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ABSTRACT
The Office of the Auditor General’s (the OAG’s) primary mandate is to audit and ensure the best practices of financial management among public sector entities. However, despite this mandate being driven by the national constitution, significant deviations from the international best practices have been seen to be rife within the OAG. This study, therefore, sought to determine the socio-factors that impact on the audit performance of the Office of the Auditor General. To help achieve this objective, a quantitative method approach was adopted. The population for the study comprised 16 senior management members of the OAG, 36 audit team leaders for each of the 36 Government Ministries, as well as the 25 Parliamentary Audit Committee (PAC) members. Convenient sampling was used. The results of the study provided invaluable insights into how the OAG can improve its effectiveness in achieving its mandate. Inadequate working tools, bureaucratic systems, statutes and legislation emerged as the most significant factors affecting the performance of the OAG. Regarding the economic factors, poor financing of auditing operations and poor staff remuneration were the most dominant ones. Overall, non-economic factors superseded the economic factors in influencing the performance of the audit office. Since the auditor was identified as a key player in this study, the researcher recommended that the welfare of the auditor be taken seriously in order to ostensibly address issues such as low staff morale, lack of motivation and poor remuneration. As a long-term solution, it is recommended that the Office of the Auditor General be commercialised so as to ideally address inadequate resource problems.

Keywords: Office of the Auditor General, performance, accountability, independence

1.0 INTRODUCTION
This study explores the factors that impact on the performance of the Office of the Auditor General. The main assertion of the study is that performance is affected by an array of socio-economic factors. The study makes a contribution to the existing body of knowledge on public finance literature from a developing country perspective. Most studies undertaken so far on this subject matter looked at the performance and/or efficiency of the Office of the Auditor General. This study looks at the factors that affect the operation of the Office of the Auditor General. There is scope to look at the causes of the inefficiency. The socio-economic environment can either enable or disable the performance of the Office of the Auditor General. The article deals with the background to the study, unravels the statement of the problem and presents and discusses the findings to this study.

1.1 Background to the Office of the Auditor General in Zimbabwe
The Office of the Auditor General has been in existence for a long time in Zimbabwe. The time frame spans years. Up to 30 September 1978, the office had white employees only. In 1979, issues to do with appointment, functions and powers of the Auditor General were incorporated into the constitution. Part 5 of the constitution, sections 309 to 314, deals with these pertinent issues about the Auditor General. In Zimbabwe, the Auditor General is appointed by the President with the approval of Parliament and can only be removed with the concurrence of the Minister of Finance and the Public Accounts Committee. An Audit Office Act (Chapter 22.18) was enacted in March 2010. The time of the enactment of the legislation was the time of the inclusive government where warring political parties in Zimbabwe formed a Government of National Unity. The Audit Office Act (Chapter 22.18) is subservient to the constitution. The main provisions are the:
• establishment of an independent Office of the Auditor-General;
• provision for the additional functions of the Auditor-General; and
• provision for the funds of the Audit Office which consist of moneys from parliament, donations and
other fees and charges for services provided by the Audit Office.

1.2 Statement of the problem
Despite the endeavors by the Office of the Auditor General to ensure optimal performance, such has not
been the case, with one of the principal issues being the issue of delayed reporting and publication of audit
findings. In terms of Section 309(2) of the Constitution of Zimbabwe and Section 10 of the Audit Office Act
[Chapter 22:18], the Auditor General is required, after examining the public accounts of Zimbabwe submitted
to her in terms of Section 35 (6) and (7) of the Public Finance Management Act [Chapter 22:19] and signing
a certificate recording the results of such examination, to prepare and submit to the Minister of Finance, not
later than June 30 of each year, a report of her examination and audit of the public accounts of Zimbabwe.
However, in spite of this constitutional mandate, an examination of the reports prepared by the Auditor
General show, in part, that they were submitted way beyond the expected date of 30 June of the ensuing
year. These delays are an abrogation of the constitution. The delays also have an impact on decision making
and implementation of the report, since serious delays impact on the executive’s ability to take corrective
action.

There have been a few studies on the operations of the Office of the Audit General, the most notable ones
being studies by Zhou and Zinyama (2012). Zinyama (2013) focused on the efficiency of SAIs from 2009 to
2012. This study looks at the factors that affect the operations of the Office of the Auditor General. Zhou
and Zinyama (2012) concluded that the SAI’s exhibited characteristics of being interfered with and that
audit recommendations were not seriously taken care of. This research takes this study further by looking at
the causes of all these and the extent to which they affect the efficiency of SAIs. Zinyama (2013) also looked
at the efficiency and effectiveness of SAIs. There is scope to look at the causes of the inefficiency. Again, the
pertinent questions raised are whether the Auditor General has enough mechanism to follow up and ensure
that queries raised are properly addressed. This study therefore looks at the factors that inhibit the efficient
operation of the Office of the Auditor General. The rest of the article is arranged as follows:

1.3 Research objective
The purpose of the research is to determine the factors that impact on the audit performance of the Office of
the Auditor General.

1.4 Significance of the study
An effective audit can contribute greatly to the achievement of social development programmes by reducing
corruption and strengthening the accountability of responsible public-sector agencies. The results of the
study will also provide invaluable insights into how the OAG can improve its effectiveness in achieving its
mandate. With regard to academic contribution, the study makes a contribution to the existing body of
knowledge to public finance literature from a developing country perspective. Developing countries in general
have fiscal imbalances. The study unravels the particular factors unique to Zimbabwe and then proffers
solutions to improve on same. The result is efficient Supreme Audit Institutions (SAIs) capable of combating
corruption and offering sound recommendations meant to improve on the smooth operation of government
as a whole.

2.0 CONCEPTUAL FRAMEWORK
This study is premised on the Principal Agent Theory as espoused by Leruth and Paul (2007). It argues that
audits are there to inspire confidence and establish trust in financial information. The principal agent
relationship, as depicted in this theory, is important in understanding how the audit has developed over the years. Agents are responsible to their principals for the decision-making authority delegated to them. The agents are then expected to act in the best interest of their principals. Because of many factors including information asymmetry, differing motives and even lack of trust, the principals therefore put in control, mechanisms such as the audit to redeem the trust (Institute of Internal Auditors, 2012:14). This section reviews the existing literature of the key concepts that embodies the performance of the Office of the Auditor General. The key concepts namely, financial accountability, administrative accountability, independence, transparency and integrity are explored and operationalised within the context of this study. The British and the South African Auditing systems are used as case studies in order to make comparative analysis.

2.1 Financial accountability
Financial accountability is ultimately about promoting and reporting publicly on performance. Public financial accountability requires that governments manage finances prudently; that they integrate their financial and nonfinancial reporting, control, budgeting, and performance; that they report comprehensively on what they have achieved with their expenditure of funds; and that stakeholders behave ethically (Sahgal and Chakrapani, 2000:115). Any organisation, public or private should manage and report on its finances, mitigate the risk of malfeasance, build good quality and openness into its financial and nonfinancial analyses, monitor the sustainability of benefits that accrue from its investments, and fulfill its performance reporting and fiduciary obligations to its constituents, reflecting sound financial accountability.

While the borrower’s fiduciary accountability to the bank on the use of project funds is important, the country’s fiduciary relationship to its citizens on the use of all public resources (including donor funds) has greater significance (OECD, 2012:10). There are established elements which guarantee public financial accountability. These have been identified as; quality and openness of the budget process, appropriateness of internal financial and performance management systems, adequacy of the public procurement regime, quality of public sector accounts and management information, adequacy of corporate accounting, auditing and governance, effectiveness of the public external audit and evaluation function, adequacy of legislative scrutiny, right and access of the public to information; and in some cases, monitoring capacity of NGOs (World Bank, 2010). The Office of the Auditor General is expected to exhibit these characteristics at the highest level since it is a monitoring organisation.

2.2 Administrative accountability
According to Dykstra (2004), accountability is the act of being answerable, blameworthiness, and the expectation that one is giving an account. It actually goes beyond just an account giving of one’s actions by someone (Sinclair, 1995 and Mulgan, 2000). It is generally regarded as account-giving relationship between individuals, for example, “A is accountable to B when A has an obligation to inform B of his actions. A should also be prepared to suffer punishment where there is proven misconduct”. Cameron (2004) says public accountability is an essential component of good governance. For effective public-sector accountability, two important questions must be addressed; these are ‘to whom is the accountability focused on?’ and ‘to what is the accountability for’ (Institute of Internal Auditors, 2012). The key stakeholders of the public sector are the public and donors. It is important to understand the needs of these stakeholders (Brown and Gaughlin, 2009). The key success factors determine and answer the ‘accountability for what’ question required in the public sector. Because of its nature, the public sector is measured on such matters as how ethical, equitable, efficient, economic and effective they are. It is not restricted to the three E’s of efficiency, economy and effectiveness which are also applicable to the private sector. Kinchin (2010:31) argues that there are critical laid down principles that are necessary to achieve accountability. These are identified as transparency, efficiency, fairness, conflict of interest and responsibility.
2.3 Independence
This study argues that there are established principles which are considered critical for the manifestation of “good auditing” in the public sector. One of these principles is independence (Power 2005:337). The general understanding is that the principal (parliament, being proxy for the public) controls the agent (executive) using the auditing mechanism. It therefore becomes necessary to separate the auditing function from the agent. If that separation is not practiced between the oversight mechanism and the public administration subjected to control, the oversight mechanism would rather work as a function for self-evaluation (Gustavson 2015:7). Internal auditing serves as such a mechanism. It therefore operates as an internal control mechanism for management to evaluate and control the organisation. The issues discussed in literature are not whether or not independence is necessary, but rather how the various dimensions of independence can be guaranteed. These are financial independence, protection from interference in planning, selecting and executing audits and individual ethics among auditors (Bayou, Reinstein and Williams, 2011; Cullinan and Sutton, 2002; Gendron, Cooper and Towney 2001). Therefore, in summary, it has been established that Public Audit must be independent of the organizations being audited so that the auditors cannot be improperly influenced by those whose work they audit. This is so that they can carry out their role freely. Confidence in auditing rests, to a greater degree, on the independence and objectivity of the auditor. The methods of appointment of auditors of public services should ensure that the appointed auditor is, and is seen to be, independent of the audited body and can report without fear or favour. The independence of the national audit agencies from the bodies being audited has to be guaranteed by statute.

