for by Keynes (1936) suggested that government military expenditure is crucial in stimulating economic growth. Empirical studies that supported the Keynesian perspective include those undertaken by Lai et al (2005), Rufael (2009),Lee and Chen (2007), Atesoglu (2009), CuaresmaandReitschuler (2003), Robert and Alexander (1990),Smaldone (2006), Dunne et al (2005), Aizenman and Glick (2006), Dunne (2012), Karagol and Palaz(2004), Karagol (2006), Reitschuler and Loening (2005), only to mention but a few. A study by Lai et al (2005) discovered that economic growth was Granger caused by defense spending in China both in the short and long run. Using co-integration and Granger causality test, Rufael (2009) revealed that military spending had a positive impact on the external debt whilst economic growth had a direct reduction influence on external debtin Ethiopia. Lee and Chen (2007) also discovered the existence of a positive relationship running from military expenditure to GDP in OECD (Organization for Economic Cooperation and Development) countries only in the short run. The same study by Lee and Chen (2007) indicated that military expenditure had a negative influence on economic growth in non-OECD countries in the short run.

Atesoglu (2009) revealed that defense spending had a positive impact on aggregate output in the United States both in the short and long run. On the contrary, Cuaresmaand Reitschuler (2003) discovered that low levels of additional defense spending positively influenced GDP whilst higher levels of additional defense spending negatively impacted on GDP in the US economy. Robert and Alexander (1990) also suggested that huge military spending significantly influenced economic growth whilst a small military spending led to an insignificant contribution towards economic growth in the United States. The same study by Robert and Alexander (1990) suggested that a small reduction in military spending resulted in a negligible decline in economic growth in the United States.

Smaldone (2006) found out that defense spending had a negative impact on economic growth in those African countries that were experiencing legitimacy crisis. Economic growth was found to have been positively influenced by defense spending in those African countries that are enjoying peace and without any legitimacy crisis whilst African countries that are experiencing high poverty levels were discovered to be economically vulnerable if they increase their defense spending (Smaldone, 2006).

Dunne et al (2005) discovered that an increase in military expenditure positively contributed to an increase in aggregate output if the country is facing some external threat. In the event that the country is not facing external threat, an increase in military expenditure suffocates economic growth ( Dunne et al, 2005). Aizenman and Glick (2006) revealed that an increase in military spending in the face of external threat boost economic growth whilst economic growth responds negatively to an increase in military expenditure when there is relatively peace prevailing in the country.

A study by Dunne (2012) revealed that military spending had a negative causality impact on economic growth in the short run in all Sub-Saharan African (SSA) countries. However, when the SSA countries were grouped according to income groups, Dunne (2012) discovered that military spending negatively impacted on economic growth in low and middle income SSA countries only. Economic growth was found to have been Granger caused by military spending in high income SSA countries both in the short and long run (Dunne, 2012).

Karagol and Palaz(2004) revealed the existence of a uni-directional causality relationship running from military expenditure to economic growth in Turkey in the short run only. However, the findings by Karagol (2006) suggested an indirect negative impact of military expenditure on economic growth through increasing external debt stock in Turkey. The same study by Karagol (2006) also found out that military spending had a huge negative impact on economic growth within the first two years and faded thereafter in Turkey. According to Eryigit et al (2012), military expenditure had a negative impact on economic growth whilst education and health expenditures positively impacted on the economy in Turkey both in the short and long run. A budgetary trade-off between education-health and military expenditures was also discovered in Turkey, revealed Eryigit et al (2012).

Yakovlev (2007) revealed that high military spending lead to reduced economic growth whether a country is a net exporter or net importer of arms. However, the same study by Yakovlev (2007) suggested that negative impact of military spending on the economy is higher if the country is a net importer of arms than if it is a net exporter of arms. Military spending could only lead to a positive economic growth if the net arms exports are quite significant (Yakovlev, 2007).