In the accounting world, “independence” means different things to different people. To some, it is simply an acknowledgement that someone is not under the control or influence of another party. To others, the concept of independence means being objective and free from bias or prejudice. It is not enough to simply be independent because, in order to meet the objective of an audit, the auditor must also be recognized as independent (Blann, 2012:37). Since the independent audit is intended to provide users of financial statements with a degree of confidence in the reliability of the information being reported, it would be of little value for an organisation to hire an auditor who is distrusted because of perceived lack of independence.

Accordingly, authoritative standards require that auditors not only be independent in fact, but that they avoid situations that might lead outsiders to doubt their independence. Auditor independence can be impaired by any number of factors, ranging from individual or organizational relationships to the types of ancillary (non-audit) environment surrounding the audit (Blann, 2013). Auditors should remain independent so that their opinions/ conclusions/findings will be impartial and can be seen as such by third parties. Independence is freedom from situations and relationships which could impair the auditor’s objectivity. Auditors from the Office of the Auditor General should be independent from the ministries and parastatals they audit. If they become reliant on auditees, their objectivity is compromised. Therefore, their reports cannot be relied on. Independence is an attitude of mind and appearance. It safeguards the ability to perform an audit without being affected by influences that might compromise professional judgment.

2.4 Transparency
Transparency involves being open to respective constituency by public sector entities. Good governance is measured by the ability and willingness of the public sector entities in disclosing key information to stakeholders so that they have the relevant information about the entities’ performance. Therefore, decisions and actions taken by the public sector on transactions must be done openly (Institute if Internal Auditors, 2012:14). External scrutiny by external auditors then provide the much needed direct link between transparency and the credibility of the public sector entity. Stakeholders, including Legislators and the public access audits to get an assurance that public sector action is of the required ethical standards, that they conform to the law and that financial results reported on must reflect a true and fair view of the operations.
2.5 Integrity
The principle calls for public officials to act consistently with the ethical principles and the values, expectations, policies and outcomes of the public-sector entity. Where the public sector loses public trust, the results become disastrous in that they seriously undermine the public sector credibility and therefore the ability to govern (Institute of Internal Auditors, 2012:16). The political, social, economic and environmental costs to society can be extensive. The principle of integrity also applies when information is disseminated to lending authorities or other principals who have an interest other than an ownership share. The consequences of violating the expectation of the highest integrity can be swift and shattering when the people’s trust in the public sector, its institutions and leadership is undermined. The integrity of the auditors from the Office of the Auditor should be of the highest order. If their integrity is compromised, then they fall sway to bribes and other corrupt practices. The consequences are similar to those of corrupt police officers trying to maintain law and order.

2.6 Country experiences
This section reviews public audit experiences in two countries, namely, South Africa and United Kingdom (UK). The UK case is particularly relevant because Zimbabwe’s auditing system resemble the Westminster mould.

2.6.1 United Kingdom
The absence of a written constitution in the United Kingdom means that the SAI is established by Act of Parliament/Legislative body. The National Audit Office’s (NAO) independence derives from the unique position of the Comptroller and Auditor General (C&AG - the head of the SAI) (Dunleavy et al., 2009:8). All statutory powers and rights governing the audit of central government finances are vested in the C&AG personally; the NAO has no independent corporate status - the NAO are the staff of the C&AG, and the C&AG himself is part of the NAO. The C&AG is appointed by Her Majesty (HM), the Queen, the Head of State, on an address from the House of Commons moved by the Prime Minister after agreement with the Chairman of the Public Accounts Committee. The C&AG can only be removed from office by HM, the Queen on an address from both Houses of Parliament. The appointment of the C&AG is “without limit of time”; the office holder cannot be a Member of Parliament, a Lord or hold any office under the Crown (Dunleavy et al., 2009:11). The C&AG’s salary is paid directly from the Consolidated Fund rather than from a Departmental Vote. The staff of the NAO are not civil servants, and the C&AG, within certain guidelines, determines their salaries and conditions of service. The C&AG has ultimate discretion as to his work programme and how it is executed.

By virtue of his office, the C&AG is an Officer of the House of Commons, and is independent of the Executive and the Judiciary; he has no relationship with investigating agencies. The independence of external audit from the Executive is a key principal of Parliamentary accountability in the UK. The NAO has financial independence. The budget of the NAO is determined by the Legislature on a recommendation from the C&AG. The Public Accounts Commission, a committee of Members of Parliament established in 1983, considers the NAO’s plans and budget. The Commission then makes a recommendation to the House of Commons to accept the budget. Accountability is through Parliament - the Committee of Public Accounts and the Public Accounts Commission - and through independent auditors appointed by the Commission (Dunleavy et al., 2009:15).

2.6.2 South Africa
The position of the Auditor General in South Africa was also established in terms of section (8) of the constitution of the Republic of South Africa (Zhou and Zinyama, 2012:223). This is in line with regional and global trends, where the office is established in terms of the constitution. The duties and functions of the Auditor General are clearly spelt out in section 88(1) of the constitution and spells out the commonly
recited tasks as reviewing of the financial statements of the state, public entities and all municipalities. The detailed functions are captured in the Public Audit Act (Act 25 of 2004). Again, there is a specific act which gives direction on all issues to do with the Auditor General. The most important committee that works closely with the Auditor General is the Public Accounts Committee. It is a parliamentary committee with a mandate to review the Auditor General report and any other issues to do with finances as directed by parliament (GOSA, 2016 http://www.parliament.co.za). It is important to note though, that, similar to the ZimbabwEan situation, the committee is headed by a member of the opposition. This is possible to give it more teeth. There are other state institutions established to strengthen constitutional democracy in the Republic of South Africa. One such institution is the Public Protector. It is independent, and is subject only to the Constitution and the law, and must be impartial and exercise its powers in order for it to perform its functions without fear, favour or prejudice. Other organs of state, through legislative and other measures, must assist and protect these institutions to ensure the independence, impartiality, dignity and effectiveness of these institutions. No person or organ of state may interfere with the functioning of these institutions. These institutions are accountable to the National Assembly, and must report on their activities and the performance of their functions to the Assembly at least once a year.

2.7 Conceptual framework
The concepts discussed above and the respective independent factors can be conceptually depicted as shown in Figure 2.1 below.

Figure 2.1 Research Conceptual Framework
Various socio-economic factors have varying effects on the key public sector auditing principles. They, in turn, affect the quality and outcome of public sector auditing. Political interference, a socio-economic factor would probably affect the independence of the auditor with far reaching effects on the quality of auditing. Availability of adequate resources can affect the accountability aspect which, in turn, affects the audit outcome.

3.0 METHODOLOGICAL FRAMEWORK
This research takes a quantitative approach with a view to establishing the factors impacting on the performance of the Office of the Auditor. The approach was adopted for its objectivity and its strength in helping to quantify the impact of identified factors on the OAG performance. The research population comprised 16 OAG senior managers, 36 audit team leaders for each of the 36 Government Ministries, as well as the 25 Parliamentary Audit Committee (PAC) members. This study used the non-probability purposive sampling approach. Purposive sampling was used, the ultimate goal being the selection of the most ideal respondents with sufficient and accurate information. 36 team leaders were considered. In this respect, the study worked with the fact that there are 36 main audit teams, each of which is assigned to each of the government ministries. Sub-audit teams are present within each of the ministry to oversee both the ministry and its respective parastatals. Convenient sampling was therefore used to select the supervisor (being more informed) from each of the 36 audit teams, and hence a total of 36 respondents. The supervisors in most cases have more experience and have stayed in the organisation for a long time. A software package SPSS version 21 was used to process the data. Factor analysis was then used to identify the underlying factors and the Friedman Rank Analysis was utilized to establish the relative impact of the identified factors.

4.0 RESULTS AND DISCUSSIONS
This section presents the findings of the research. The study first evaluated the overall reliability and validity of the findings, particularly those related to the questionnaire.

4.1 Response rate
A total of 36 structured questionnaires were conveniently administered to the auditors from the OAG. These are supervisors of the audit teams stationed at each of the 36 ministries. However, from the 36 administered questionnaires, 31 questionnaires were returned. None of the completed questionnaires was deemed to be invalid, as the instruments were researcher-administered. Table 4.1 summarises the response rate.

<table>
<thead>
<tr>
<th>Number of Questionnaires</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administered</td>
<td>36</td>
</tr>
<tr>
<td>Returned</td>
<td>31</td>
</tr>
<tr>
<td>Invalid</td>
<td>0</td>
</tr>
<tr>
<td>Valid</td>
<td>31</td>
</tr>
</tbody>
</table>

From the results in the table above, the aggregate response rate was found to be 86.11%. According to Saunders et al. (2012), acceptable response rates should not be less than 50% for small sample of sizes of less than 100 while Hitt et al. (2008) suggest a minimum threshold of 60%. In this respect, being greater than these indicative minimums, the response rate computed in this study was, therefore, acceptable.

4.1.1 Reliability analysis
Field (2016) reiterates the importance of ascertaining the reliability of research instruments used in any particular study to ensure that the study is consistent and hence replicable. This wave has been widely
popularised by modern scholars such as Hair \textit{et al.} (2010), Ho and Yu, (2014) and Cooper \textit{et al.} (2014). To measure reliability, the Cronbach’s Alpha statistic is generally used to achieve this end. The table below presents the results computed from SPSS.

<table>
<thead>
<tr>
<th>Table 4.2 Reliability Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>Financial Accountability</td>
</tr>
<tr>
<td>Administrative accountability</td>
</tr>
<tr>
<td>Independence</td>
</tr>
<tr>
<td>Transparency</td>
</tr>
<tr>
<td>Ethics</td>
</tr>
<tr>
<td>Public Sector Governance</td>
</tr>
</tbody>
</table>

According to Hair \textit{et al.} (2010), the minimum alpha threshold for reliability is 0.7. However, from the analysis, the minimum Cronbach’s Alpha among the 6 variables under study was 0.741, as seen in Table 4.2 above. With the 6 computed alpha statistics being greater than 0.70, it meant that the research construct items used for the study were very reliable. The activities helped to modify and improve the questionnaire items that were not clear. The content validity of each construct was ensured through pre-testing of the questionnaire and consultation with academic experts and managers in the field of public finance. This two-step process was useful to develop and refine the survey instrument. In the first step, a panel of public finance academics and professionals completed the survey instrument. In the second step, a few academic experts were requested to examine the questionnaire items to check for relevancy or possible ambiguity in the wording of specific items. Feedback from this two-step process resulted in minor changes to the survey instrument and ensured that the instrument measured the public finance construct.

4.2 Performance of the Office of the Auditor General

In this respect, the respondents were asked to rate the overall performance of the Office of the Auditor General. Generally, the performance of the Office of the Auditor General received positive remarks, with the majority (48.4%) rating it as good. There was an equal distribution of 25.8% who rated it satisfactory and very good, respectively. The respondents were further asked to rate the performance of the office of the Auditor General in respect of the six dimensions of public auditing under study. The respective mean ratings are presented in Table 4.3.

<table>
<thead>
<tr>
<th>Table 4.3: Performance ratings of the Office of the Auditor General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
</tr>
<tr>
<td>Financial Accountability</td>
</tr>
<tr>
<td>Administrative accountability</td>
</tr>
<tr>
<td>Independence</td>
</tr>
<tr>
<td>Transparency</td>
</tr>
<tr>
<td>Ethics</td>
</tr>
<tr>
<td>Public Sector Governance</td>
</tr>
</tbody>
</table>

Valid N (listwise) 27

Benchmarking on a median of 3.0, it could be seen that all the mean ratings were greater than 3.0, an indication that all the measured constructs of the performance of the Office of the Auditor General were rather positively rated. From the mean statistics, the highly rated pillar was financial accountability with a mean of 4.06. However, the corresponding kurtosis statistic was -1.267, an indication that the distribution was highly platykurtic, suggesting lack of coherence among the ratings. The second highest mean rating was observed for the ethics aspect, with a mean of 4.03. The least rated dimension was independence with a corresponding mean rating of 3.45. To help statistically rank these dimensions, the Friedman Rank Analysis
was computed as prescribed by Field (2016) and Hair et al. (2010), and the results are presented in Table 4.4 below.

<table>
<thead>
<tr>
<th>Table 4.4: Friedman Rank Analysis – Performance of the Office of the Auditor General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Rank</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Financial Accountability</td>
</tr>
<tr>
<td>Administrative accountability</td>
</tr>
<tr>
<td>Independence</td>
</tr>
<tr>
<td>Transparency</td>
</tr>
<tr>
<td>Ethics</td>
</tr>
<tr>
<td>Public Sector Governance</td>
</tr>
</tbody>
</table>

Test Statistics*

- N: 27
- Chi-Square: 17.935
- df: 5
- Asymp. Sig.: .003

*a. Friedman Test*

From the Friedman test above, the test statistic was found to be significant with a p-value of less than 0.05. It followed then that the computed ranks were significant. The rankings of the performance of the Office of the Auditor General, in order of decreasing performance were:

- Financial Accountability
- Ethics
- Administrative accountability
- Public Sector Governance
- Transparency
- Independence

The most significant determinant of the aggregate performance of the Office of the Auditor General was financial accountability. To cross validate the above findings, the research considered the use of a more robust modelling technique, that is, Structural Equation Model using IBM SPSS AMOS and the results were presented in Figure 4.2.

The performance model above depicts a situation where financial accountability contributes the greatest effect on the overall performance of the Office of the Auditor General in Zimbabwe. Financial accountability had a positive regression weight of .77 ahead of the other principles which either marginally scored positive remarks or had negative contributions. This, therefore, meant that the rating of good on performance of the Office of the Auditor General was probably singularly a contribution of financial accountability. The other principles such as ethics and transparency had the effect of pulling down the overall performance of the Office of the Auditor General. The regression coefficient for the model was found to be 0.779, a relatively high statistic, and significant at the 99.9% confidence level (p=0.001). However, considering the R-Square statistic of 0.607, it follows that up to 60.7% of the performance of the OAG was attributed to the measured variables.

4.2.1 Performance indicators

Having explored the different performance ratings of the Office of the Auditor General, it was worth establishing the extent to which each of the dimensions differed from the aggregated performance rating. To achieve this end, it was worth investigating the equality of variances and equality of means. The equality of variances was tested using the ANOVA test, and the results are presented in Table 4.5 below.
Table 4.5: ANOVA Test – the Office of the Auditor General Performance

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accountability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>10.563</td>
<td>2</td>
<td>5.281</td>
<td>20.234</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>7.308</td>
<td>28</td>
<td>.261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17.871</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative accountability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3.010</td>
<td>2</td>
<td>1.505</td>
<td>4.373</td>
<td>.023</td>
</tr>
<tr>
<td>Within Groups</td>
<td>9.290</td>
<td>27</td>
<td>.344</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12.300</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3.469</td>
<td>2</td>
<td>1.735</td>
<td>2.403</td>
<td>.109</td>
</tr>
<tr>
<td>Within Groups</td>
<td>20.208</td>
<td>28</td>
<td>.722</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23.677</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Sector Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3.079</td>
<td>2</td>
<td>1.539</td>
<td>3.239</td>
<td>.054</td>
</tr>
<tr>
<td>Within Groups</td>
<td>13.308</td>
<td>28</td>
<td>.475</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.387</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>5.079</td>
<td>2</td>
<td>2.539</td>
<td>4.645</td>
<td>.018</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15.308</td>
<td>28</td>
<td>.547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20.387</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>5.359</td>
<td>2</td>
<td>2.680</td>
<td>6.464</td>
<td>.005</td>
</tr>
<tr>
<td>Within Groups</td>
<td>11.608</td>
<td>28</td>
<td>.415</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.968</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Sector Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4.310</td>
<td>2</td>
<td>2.155</td>
<td>5.828</td>
<td>.009</td>
</tr>
<tr>
<td>Within Groups</td>
<td>8.875</td>
<td>24</td>
<td>.370</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.2 Performance of the Office of the Auditor General on auditing principles
From the above analysis, virtually all the pillars, save for independence, exhibited similar variances as the variance in the overall performance rating. In other words, albeit, independence has a positive mean rating, its variance was not the same as the variance in the overall performance rating. In other words, the positive rating of the aggregate performance of the Office of the Auditor General was ill-attributed to independence. However, the most significant determinant of the aggregate performance of the Office of the Auditor General was found to be financial accountability with the least p-value of 0.000, along with the greatest F-statistic of 20.234, while the F-statistics for the other dimensions were way lower. As a validation measure, the robust equality of means analysis was computed using the Brown-Forsythe test. The results are presented in Table 5.14.

Table 4.6: Robust Tests of Equality of Means

<table>
<thead>
<tr>
<th>Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accountability</td>
<td>24.360</td>
<td>2</td>
<td>26.104</td>
</tr>
<tr>
<td>Administrative accountability</td>
<td>4.309</td>
<td>2</td>
<td>17.446</td>
</tr>
<tr>
<td>Independence</td>
<td>2.318</td>
<td>2</td>
<td>21.464</td>
</tr>
<tr>
<td>Public Sector Governance</td>
<td>3.882</td>
<td>2</td>
<td>25.542</td>
</tr>
<tr>
<td>Transparency</td>
<td>5.053</td>
<td>2</td>
<td>24.835</td>
</tr>
<tr>
<td>Ethics</td>
<td>6.426</td>
<td>2</td>
<td>20.158</td>
</tr>
<tr>
<td>Public Sector Governance</td>
<td>6.547</td>
<td>2</td>
<td>16.628</td>
</tr>
</tbody>
</table>

a. Asymptotically F distributed.

Again, benchmarking on a critical value of 0.05, all other pillars were found to be significant, save for independence with a p-value of 0.123. The most significant of all was found to be financial accountability with the highest statistic of 24.360.

4.3 Socio-economic factors influencing Public Auditing

The major aim of the study was to examine factors that influenced public auditing. The underlying assumption for the undertaking of the study was premised on the understanding that public auditing was being influenced significantly by socio-economic factors. To help assess this assumption, the respondents were asked whether socio-economic factors had an impact on public auditing.

4.3.1 Influence of internal factors

The response set for this section comprised five possible response variables which were rated on a 5-Point Likert Scale. As has been discussed earlier, the lower mean threshold was 1, with the upper mean threshold being 5. The median mean threshold was 3. The findings are presented below.

Table 4.7: Influence of Internal Factors

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewedness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to change</td>
<td>4.48</td>
<td>.677</td>
<td>-1.662</td>
<td>4.435</td>
</tr>
<tr>
<td>Low staff motivation</td>
<td>4.55</td>
<td>.568</td>
<td>-7.84</td>
<td>-3.58</td>
</tr>
<tr>
<td>High staff turnover</td>
<td>4.45</td>
<td>.568</td>
<td>-3.82</td>
<td>-8.12</td>
</tr>
<tr>
<td>Low staffing levels</td>
<td>4.29</td>
<td>.693</td>
<td>-4.60</td>
<td>-7.60</td>
</tr>
<tr>
<td>Inadequate working tools</td>
<td>4.35</td>
<td>.839</td>
<td>-1.139</td>
<td>.571</td>
</tr>
<tr>
<td>Ineffectiveness and inefficiency of operations</td>
<td>4.26</td>
<td>.773</td>
<td>-.957</td>
<td>.949</td>
</tr>
<tr>
<td>Bureaucratic systems</td>
<td>4.32</td>
<td>.791</td>
<td>-1.095</td>
<td>.997</td>
</tr>
<tr>
<td>Statutes and legislation</td>
<td>4.29</td>
<td>.739</td>
<td>-.532</td>
<td>-.937</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Generally, all internal factors under study were regarded as highly influential to public auditing by the respondents with mean ratings greater than 4.0 against a median acceptable minimum of 3.0. However, regarding these internal factors, low staff motivation emerged as the most significant internal factor with a mean of 4.55. However, its rather low kurtosis of -0.358, suggested the existence of mixed feelings among respondents, mainly between those who agreed and strongly agreed. On the other hand, resistance to change was the second rated with a rating of 4.48, along with the highest degree of coherence among responses, evidenced by the high positive kurtosis of 4.435. The latter implied that the distribution was very leptokurtic, suggesting a greater degree of harmony among respondents. High staff turnover was rated third, with a mean rating of 4.45. However, other internal factors were influential as well.

4.3.1.1 Classifications of internal factors by influence
To help ascertain the key determinant internal factors on public sector auditing, principal component analysis was used. To validate its applicability, the Bartlett’s test for sphericity and the Kaiser-Mayer and Olkin (KMO) test were computed and the results are presented in Table 4.8 below. According to IBM (2016) and Field (2016), the minimum acceptable KMO statistic is 0.50, and the Bartlett’s tests ought to be significant at p<0.05. Nevertheless, other scholars such as Zikmund et al. (2012) proposed the acceptable range as being tolerable at 0.5-0.6. The respective results are presented in the table below.