A study by Klein (2004) discovered military spending crowded out investments thereby stifling economic growth in Peru both in the short and long run. The rate of savings was also found to have been directly reduced by military expenditure in Peru in the long run (Klein, 2004). The same study by Klein (2004) suggested that a reduction in military spending will have a direct positive economic growth effect in Peru. A study by Narayan and Singh (2007) found out that both military spending and exports impacted positively on the GDP per capita in the long run in the

Fiji Islands. On the other hand, military expenditure positively influenced exports in Fiji in the short run (Narayan and Singh, 2007). In contrast, Reitschuler and Loening (2005) revealed that military spending had a very negligible effect on economic growth in Guatemala either positively or negatively. On the contrary, both military spending and corruption were found to have had a significant negative causality effect on GDP per capita directly and indirectly (Agostino et al, 2012).

Using a trivariate model, Bader et al (2003) discovered that military expenditure negatively impacted on economic growth in Egypt, Israel and Syria whilst civilian government expenditures promoted economic growth in Israel and Egypt. The findings implied that Egypt, Israel and Syria could easily boost their economic growth if they promote peace and reduce military expenditure, argued Bader et al (2003). Yildirim et al (2005) concurred with Bader et al (2003) by revealing that military expenditure positively impacted on the economy of all Middle East countries including Turkey.

Using both time series and panel data analysis, Dunne and Nikolaidou (2012) found out that an increase in military spending negatively influenced aggregate output in all the EU15 group of countries both in the short and long run. A study carried out by Kollias et al (2007) revealed the existence of a uni-directional causality relationship running from military spending to economic growth in the European Union (EU15) group of countries in the short run only.

According to Wagner's theory (1890), economic growth positively influences government military expenditure and empirical studies that supports Wagner's perspective include but are not limited to Smith and Tuttle (2008),Dritsakis (2004), Kalyoncu and Yucel (2006) and Kollias et al (2004).Smith and Tuttle (2008) discovered the existence of a uni-directional relationship running from output to defense spending in the United States. In other words, defense spending was found to have been Granger caused by real output (Smith and Tuttle, 2008). A uni-directional causality relationship running from economic growth to defense spending was revealed in both Greece and Turkey (Dritsakis, 2004) whilst Kalyoncu and Yucel (2006) also revealed that economic growth positively impacted on military expenditure in Turkey.

The feedback perspective explains that both government military expenditure and economic growth affect each other. Previous studies that are consistent with the feedback perspective encompass those undertaken by Lee and Chen, 2007), Lai et al (2005), Ali (2012), Kalyoncu and Yucel (2006), Kollias et al (2004),Dritsakis (2004), Karagol and Palaz (2004) and Kollias et al (2007), among others. In the long run, military expenditure and GDP were found to have Granger caused each other both in OECD and non-OECD countries (Lee and Chen, 2007). On the other hand, the results from a study by Lai et al (2005) showed the existence of a bi-directional causality relationship between defense spending and economic growth in Taiwan both in the short and long run.

In a study on MENA (Middle East and North African) countries, Ali (2012) discovered that defense spending increased the levels of economic inequality. The same study by Ali (2012) further revealed that both economic inequality and GDP per capita levels had a negative effect on defense expenditure. A study by Kalyoncu and Yucel (2006) confirmed the existence of a bi-directional causality relationship between military expenditure for Greece and military expenditure for Turkey both in the short and long run. Using time series analysis, a bi-directional causality relationship or a feedback effect between military spending and economic growth was found in three European Union countries, revealed Kollias et al (2004).

A study by Dritsakis (2004) also showed a feedback effect causality relationship between defense spending of Greece and that of Turkey. In other words, the study proved that the size of defense spending in Greece heavily rely on the size of defense spending in Turkey and vice-versa. Kollias et al (2004) discovered a bi-directional causality relationship between defense spending and economic growth in Cyprus both in the short and long run. High economic growth in Cyprus enabled an increase in defense spending which in turn spurred aggregate output, argued Kollias et al (2004).

According to the no relationship perspective, there is no relationship at all between government military expenditure and economic growth. Empirical studies that are consistent with the no relationship perspective include those undertaken by Lin and Ali (2009),Kollias et al (2004), among others. A study by Lin and Ali (2009) discovered no relationship at all between military spending and changes in economic growth across all the 58 countries studied. Neither was military spending found to have Grange caused economic growth nor economic growth discovered to have influenced military spending across all the 58 countries which were part of the study.

## 4. Research Methodology

Time series data from 1988 to 2012 was used for the purposes of this study. The data used in this study was extracted from the various issues of the World Development Indicators. The data was first tested for stationarity using the Philips-Peron, ADF-GLS and ADF to ensure stability of the data. The data sets were tested for unit root in both levels and first difference (see unit root tests in levels in Table 1).