<table>
<thead>
<tr>
<th>Table 4.8: KMO and Bartlett’s Test – Internal Factors by Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMO and Bartlett’s Test</td>
</tr>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.684</td>
</tr>
<tr>
<td>Bartlett’s Test of Sphericity: Approx. Chi-Square 93.847</td>
</tr>
<tr>
<td>Df: 28</td>
</tr>
<tr>
<td>Sig: 0.000</td>
</tr>
</tbody>
</table>

The computed KMO index of 0.598 was greater than the minimum 0.5, and again, the Bartlett’s test was significant, and had a p-value of 0.000. The researcher thus proceeded to compute the PCA and the resultant total variation explained is presented in Table 4.9 below.

<table>
<thead>
<tr>
<th>Table 4.9: Total Variance Explained - Influence of Internal Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Variance Explained</td>
</tr>
<tr>
<td>Component</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
There were only two components with eigenvalues greater than 1.0. and the total variance which could be attributed to these two classifications was 62.769%. The corresponding rotated component matrix is presented below.

**Table 4.10: Rotated Component Matrix - Influence of Internal Factors**

<table>
<thead>
<tr>
<th>Rotated Component Matrix</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to change</td>
<td>.652</td>
<td>-.088</td>
</tr>
<tr>
<td>Low staff motivation</td>
<td>.862</td>
<td>.170</td>
</tr>
<tr>
<td>High staff turnover</td>
<td>.618</td>
<td>.207</td>
</tr>
<tr>
<td>Low staffing levels</td>
<td>-.152</td>
<td>.836</td>
</tr>
<tr>
<td>Inadequate working tools</td>
<td>.410</td>
<td>.714</td>
</tr>
<tr>
<td>Ineffectiveness and inefficiency of operations</td>
<td>.410</td>
<td>.571</td>
</tr>
<tr>
<td>Bureaucratic systems</td>
<td>.867</td>
<td>.144</td>
</tr>
<tr>
<td>Statutes and legislation</td>
<td>.076</td>
<td>.849</td>
</tr>
</tbody>
</table>

*Extraction Method: Principal Component Analysis.*

*Rotation Method: Varimax with Kaiser Normalization.*

*a. Rotation converged in 3 iterations.*

As prescribed by Field (2013), the factor loadings greater than 0.5 are presented in Table 4.10 above. Basing our results on the percentage of variance explained by each of the two extracted factors, the primary and secondary influential internal factors, whose respective variance explained were 33.328% and 29.442% respectively were:

**Primary influential internal factors were:**
- Resistance to change;
- Low staff motivation;
- High staff turnover; and
- Bureaucratic systems.

**Secondary influential internal factors were**
- Low staffing levels;
- Inadequate working tools;
- Ineffectiveness and inefficiency of operations;
- Statutes and legislation; and

**4.4 Financial factors**
The other aspect that this research explored was the extent to which financial issues influenced public sector auditing. To this end, 5 key issues were examined, that is, poor financing of auditing operations, poor budgeting, poor staff remuneration, increased government spending, and existence of corruption. The results from the analysis are presented below.
Table 4.11: Influence of Financial Factors

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Statistic</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewedness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor financing of auditing operations</td>
<td>31</td>
<td>4.90</td>
<td>.301</td>
<td>-2.868</td>
<td>6.654</td>
</tr>
<tr>
<td>Poor budgeting</td>
<td>31</td>
<td>4.58</td>
<td>.564</td>
<td>-.933</td>
<td>-.077</td>
</tr>
<tr>
<td>Poor staff remuneration</td>
<td>31</td>
<td>4.61</td>
<td>.667</td>
<td>-1.523</td>
<td>1.122</td>
</tr>
<tr>
<td>Increased government spending</td>
<td>30</td>
<td>4.27</td>
<td>.740</td>
<td>-.480</td>
<td>-.972</td>
</tr>
<tr>
<td>Existence of corruption</td>
<td>31</td>
<td>4.77</td>
<td>.425</td>
<td>-1.379</td>
<td>-.109</td>
</tr>
<tr>
<td>Valid N (leastwise)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the above analysis, the key financial issue identified as the most significant was *poor financing of audit operations*, which was rated with a mean of 4.9 off a maximum of 5.0. The significance of this item is evidenced by the very high leptokurtic nature of the distribution, having the highest positive kurtosis statistic of 6.654. The second rated item was *existence of corruption* whose mean rating was 4.77, while *poor staff remuneration*, was rated third, with a high mean rating of 4.61, again leptokurtic in nature, with a corresponding kurtosis of 1.122. However, the least rated, though significant items, were *poor budgeting* and *increased Government spending*, and these had relatively low mean statistics of 4.58 and 4.27 respectively, both being platykurtic in nature, with negative kurtosis statistics. In other words, there were mixed feelings regarding the ratings of these items by the respondents. Thus, to statistically establish the associations among these items, dimension reduction statistical analyses had to be conducted. To qualify its use, the Bartlett’s test and the KMO tests were computed, and the results are presented in Table 4.12 below.

Table 4.12: KMO and Bartlett’s Test -Financial Factors

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | .592 |
| Bartlett’s Test of Sphericity                   |     |
| Mean                                             |     |
| Std. Deviation                                  |     |
| Skewedness                                      |     |
| Kurtosis                                        |     |

From the foregoing, the KMO statistic was greater than 0.5 (IBM, 2016), being 0.592, while the Bartlett’s test yielded a significance of 0.006. The results satisfied the underlying assumptions for factor analysis. Factor analysis was conducted, with the Principal Component Analysis as the extraction method, with Varimax as the rotation method, and Kaizer Normalization and the resulting rotated component matrix is presented in Table 4.13 below.

Table 4.13: Factor Analysis – Financial Factors

<table>
<thead>
<tr>
<th>Rotated Component Matrix</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Poor financing of auditing operations</td>
<td>.921</td>
</tr>
<tr>
<td>Poor budgeting</td>
<td>.198</td>
</tr>
<tr>
<td>Poor staff remuneration</td>
<td>.813</td>
</tr>
<tr>
<td>Increased government spending</td>
<td>-.034</td>
</tr>
<tr>
<td>Existence of corruption</td>
<td>.121</td>
</tr>
</tbody>
</table>

*Extraction Method: Principal Component Analysis.*

*Rotation Method: Varimax with Kaiser Normalization.*

a. Rotation converged in 3 iterations.
From the above analysis, two components (factors) were extracted, which were essentially representing the primary and secondary factors. According to Zikmund et al (2012), and Cooper (2014), factor loadings of at least 0.50 should be considered, and in this regard, the researcher highlighted those matching the criteria in Table 4.13 above.

From the above table, the primary factors incorporated were:

- Poor financing of auditing operations; and
- Poor staff remuneration.

Whereas the secondary factors were:

- Poor budgeting;
- Increased government spending; and
- Existence of corruption.

4.5 Review of constructs

Having explored the various facets of each of the research constructs used in this study, the researcher aggregated them and the summary statistics is presented in Table 4.14 below.

<table>
<thead>
<tr>
<th>Table 4.14: Summary Statistics – Research Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
</tr>
<tr>
<td>Internal Factors</td>
</tr>
<tr>
<td>Financial Factors</td>
</tr>
</tbody>
</table>

From the above analysis, financial factors had a higher mean rating, with a mean rating of 4.6274. It had a greater positive kurtosis statistics of 1.279. On the other hand, internal factors had a mean rating of 4.375.

5.0 RECOMMENDATIONS

- Human resource shortage was found to be hindering the full execution of OAG mandate. In this regard, the researcher recommends that the Office of the Auditor General be resourced with adequate manpower to be able to fully discharge its functions. The mandate of the Office has expanded and so should the associated manpower. To further reduce the labour turnover and attract more talent in the organisation, the welfare of the auditor should be taken seriously to ostensibly address issues such as low staff morale, lack of motivation and poor remuneration as identified in the study.

- To buttress the legal independence of OAG, the Office of the Auditor General must have adequate resources. Outright commercialisation of the office would ensure that the office is able to appropriately fund its operations and therefore not subject to undue influence.

- It has also been established in the study that most recommendations by the Auditor General are not fully implemented and in some cases, never implemented. The audit office must be given investigating and arresting powers. They should be able to independently investigate audit findings and where need be, arrest perpetrators of financial irregularities. This would make the responsible authorities to take all recommendations by the Audit Office seriously because they would be aware of the consequences of not carrying them out.

6.0 LIMITATIONS OF THE STUDY

As a limitation to the study, some respondents did not feel free to express themselves as they perceived the study to be political. This is as a result of the political polarization currently obtaining in the country.
7.0 CONCLUSIONS
From the research, the key socio-economic factors that had the greatest impact on the operations of the Office of the Auditor General were inadequate working tools and poor financing of audit operations. The other high impact factors were identified as low staff motivation, resistance to change and high staff turnover. Thus, it can be concluded that socio economic factors had an impact on the operations of the Office of the Auditor General. It followed therefore as a conclusion that the key socio-economic factors affecting the Office of the Auditor General were resistance to change, low staff motivation, high staff turnover, low staffing levels, inadequate working tools, ineffectiveness and inefficiency of operations, poor financing of audit operations, poor budgeting, poor remuneration, and existence of corruption. The aggregate impact of each of the socio-economic factors on the performance of the Office of the Auditor General was, on average, seen to be influential. It follows as a conclusion that the Office of the Auditor General is affected by various socio-economic factors with inadequate working tools identified as the major one. Lack of adequate working tools and over reliance on other ministries erode its independence and, therefore, highly compromise the quality of the audit reports. The serious fiscal imbalance the country is facing has also had an effect on policing organisations like that of the Office of the Auditor General.

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Investigating factors influencing the performance of the Office of the Auditor General in Zimbabwe


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The Institute of Internal Auditors, (2012). *Practice Guide: Developing the Internal Audit Strategic Plan*. Altamonte Springs, FL: The Institute of Internal Auditors


Turnaround strategies for distressed Zimbabwean companies operating under judicial management

C. Kandwe, S. Ruturi and D. D. Madzikanda

ABSTRACT
Many Zimbabwean companies facing financial distress and having gone under judicial management, which is supposed to be recuperative, have failed to recover. Studies indicate that more than 80% of companies under judicial management end up in liquidation, raising the concern of the judicial managers’ skills and competencies. This study, therefore, sought to assess the efficacy of strategies implemented by Zimbabwean companies placed under judicial management and the judicial manager’s skills and competencies in turning around companies within a reasonable time.

Data was collected from a stratified random sample of seventy-six respondents consisting of: judicial managers, senior and junior managers and owners of companies under judicial management in Harare. The findings revealed that only financial and operational strategies were shown to have significant and positive impact on post judicial management order performance. The skills and competencies of the incumbent judicial manager seemed to have an insignificant impact on the post judicial management order performance, possibly because in many cases, the top management team is replaced by new managers.

Keywords: Corporate turnaround strategy, judicial management, post judicial management order performance, liquidation

1.0 INTRODUCTION
The study examines the range of strategies employed by distressed companies under judicial management in terms of Sections 299-321 of the Zimbabwean Companies Act [Chapter 24:03]. The literature on judicial management, especially that pertaining the effectiveness of the turnaround strategies, is very scarce. It is, therefore, argued in this study that many companies under judicial management in Zimbabwe end up being liquidated, partly because of the strategies being implemented and partly due to lack of managerial skills and competencies of the judicial managers. To this end, a valuable contribution to research in this field must seek to redress this shortcoming, providing evidence based strategic frameworks that policy makers and business rescue practitioners can utilise in order to make informed decisions.

2.0 STUDY BACKGROUND
The interwoven economic challenges that include harsh economic conditions characterised by absence of cheap capital for recapitalization, stiff competition from imports and subdued consumer demand have seen hundreds of firms tethering on the brink of collapse. Most Zimbabwean products have become uncompetitive in terms of quality and price, and many companies are failing to meet their obligations as they become due and payable. This has led to the widespread corporate ill-health afflicting many Zimbabwean companies. To escape attachment of the companies’ assets for failure to meet their obligations to creditors, the majority of stressed firms approach the Courts seeking temporary relief from marauding creditors through a voluntary application for placement under Judicial Management.

Judicial Management is a combinatorial process whereby the principles of company law regarding the management of a normal company, as well as the principles appertaining to the liquidation of a company, are fused to ensure the optimum benefit of creditors and members. The purpose of Judicial Management is to enable companies suffering a temporary setback due to mismanagement or other special circumstances to return to viability (Cilliers et al., 2007). In Zimbabwe, the procedure is governed by sections 299-321 of the Companies Act {Chapter 24:03}.
So common have Judicial Management applications become (see Figure 1 below) that the High Court of Zimbabwe expressed concern on possible abuse by companies of this Court sanctioned process, which allows beleaguered companies to pursue alternate survival routes without harassment from creditors and avert liquidation (The Source, 23 January 2015, “Don’t rush for Judicial Management, Bankers plead with ailing firms”).

![Figure 1: Judicial management 2010-2014 Master’s Log](image)

Given the growing number of company closures, Judicial Management applications and liquidation cases, there is a heightened need for studies to be conducted in the area of Judicial Management in order to avert imminent economic collapse emanating from rampant company failures. The companies that were placed under judicial management constituted both small and large-sized companies.

When a company is placed under judicial management, the directors are divested of all their powers and the judicial manager takes custody of the company’s assets. It is imperative to not only preserve the company’s assets, but put them to the most effective and efficient use for the benefit of all the stakeholders. Judicial Managers are individuals who are appointed on the basis of their accounting, legal or estate administration background, suggesting that these are not management or strategy experts per se. Despite, their lack of immense exposure in the management field, judicial managers are required to craft turnaround strategies to transform the ailing companies. Nevertheless, their influence in rendering corporate surgery has hardly been analysed.

### 3.0 PROBLEM STATEMENT

Information obtained from the Office of the Master of the High Court of Zimbabwe suggests that a total of eighty-seven companies were liquidated in 2014 compared to forty-four in the previous year and on the other hand, companies under Judicial Management rose to sixty from forty-four during the same period. The rate of success in turning around companies under judicial management is so low such that there is an urgent need to understand the cause of this low rate of success.

Furthermore, the joint research study conducted by the Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU) and Competition and Tariff Commission (CTC) (2013) reported that; a) judicial management proceedings were taking too long, b) judicial management proceedings in Zimbabwe always have a very low rate of success, and c) once a company is placed under judicial management, it is difficult to put it back on a solid financial footing. The paradox is that, the very same stakeholders who are intended to benefit when companies placed under judiciary management recover, such as creditors, shareholders, employees and the community, end up being the greatest losers, because judiciary management proceedings always fail. If
companies under Judicial Management are not carefully monitored to adopt the right corporate renewal strategies then the government initiatives such as Distressed Industries and Marginalised Areas Fund (DIMAF) may be doomed.

The main objective of this study was to determine the turnaround strategies that have the greatest impact on improving the performance of companies placed under judicial management. The main research question was: Which are the main turnaround strategies being implemented by companies under Judicial Management have the biggest impact on performance post judicial management?

4.0 LITERATURE REVIEW

Smith and Graves (2005) make a significant contribution to literature by defining a turnaround process as a series of integrated steps involving the decline stemming and the recovery phase. A commonly held viewpoint is that, a company can be considered to have been turned around when it has recovered from a decline that threatened its existence to resume normal operations and achieve performance acceptable to its stakeholders.

Several categorisations of turnaround actions have been proposed in the literature such as: financial strategies, operational strategies and managerial or human resource strategies (Panicker and Manimala, 2015; Sudarsanam and Lai, 2001).

Financial strategies in corporate turnaround entail developing the financial strength of the business as a resource that can generate competitive advantage (Scherrer, 2003). The literature identifies financial strategies as strategies that address how the business is funded. The strategies involve choosing between financing the business through debt or equity (Sudarsanam and Lai, 2001). It is about improving the company’s capital structure to relieve it of the burden of interest charges and debt repayments. Therefore, these strategies are separated into two strategies namely: equity-based and debt-based strategies.

Operational or efficiency strategies may involve both revenue maximisation and input minimising (Pretorius, 2008). Revenue generation is pursued by focusing on existing lines of products, initiating price-cuts (or raising prices where products are price insensitive) and increasing marketing expenditure to stimulate demand.

Managerial strategies generally involve re-invigorating the firm’s leadership as studies show that only 9% of failures are due to influences beyond management’s control and sheer bad luck (Collard, 2011). The actions may entail reduction of wages, salaries and other incentives, which may be referred to as belt tightening or decline stemming strategies (Arogyaswamy et al., 1995; Schoenberg et al., 2013; Smith and Graves, 2005). Cost-cutting and financial restructuring leading to lean management, forms the bedrock of any successful recovery bid (Igor & Steve, 2006).

Portfolio strategies include diversification, vertical integration, new market share thrusts and divestment. This strategy entails determining the markets, products and customers that have the potential to generate the greatest profits or alternatively better buying power and refocusing the firm’s activities on these areas. There is consensus that successful turnarounds are associated with a focus on product lines for which the firm has a competitive advantage or loyal customers (Sudarsanam and Lai, 2001).

Different and unique sets of leadership skills and competencies are required during turnaround situations in order to effect change. Lymbesky (2011) reiterates that a turnaround leader must have many soft skills such as the ability to lead and motivate people who are frustrated, scared, and often without hope. A synthesis of the literature on turnaround strategies identifies the following key skills and competencies: entrepreneurship, team-building (Burnes, 2009; Lymbesky, 2011). Furthermore, there is a need for leadership with suitable experience and the appropriate academic background (Osthauzen, 2014). The leaders must be able to lead from the front, which requires knowledge of the business in its entirety and not just in specialist areas and an ability to manage through discontinuity (Witzel M, Financial Times, 5 August 2003, in Burnes, 2009).
5.0 RESEARCH METHODOLOGY
The study, therefore, sought to test the following hypotheses:

Hypotheses 1
H₁: Financial strategies positively impact the performance of companies under judicial management.

Hypotheses 2
H₂: Operational strategies positively impact the performance of companies under judicial management.

Hypotheses 3
H₃: Managerial strategies positively impact the performance of companies under judicial management.

Hypotheses 4
H₄: Portfolio strategies positively impact the performance of companies under judicial management.

Hypotheses 5
H₅: Key competencies and skills of the Judicial Manager positively impact the performance of companies under judicial management.

In order to test the above hypotheses, data were obtained using a structured survey questionnaire, using Likert’s 5–Point Scale statements. The Instrument was distributed to seventy-six respondents randomly selected from a population of companies in Zimbabwe that applied for Judicial Management under the Companies Act [Chapter 24:03] section 299, from 2010 – 2013 and fifty-two dully completed and returned the questionnaire.

Table 1: Population and sample framework

<table>
<thead>
<tr>
<th>Population</th>
<th>Sample</th>
<th>Gender</th>
<th>Size</th>
<th>Selection Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Companies</td>
<td>96</td>
<td>25</td>
<td>71</td>
<td>25</td>
</tr>
<tr>
<td>Judicial Managers</td>
<td>25</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>CEO</td>
<td>36</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Senior Managers</td>
<td>16</td>
<td>6</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Junior Managers</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Owners</td>
<td>76</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>13</td>
<td>26</td>
<td>76</td>
</tr>
</tbody>
</table>

The questionnaire was administered based on a ‘drop and collect’ basis, which offered an opportunity to get data from respondents in a cost effective way and enabled them to complete the questionnaire at their own pace (Ibeh, Brock, and Zhou, 2004).

6.0 DATA ANALYSIS, FINDINGS
6.1 Descriptive tests
Out of a sample of 76 structured questionnaires administered, 52 were dully completed thereby giving a response rate of 68.4 % which is satisfactory given that all sectors were represented in this sample, see Table 2 below.
The majority of the respondents were senior managers who constituted 42.3%, followed by 26.9% junior managers.

Figure 2 below identifies the most commonly used strategies among the companies in judicial management (JM).

From Figure 2, reorganisation of business processes was the most commonly used strategy by companies under judicial management.

The analysis also examined the various financial strategies used by companies under judicial management as shown in Figure 3 below.
The majority of the companies used reduction of wages (20%) and liquidation of extra assets (17%) as main financial strategies. This could have been because of the lack of working capital caused by inaccessibility of funding. Engagement of creditors (15%) and debt restructuring (16%) were marginally used.

From an operational perspective, the findings indicated that most Judicial Managers adopted a cash flow management strategy coupled with collecting and reducing accounts receivables, see Figure 4 below.