**Table 1.** Stationarity Tests of Variables in Levels

| Variable | NO TREND | TREND |
|---|---|---|
| **Stationarity Tests of Variables on level - Phillips-Perron (PP) Test** | | |
| Ly/N | -2.664853** | -4.394309** |
| MILEXP | -2.664853** | -4.394309** |
| **Stationarity Tests of Variables on level – Dickey-Fuller - GLS Test** | | |
| Ly/N | -2.281420** | -3.770000** |
| MILEXP | -2.281420** | -3.770000** |
| **Stationarity Tests of Variables on level – ADF Test** | | |
| Ly/N | -2.664853** | -4.394309** |
| MILEXP | -2.664853** | -4.532598** |

*Note:*
1)The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.
2) Critical values for Dickey-Fuller GLS test are based on Elliot-Rothenberg-Stock (1996, Table 1).
2) ** denote 1% levels of significance.

Both economic growth and military expenditure were found to be non-stationary in levels (see Table 1 results). This necessitated the second procedure of differencing the data sets once in order to test for the stationarity on first difference (see Table 2 for results).

**Table 2.** Stationarity Tests of Variables on first Difference

| Variable | NO TREND | TREND |
|---|---|---|
| **Stationarity Tests of Variables on first Difference - Phillips-Perron (PP) Test** | | |
| DLy/N | -2.669359** | -4.416345** |
| DMILEXP/GDP | -2.669359** | -4.416345** |
| **Stationarity Tests of Variables on first Difference – Dickey-Fuller - GLS Test** | | |
| DLy/N | -2.281420** | -3.770000** |
| DMILEXP/GDP | -2.674290** | -3.770000** |
| **Stationarity Tests of Variables on first Difference – ADF Test** | | |
| DLy/N | -2.669359** | -4.416345** |
| DMILEXP/GDP | -2.674290** | -4.440739** |

*Note:*
1)The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.
2) ** denote 1% levels of significance.
3) Critical values for Dickey-Fuller GLS test are based on Elliot-Rothenberg-Stock (1996, Table 1).

Both variables are integrated of order 1 according to the results shown in Table 2.

### 4.3 Cointegration Test using the ARDL-bounds Testing Procedure

Once the data sets have been found to be stationary, the next procedure is to investigate the existence of a co-integration relationship between military expenditure and economic growth. This is done using the newly developed Autoregressive Distributed Lag (ARDL) bounds testing approach which can be expressed by the following equations 1 and 2 (see Odhiambo, 2009a):

$$\Delta Iny/N_t = a_0 + \sum_{i=1}^{n} a_{1i}\Delta Iny/N_{t-i} + \sum_{i=0}^{n} a_{2i}\Delta InMIL_{t-i} + a_3 Iny/N_{t-1} + a_4 InMIL_{t-1} + \mu_{1t} \quad (1)$$

$$\Delta InMIL_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i}\Delta InMIL_{t-i} + \sum_{i=0}^{n} \beta_{2i} Iny/N_{t-i} + \beta_3 Iny/N_{t-1} + \beta_4 InMIL_{t-1} + \mu_{2t} \quad (2)$$

Where: y/N = Real GDP per capita; InMIL = Military expenditure; Δ = first difference operator.

With regard to the ARDL-bounds testing approach, the following two procedures are carried out in order to establish the existence or non-existence of long run co-integrating relationship between military expenditure and economic growth. The first procedure is to find out the order of lags on the differenced once variables shown in equations (1) and (2). This is done using the Schwartz-Bayesian Criterion (SBC) and the Akaike Information Criterion (AIC). The results obtained from AIC and SBC tests show that the optimal lag of both military expenditure and economic growth is lag 2. The next procedure after the optimal lags for both data sets have been established is to apply the bounds F-test to equations (1) and (2), in order to find out if a long-run co-integration relationship exist between military expenditure and economic growth (see results in Table 3 and 4).