The job of a Judicial Manager is to stop the haemorrhage, establish a going concern and ensure viability. Figure 5 below shows the most commonly used managerial strategies used and it shows that retrenchment and top management team (TMT) change were the most common managerial strategies employed by Judicial Managers.
The idea of retrenchment and TMT change stems from the principle that those who brought the company the current demise cannot be authors of the turnaround. Such is the argument for the management displacement insolvency regimes. It is widely accepted in turnaround literature that one of the most effective ways of initiating and managing a successful turnaround is a change in leadership.

Of the various portfolio strategies used, most companies adopted reorganisation of business processes (28%) and strategic alliances (20%) as the main portfolio strategy, see Figure 6 below.

It has been established that companies experiencing corporate ill-health have become uncompetitive and their business models require corporate surgery.

Figure 7 below shows an almost equal spread of the essential skills and competencies with none significantly more pronounced or prominent.
There appears to be a low usage of benchmarking and other strategic planning tools possibly due to lack of resources to implement the strategies.

6.2 Regression test
Regression analysis was deemed appropriate in testing the hypothesis in order to establish the main strategies that determine the performance of companies under judicial management.

Table 3: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.649</td>
<td>.421</td>
<td>.243</td>
<td>.68109</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Number of years in business, Managerial strategies, portfolio strategies, Age of respondent, Gender of respondent, Financial strategies, Qualification of respondent, Operational strategies, Position in organisation, Type of industry, Number of employees in organisation, JMskillsandcompetencies
b. Dependent Variable: PostJMorderperformance

Table 3 above shows that the model explains 42.1% variance of post judicial management performance. The remaining 57.9% is explained by other factors which are outside the scope of this research; such as the legal framework that governs the process of judicial management or the perceptions of stakeholders of companies in judicial management.

The test of overall significance of the regression model (F), also known as analysis of variance (ANOVA), determines the ratio of the explained to the unexplained variance, and, therefore, tests if the regression model is statistically significant. This is shown in Table 4 below.

Table 4: Anova Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>13.146</td>
<td>12</td>
<td>1.095</td>
<td>2.362</td>
<td>.021b</td>
</tr>
<tr>
<td>Residual</td>
<td>18.092</td>
<td>39</td>
<td>.464</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31.238</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: PostJMorderperformance
b. Predictors: (Constant), Number of years in business, Managerial strategies, portfolio strategies, Age of respondent, Gender of respondent, Financial strategies, Qualification of respondent, Operational strategies, Position in organisation, Type of industry, Number of employees in organisation, JMskillsandcompetencies
The F-value (F\(12; 39 = 2.362, p < 0.05\)) demonstrates that the overall model is statistically significant, meaning that the variables have a significant combined predictive effect on the dependent variable.

Table 5 below shows the regression coefficients of the model proposed above.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.328</td>
<td>1.569</td>
<td>0.209</td>
<td>0.835</td>
<td>0.681</td>
<td>2.227</td>
</tr>
<tr>
<td>Financial strategies</td>
<td>0.485</td>
<td>0.209</td>
<td>0.372</td>
<td>2.320</td>
<td>0.577</td>
<td>1.732</td>
</tr>
<tr>
<td>Operational strategies</td>
<td>0.507</td>
<td>0.167</td>
<td>0.644</td>
<td>3.036</td>
<td>0.330</td>
<td>3.028</td>
</tr>
<tr>
<td>Managerial strategies</td>
<td>-0.082</td>
<td>0.177</td>
<td>-0.068</td>
<td>-0.461</td>
<td>0.647</td>
<td>1.469</td>
</tr>
<tr>
<td>Portfolio strategies</td>
<td>-0.019</td>
<td>0.171</td>
<td>-0.019</td>
<td>-0.112</td>
<td>0.912</td>
<td>2.048</td>
</tr>
<tr>
<td>JMskillsandcompetencies</td>
<td>-0.320</td>
<td>0.242</td>
<td>-0.348</td>
<td>-1.323</td>
<td>0.194</td>
<td>4.657</td>
</tr>
<tr>
<td>Gender of respondent</td>
<td>-0.341</td>
<td>0.320</td>
<td>-0.191</td>
<td>-1.067</td>
<td>0.292</td>
<td>2.146</td>
</tr>
<tr>
<td>Age of respondent</td>
<td>-0.193</td>
<td>0.178</td>
<td>-0.197</td>
<td>-1.081</td>
<td>0.286</td>
<td>2.227</td>
</tr>
<tr>
<td>Position in organisation</td>
<td>-0.096</td>
<td>0.125</td>
<td>-0.140</td>
<td>-0.769</td>
<td>0.446</td>
<td>2.242</td>
</tr>
<tr>
<td>Qualification of respondent</td>
<td>0.252</td>
<td>0.199</td>
<td>0.226</td>
<td>1.269</td>
<td>0.212</td>
<td>2.137</td>
</tr>
<tr>
<td>Number of employees in organisation</td>
<td>0.328</td>
<td>0.233</td>
<td>0.281</td>
<td>1.413</td>
<td>0.166</td>
<td>2.660</td>
</tr>
<tr>
<td>Type of industry</td>
<td>0.067</td>
<td>0.047</td>
<td>0.299</td>
<td>1.432</td>
<td>0.160</td>
<td>2.941</td>
</tr>
<tr>
<td>Number of years in business</td>
<td>0.016</td>
<td>0.144</td>
<td>0.023</td>
<td>0.114</td>
<td>0.910</td>
<td>2.660</td>
</tr>
</tbody>
</table>

Given the p values of only two of the determinants (financial strategies and operational strategies) are less than 0.05, the revised model becomes Post JM order performance = 1.569 + 0.209FINs + 0.167Ops. This means that the performance of companies under judicial management is positively impacted by financial strategies and operational strategies. It is also worth pointing out that gender was not a statistically significant variable to effect the results.

7.0 DISCUSSION

A critical review of both theoretical and empirical literature formed the basis for a conceptual framework that suggested ways of improving the success rate of corporate turnaround attempts (Pretorius, 2008; Smith and Graves, 2005). The factors that were proposed as essential variables in determining the success of corporate turnaround were the context of the turnaround, severity of decline and types strategies employed (Sudarsanam and Lai, 2001). The study narrowed down the focus to the turnaround strategies and the skills and competencies of the judicial managers forming the basis of hypotheses formulation.

The regression model shows that the important predictors of post judicial management order performance are financial and operational strategies. Such a finding is in conformity with the literature on turnaround strategies of distressed companies under judicial management (Holthauzen, 2011).

The following table summaries the results of the hypothesis testing:
Turnaround strategies for distressed Zimbabwean companies operating under judicial management

Table 6: Hypotheses testing summary

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>t-value</th>
<th>Sig</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_1$: Financial strategies positively impact post Judicial Management order performance.</td>
<td>2.320</td>
<td>p=0.026; p&lt;0.05</td>
<td>Accepted</td>
</tr>
<tr>
<td>$H_2$: Operational strategies positively impact post Judicial Management order performance</td>
<td>3.036</td>
<td>p=0.004; p&lt;0.05</td>
<td>Accepted</td>
</tr>
<tr>
<td>$H_3$: Managerial strategies positively impact post judicial management order performance.</td>
<td>-0.461</td>
<td>p=-0.019; p&gt;0.05</td>
<td>Rejected</td>
</tr>
<tr>
<td>$H_4$: Portfolio strategies have a positive impact on post judicial order performance.</td>
<td>-0.112</td>
<td>p=0.912; p&gt;0.05</td>
<td>Rejected</td>
</tr>
<tr>
<td>$H_5$: Key competencies and skills of the Judicial Manager have a positive impact on post Judicial Management order performance.</td>
<td>-1.323</td>
<td>p=0.194; p&gt;0.05</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

The majority of the companies used reduction of wages and liquidation of extra assets as a main strategy. This could have been because of the lack of working capital caused by inaccessibility of funding. This corroborates with Thompson et al. (2010) and Gladwell (2002) who stress that although a company's assets are profitable, sometimes they must be liquidated to contribute to the strategic focus.

Engagement of creditors and debt restructuring were marginally used. The low usage of these strategies stems from the fact that such strategies are reserved for large companies which have stakes high enough to warrant schemes of arrangement or debt equity swap. The smaller companies can only negotiate for interest on outstanding debt and make payment plans. This is in line with the findings by Collet et al. (2013) in their research on the Finnish restructuring Act. The researchers note that Finnish firms threatened by imminent bankruptcy can either apply for liquidation, sell the firm or enter into voluntary agreement with creditors. The authors further add that voluntary agreement with creditors seemed to be available mainly to large firms that had the power to bargain with creditors. Gumbe and Kaseke in their study of survival options available for Zimbabwe manufacturers in the hyperinflationary period (2005-2008), also reckon that most frequently used strategies were the marketing and financial strategies. The implication for management is that, for enhanced performance, judicial managers should strongly consider adopting financial strategies such as debt restructuring, retrenchment and stakeholder management.

In addition, the findings reveal that some Judicial Managers adopted a cash flow management strategy coupled with collecting and reducing accounts receivables. Such strategies are adopted to meet the initial requirements of Judicial Management, which is to establish a going concern. Schmitt and Raisch (2013) identify a two stage recuperative model which starts by stabilising the organisation before adopting strategies for revenue generation and ultimately increase. The managerial implication here is that judicial managers should prioritise operational strategies such as increasing revenue, cash flow management and reducing and collecting accounts receivable.

8.0 CONCLUSION AND RECOMMENDATIONS

The researchers make the conclusion that the most common strategies are reorganisation of business processes, reduction of wages and salaries, strategic alliances, TMT changes, managing cash flows and streamlining of business operations to stick to core business. Another conclusion is that, most companies under judicial management are mature organisations that had previously taken up too many activities and dissipated their energies hence the need for re-focusing on the core activities through reorganisation of business processes and retrenchment.

The researchers conclude that the strategies that top the list of judicial management strategies in practice are those that have been shown to have a statistically insignificant impact on the performance of companies.
under judicial management. These strategies include reorganisation of business processes, strategic alliances and reduction of wages, salaries and other incentives. This could explain why most of the companies have failed to turnaround because there is so much of movement as regards strategy but no progress.

The strategies being used seemed ineffective as 90% of the companies were unable to pay their creditors and the image of the business failed to improve in 90% of the companies. The implication is that Judicial Managers need to consider operational strategies first followed by financial strategies. There is a need to consider stabilising the firm by efficiency oriented strategies working in tandem with other strategic choices of financing for sustainability.

1) Post judicial management order performance is impacted more by financial and operational strategies hence management should concentrate on debt restructuring, liquidation of extra assets, active engagement of creditors and cash flow management.

2) Managerial strategies such as changes in top management and retrenchment of employees have a negative impact on post judicial management order performance. Management should, therefore, consider employee engagement to retain some tacit knowledge inherent in long serving employees.

3) It is imperative for management to determine major causes of the corporate decline to avoid taking on companies that are liquidation candidates which will not respond to the prescribed strategies. Having concluded the research findings above, the researchers hereby propose the following recommendations for policy makers, managers and turnaround practitioners:

4) Companies under Judicial management are failing to access funding and improve their image due to the stigma associated to Judicial Management. Policy makers should, therefore, consider renaming the process to a more palatable business term such as business restructuring or enterprise restructuring.

5) The current Insolvency Act should be amended to provide a timeframe for turnaround

The competencies of the judicial managers could not be easily examined possibly because in the majority of cases, the existing managers are replaced.

9.0 AREAS FOR FURTHER RESEARCH

Further research needs to understand the Judicial Management process and outcome and reasons why companies apply for Judicial Management. It is also worth conducting comparative studies between companies run by men compared to those run by women to see if gender may be an explanatory variable. The length of time a company spends in Judicial Management seems dependent on a number of factors, some attributed to the judicial manager. Furthermore, a thorough study is required to consider those companies that were revived as a result of Judicial Management. Future research may also need to refine its methodology and understand why companies are taking long in judicial management.

REFERENCES


The effects of corporate income tax incentives on mining firms’ investments in fixed assets: The case of Zimbabwe (2009-2011)

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ABSTRACT
This article evaluates the effects of corporate income tax incentives on individual mining firms’ investments in fixed assets. The main objective was to assess whether corporate income tax incentives have improved Zimbabwe mining firms’ investments in fixed assets for the period 2009 to 2011. Panel data econometrics methodology was employed, using firm level data that was obtained from a sample of thirty-seven mining firms. A positive relationship between capital redemption allowances and firms’ investment in fixed assets was confirmed. It was also established that a positive relationship existed between assessed losses carried forward and investment in fixed assets. On the contrary, a negative and significant relationship was confirmed between corporate income taxes and the investment variable. Effective tax rates were found to have no effects on investment in fixed assets. The study recommends that the identified corporate income tax incentives are necessary, but should be granted with caps or sunset clauses in line with modern trends and best practice in the granting of tax incentives.

Key words: tax incentives, investments, fixed assets, mining, Zimbabwe

1. INTRODUCTION
The mining sector has become a key sector in Zimbabwe and in recent years, significant discussion has centred on taxation of that sector. Multilateral Organizations such as the World Bank and the International Monetary Fund have been engaged to offer technical advice on the mining taxation model that Zimbabwe should pursue. The seemingly general consensus from tax policy experts is that, the mining sector is receiving vast tax incentives which should be streamlined as they are eroding tax revenues. Towards the end of 2010, the Minister of Finance and Economic Development hinted on Government’s intention to streamline capital redemption allowances in the mining sector as they were negatively impacting on corporate income taxes (Ministry of Finance and Economic Development, 2010). There is ongoing debate on whether the benefits derived from granting tax incentives outweigh the costs associated with them. This study intends to contribute to the ongoing debate on corporate income tax incentives, with particular reference to the mining sector in Zimbabwe.

1.1 STATEMENT OF THE PROBLEM
The mining sector has been one of the fastest growing sectors of the economy in recent years. However, this growth has not been matched by tax revenue contributions from the same sector. Corporate income tax revenue from the mining sector is paltry due to tax incentives which are peculiar to that sector. Policy makers in government have identified the need to review tax incentives, with particular reference to capital redemption allowances (Ministry of Finance and Economic Development, 2011). Despite this need, there is also another pressing need to recapitalize the sector and enhance productivity (ibid). Are the capital redemption allowances and other tax incentives serving their intended purposes? Are their benefits outweighing their costs?

1.2 Study Aims and Objectives
The main objective of the study was to explore the nature of tax incentives and their effects on investment in fixed assets in the mining sector of Zimbabwe. The sub objectives were as follows:
The effects of corporate income tax incentives on mining firms’ investments in fixed assets

I. To assess the nature of tax incentives in Zimbabwe’s mining sector.

II. To establish if capital redemption allowances, reduced corporate income taxes, Effective Tax Rates (ETR) and assessed loss carryforwards improve mining firms’ investments in fixed assets.

III. To evaluate the specific tax incentives to target for policy reform in the mining sector.

1.3 Research Questions
The key research questions were as follows:

I. What is the nature of tax incentives in the mining sector of Zimbabwe?

II. What are the effects of corporate income tax incentives on mining firms’ investments in fixed assets?

III. Which specific corporate income tax incentives can be targeted for policy reform in Zimbabwe?

1.4 Hypothesis
The null hypothesis was that, corporate income tax incentives in the mining sector have no effects on investment in fixed assets.

1.5 Justification of the Study
The study is most likely to have far reaching policy implications to tax administrators, policy makers and other stakeholders on whether the current tax incentives should be increased, maintained or streamlined for the case of Zimbabwe. There were also gaps that needed to be filled in the area of tax incentives in Zimbabwe. Most of the previous studies had covered a broad spectrum of tax incentives for a group of countries within a particular trading bloc, for example, Southern African Development Community (SADC) rather than concentrating on one specific country (Bolnick, 2004; Klemm, 2009). From these studies, it had not been possible to probe the intricacies of the tax system within a particular country. This study intended to be more specific. It concentrated on the essence of tax incentives to the Zimbabwean economy, which study had not been done to date.

This study was also a deviation from previous studies in that, it concentrated on the effects of tax incentives in a selected sector. The analysis was, therefore, more focused and illuminating. This was made possible by the fact that the researchers had to sift through the actual tax returns from firms in the mining sector. While many economists acknowledge that incentives in this sector ought to be streamlined, no empirical justification had been put forward to support that notion. This study, therefore, sought to provide recommendations based on scientific evidence.

1.6 Limitations of the Study
Due to circumstances beyond the researchers’ control, there were limitations on data availability for a few firms were included in the panel data regression analysis. Data for 2009 to 2011 was in the old Systems, Applications & Products (SAP) and was, therefore, readily available. Data for 2012, 2013 and 2014 was in the new SAP system which had recently been upgraded from the old system. The researchers had no access to some of the 2012 up to 2014 data as it was still being cleaned up by SAP experts. For that reason, the researchers decided to use panel data regression analysis, which provided more robust results for a shorter period of time.

1.7 Organisation of the Study
Section 2 critically reviews the nature of tax incentives in the mining sector. Section 3 provides a brief review of literature on the subject of tax incentives with specific reference to corporate income tax. Section 4 lays out the econometric model of tax incentives for the Zimbabwean case. Section 5 presents the results and analyses them. Section 6 concludes the study and offers recommendations.
2. NATURE OF CORPORATE INCOME TAX INCENTIVES IN THE MINING SECTOR

The mining sector in Zimbabwe has its own special tax regime, with its own tax incentives that are at variance with tax incentives in the other sectors. The following were some of the existing tax incentives in the mining sector which distinguished it from other sectors:

2.1 Capital Redemption Allowances

All capital expenditure on exploration, development and operating incurred wholly and exclusively for mining operations is allowed in full. In fact, instead of employing the concept of capital allowances, as in other sectors, the mining sector employs the concept of capital redemption allowances in line with Section 15 (2) (f) of the Income Tax Act Chapter 23:06 as read with the 5th Schedule. According to the 5th Schedule of the Income Tax Act Chapter 23:06, there is no limit on staff housing. Capital redemption allowances for shareholders’ houses can also be claimed with no cap, unlike in other sectors where there is a cap on capital allowances. Only expenses incurred in the construction of hospitals and schools can be claimed up to a specified limit. Justifying the need to review the policy on capital redemption allowances, the Minister of Finance and Economic Development said:

"The current mining tax regime is highly preferential in recognition of the capital outlay related to the sector. As a result, the contribution of the mining sector to the fiscus is minimal compared to [other mining sectors in] other countries in the region (Ministry of Finance and Economic Development, 2010)."

The intention to review capital redemption allowances was deferred in the National Budget Statement of 2010, paragraph 1013, when the Minister of Finance and Economic Development had this to say:

"Although the review of capital allowances has potential to significantly improve revenue inflows to the fiscus, there is, however, need to allow the mining sector to recapitalize in order to enhance productive capacity (Ministry of Finance and Economic Development, 2009)."

From a sample of only 12 companies randomly selected from the mining sector, capital redemption allowances of US$680 million were allowed from the period 2009 to 2011. This amount was too big, when compared to capital allowances granted in other sectors such as agriculture and financial services.

2.2 Treatment of Tax Losses

There is no restriction on carrying forward of tax losses. While in other sectors of the economy tax losses can be carried forward up to a maximum period of six years, for the mining sector, tax losses can be carried forward for an indefinite period. This has had a negative impact on the performance of corporate income tax as most of the companies in the sector were always declaring losses and carrying them forward indefinitely.

2.3 Reduced Corporate Income Tax Rates

Taxable income of a holder of a special mining lease is set at a special rate of 15%, whereas the general corporate income tax rate is 25%. Mining companies that are under Build-Own-Operate-Transfer (BOOT) arrangements are levied corporate income tax at the rate of 0% for the first five years, 15% for the second five years and 25% thereafter.

2.4 Deductibility of Mining Royalties

Mining Royalties were previously allowed as a deduction for tax purposes. This was in line with Section 15 (2) (f) (iii) of the Income Tax Act Chapter 23:06. However, in the National Budget Statement of 2014, the Minister of Finance and Economic Development indicated his intention not to allow mining royalties as a deduction for tax purposes. This was repealed with effect from 1 January 2014.
2.5 Build-Own-Operate & Transfer (BOOT) Arrangements
Mining companies, like companies in other sectors of the economy, can enter into a Build-Own-Transfer (BOT) or Build-Own-Operate and Transfer (BOOT) arrangement with the government or statutory corporations. These are arrangements under which contractors undertake to construct infrastructure for the state or a statutory corporation. This will be in consideration of the right to operate or control operations for a specified period after which the contractor will transfer ownership or control of the item to the state or a statutory corporation. As mentioned earlier, the company enjoys a tax holiday for the first five years and is then taxed at 15% for the second five years.