**Table 3.** Unrestricted Cointegration Rank Test (Trace)

| Eigenvalue | Trace Statistic | 5% Critical Value | Hypothesized No. of CE(s) |
|---|---|---|---|
| 0.683567 | 36.98439 | 15.49471 | None * |
| 0.411668 | 11.67021 | 3.841466 | At most 1* |

***** Denotes rejection of the hypothesis at the 5% levels.
Trace test indicates 2 co-integrating equation at 5% level.

**Table 4.** Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Eigenvalue | Max-Eigen Statistic | 5% Critical Value | Hypothesized No. of CE(s) |
|---|---|---|---|
| 0.683567 | 25.31419 | 14.26460 | None * |
| 0.411668 | 11.67021 | 3.841466 | At most 1* |

**** Denotes rejection of the hypothesis at the 5% levels. Max-eigenvalue test indicates 2 co-integrating equation at 5% level.***

The results showed in both Table 3 and 4 shows the existence of a long run co-integrating relationship between economic growth and military expenditure. In other words, the null hypothesis that says there is no long run relationship between military expenditure and economic growth is rejected. This is confirmed by the eigenvalue that is less that the trace statistic (see Table 3) at 1% level of significance 1%. Furthermore, the eigenvalue which is less than the max-eigen statistic at 1% level of significance 1% (see Table 4) also corroborates the finding that there exists a long run co-integrating relationship between military expenditure and economic growth.

### 4.4 Granger Causality Tests

After the finding that military expenditure and economic growth have got a long run relationship, the next step is to find out the causality directional relationship between the two variables. An error-correction model was used for the Granger causality tests which can be expressed as follows (see Narayan and Smyth, 2008):

$$\Delta Iny / N_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i} \Delta Iny / N_{t-i} + \sum_{i=0}^{n} \delta_{2i} \Delta InMIL_{t-i} + ECM_{t-1} + \nu_{1t} \quad (3)$$

$$\Delta InMIL_t = \lambda_0 + \sum_{i=1}^{n} \lambda_{1i} \Delta InMIL_{t-i} + \sum_{i=0}^{n} \lambda_{2i} \Delta Iny / N_{t-i} + ECM_{t-1} + \nu_{2t} \quad (4)$$

Where $ECM_{t-1}$ = the lagged error-correction term obtained from the long-run equilibrium relationship.

The Granger causality test results are shown on Table 5 below.

**Table 5.** Granger Non-Causality Tests

| Null Hypothesis: | Obs | F-Statistic | Probability |
|---|---|---|---|
| Military expenditure does not Granger cause economic growth | 23 | 3.09275 | 0.0715 |
| Economic growth does not Granger cause military expenditure | | 3.01303 | 0.0758 |

We fail to reject the null hypothesis which says that military expenditure does not Granger cause economic growth whilst economic growth does not influence military expenditure both in the short and long run. This finding is supported by the F-statistic that is less than 4 and the p-values that are greater than 0.05. The finding is at variance with the co-integration results in both Table 3 and 4. The variance indicates that military expenditure and economic growth either indirectly promotes each other, military expenditure indirectly influence economic growth or economic growth indirectly via other factors influence military expenditure in Zimbabwe such as security provision, employment, human capital development, financial market development and stability, among others as enunciated in the literature review.

## 5. Conclusions

This study examines the causal relationship between military expenditure and economic growth in Zimbabwe. The causality relationship between military expenditure and economic growth has so far received attention from many economists, the dominant ones being Wagner (1890) and Keynes (1936). According to literature, there currently exist four perspectives around the causality relationship military expenditure and economic growth. The first perspective by Keynes (1936) suggests that military expenditure spur economic growth whilst the second perspective by Wagner (1890) mentions that economic growth is the one that affects military expenditure. The third perspective (known as the feedback view) says both military expenditure and economic growth affects each other whilst the fourth perspective suggests the existence of no causality relationship at all between military expenditure and economic growth.

The study has used the most recent co-integration technique developed by Pesaran et al. (2001) to examine this linkage. In order to examine the order of integration, the study has used the Phillips-Perron, ADF and ADF-GLS unit-root tests – both with trend and without trend. The results of this study proves that military expenditure does not directly influence economic growth whilst economic growth does also not directly influence military expenditure both in the short and long run. The study therefore recommends Zimbabwe authorities not only to scale up investment into military infrastructure improvement but also address indirect factors such as human capital development employment, financial market development, stability, peace, among others to enable economic growth sustainability.

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