2.6 Mining Claims
As a way of streamlining incentives in the mining sector, in 2010, the Minister of Finance and Economic Development repealed a section that allowed a taxpayer to elect to spread the taxable income that was derived from the sale of a mining claim over a period of four years. The effect of that provision had been to defer the taxation of such income, thereby negatively impacting on revenue inflows to the fiscus (Ministry of Finance and Economic Development, 2010).

2.7 Exemption from Acquired Immune Deficiency Syndrome (AIDS) Levy
Until January 2015, companies in the mining sector were exempted from paying the AIDS levy. This privilege was not extended to other sectors of the economy. AIDS levy on the other sectors was calculated as 3% of tax chargeable after deduction of credits in the case of individuals and 3% of tax chargeable in the case of companies.

3. A REVIEW OF LITERATURE ON CORPORATE INCOME TAX INCENTIVES
3.1 Introduction
According to Bohmer et al (2007), tax incentives are those special exclusions, exemptions, deductions or credits that provide special credits and preferential tax treatment or deferral of tax liability. Tax incentives are often structured through income tax systems, providing relief from corporate-level taxes on income from capital and in some cases, providing relief from personal income tax. Tax rate reductions, VAT zero rating and VAT exemptions are also classified as tax incentives (Calitz et al, 2013; Klemm, 2009).

The debate on the effectiveness of tax incentives on both economic growth and investment is still inconclusive. There are studies that claim that fiscal incentive effects are mixed (Hubbert and Pain, 2002), while other studies claim that they are insignificant (Shah, 1995). Other studies, on the contrary, claim that tax incentive effects are inexistent (Friedman et al., 1992).

3.2 Theory behind Tax Incentives
Two fundamental premises underlie the justification for offering tax incentives in developing countries; firstly, that additional investment leads to faster economic growth; and secondly, that tax incentives stimulate additional investment (Bolnick, 2004). The advantages and disadvantages of the various tax incentives can be analysed in terms of four criteria. The criteria include effectiveness in stimulating investment, impact on revenue, economic efficiency and impact on tax administration (ibid).

Engen and Skinner (1996) suggested that tax reforms are sometimes taunted as having strong macro-economic growth effects. According to the two researchers, while many economists would agree with the proposition that high taxes are bad for economic growth, this proposition is not necessarily obvious, either in theory or in the data. Engen and Skinner traced the impact of taxation on economic growth to the Solow Growth Model. This theoretical framework allowed Engen and Skinner to catalogue five ways that taxes might affect output growth. Firstly, higher taxes can discourage the investment rate or net growth in the capital stock. Secondly, taxes may attenuate labour supply growth. Thirdly, tax policy also has the potential to discourage
productivity growth by attenuating research and development. Fourthly, tax policy can influence the marginal productivity of capital by distorting investment in heavily taxed sectors into more lightly taxed sectors. Finally, heavy taxation on labour supply can distort the effective use of human capital by discouraging workers from employment in sectors with high social productivity but a heavy tax burden.

Bolnick (2004) and Klemm (2009) presented congruent arguments against tax incentives. These include the fact that they can create economic distortions due to preferential treatment of investment. In addition, they also increase the cost of administration, as more resources are required in preventing fraudulent use of incentives. They also create social costs of rent-seeking behaviour. Calitz et al (2013) argued that export-oriented incentives such as VAT exemptions and zero rating are very prone to abuse since qualified purchases can easily be diverted to buyers not intended to receive the incentives.

Bondonio (2003) postulated that the literature testing for the effects of taxes on long run economic growth has generally been motivated by two foundational endogenous growth models. Firstly, the Barro (1991) model established an ‘Inverted-U’ relationship between steady state growth and income tax rates in a model in which a distortionary proportional tax on income and a non-distortionary consumption tax financed a mixture of utility-enhancing public expenditures. Secondly, Devereux (1994) and Love (1995), cited in Bondonio (2003), established steady state growth effects of labour and capital income and consumption taxes in endogenous growth models with physical and human capital. According to Bondonio (2003), the key public finance features of these models are that, growth effects depend on the form of taxation, the type of public expenditure that is tax-financed and the technology of goods and human capital production.

Referring to earlier literature on the effect of tax incentives on economic growth, Gullen and Gordon (2007), cited by Harju and Kosonen (2012) asserted that, “earlier literature has established that more progressive income taxation reduces the willingness to take risk, thus leading to less entrepreneurial activity and lower economic growth”.

3.3 Empirical Literature Review on Effects of Corporate Income Tax Incentives

Orihara (2015) analysed the effects of corporate income tax loss carried forward using industry-year level tax return data for Japan. The study findings indicated that tax loss carried forward increased investments when the effective tax rates among the industry-year observations were considerably affected by these tax losses carried forward. According to the study, the findings suggested that incentives’ effects of tax losses carried forward on corporate behaviour should be taken into consideration when implementing tax reforms.

Alm and Khan (2008) assessed enterprise taxation and the investment climate in Pakistan. They calculated both the average effective tax rates (AETR) and the marginal effective tax rates (METR) to determine the effects of tax incentives on investment. The average effective tax rate was calculated as total taxes actually paid as a fraction of gross corporate income. If the measure differed across firms, then those differences gave an indication of the way in which corporate income tax created incentives for resources to move between firms and, therefore, creating distortions in the allocation of resources. The two researchers recommended a reduction of the statutory tax rate for corporate income tax.

Galindo and Melendez (2010) analysed the corporate income tax stimulus and investment in Columbia. Their article employed an annual data set of firm level investment in Columbian firms during the period 1997 to 2007 to assess the impact of tax incentives for firms that invest in fixed assets implemented in 2004. The investment variable was used as the dependent variable, whilst independent variables included the effective corporate income tax rate and tax benefit as a percentage of turnover. The study observed a positive correlation between investment and tax policy. However, this correlation was not sustainable when year-specific effects were controlled. The article concluded that the tax incentive was ineffective in promoting investment in Columbia.
Federici and Parisi (2012) analysed the relationship between corporate income taxes and exports at firm level. Their results suggested that export participation as well as export intensity increase with corporate income taxation. The data set was for the period 2004 to 2006. Federici and Parisi (2012)’s findings show that the probability of engaging in exports is positively affected by the effective average tax rate and higher export sales are associated with increases in the marginal tax rate.

Teraoui et al (2011) assessed the impact of tax incentives on corporate financial performance in the mechanical and electrical industries sector in Tunisia. The study tested the effects of tax incentives on the profitability of the exporting firms in Tunisia’s mechanical and engineering industries. The study was conducted on a sample of sixty firms. Teraoui, et al (2011) concluded that an increase in taxation had a negative effect on benefit and output, which were the two selected criteria for financial performance.

Klemm and Van Parys (2010) produced empirical evidence on the effects of tax incentives on attracting foreign direct investment. The researchers prepared a panel data set of tax incentives in over forty Latin American, Caribbean and African countries for the period 1985 to 2004. Using dynamic panel data econometrics, they found evidence that lower corporate income tax rates and longer tax holidays were effective in attracting foreign direct investment in Latin America and the Caribbean, but not in Africa. None of the tax incentives were found to be significant in boosting gross private fixed capital formation.

3.4 Gaps Identified from Literature Reviewed
There are very few empirical studies on tax incentive effects in developing countries like Zimbabwe. Available empirical studies on tax incentives use national data at macroeconomic levels. Very few studies, were able to use firm level data for an African developing economy such as Zimbabwe. This is mainly due to data challenges in these countries.

4. METHODOLOGY
4.1 Model Specification
Our empirical analysis adopted an econometric model borrowed from previous studies but with some variations. The basic model for analysing tax incentives’ effects used in this article followed the leads of Galindo and Melendez (2010). While the study employed some of the variables used in previous studies, it deviated from the previous studies by introducing panel data analysis at firm level and within a single specific sector. This approach made the study more focused when compared with previous studies.

The model analyses the effects of tax incentives (capital redemption allowances, corporate income taxes, effective tax rates and assessed loss carryforwards) on firms’ investment in fixed assets. The econometric model is specified below:

$$i\alpha_{it} = \alpha_0 + \beta_1 ca_{it} + \beta_2 gp_{it} + \beta_3 ct_{it} + \beta_4 al_{it} + \beta_5 etr_{1it} + U_i + V_{it}$$

where:

- $i\alpha_{it}$ is the variable capturing investment in fixed assets; $\alpha_0$ is the intercept; $ca_{it}$ represents capital redemption allowances; $gp_{it}$ is the individual firm’s gross profit; $ct_{it}$ is the individual firm’s corporate income tax; $al_{it}$ is the individual firm’s assessed loss carried forward; $etr_{1it}$ is the effective tax rate; $U_i$ is the individual firm specific effect; $V_{it}$ is the orthogonal error term; and $it$ are the double subscripts were represents firms that benefited from tax incentives and $t$ denotes the timeframe; $\beta_1, \beta_2, ..., \beta_5$ are parameters to be estimated.

4.2 Data Collection
The study used firm level data that was extracted from the actual company returns. The data covered a period of three years from 2009 to 2011. A sample of thirty-seven companies in the mining sector was used and these companies belonged to the Large Clients Office (LCO). The company returns were submitted either manually or electronically but captured in SAP by ZIMRA data capturers. The SAP system was the one
that is used to capture, store and analyse domestic taxes data by the Zimbabwe Revenue Authority. This study had to use both the manual returns that were not yet in SAP and the information already captured in SAP to build an adequate data set pertaining to corporate income tax incentives and related statistics. The SAP system provided statistics on corporate income tax, gross profit, capital redemption allowances, turnover, investment in fixed assets and capital employed.

Some of the data for mining companies were sourced from the Ministry of Mines and Mining Development, Chamber of Mines of Zimbabwe and Minerals Marketing Corporation of Zimbabwe. Some of the data were obtained from the Zimbabwe National Statistics Agency (ZIMSTAT), the Internet, and the ZIMRA website.

4.3 Construction of Panel Data
The data obtained from the various sources cited above were used to construct a panel data set due to the fewer number of years (three) against the number of firms (thirty-seven) used in the data set. The resultant panel data was micro panel data set, which was balanced. A balanced panel data is one where there are the same time periods, \((t = 1 \ldots T)\), for each cross section observation.

4.4 Justification for Using Panel Data Methodology
Panel data involves two dimensions, a cross-sectional dimension \(N\), and a time series dimension \(T\). It is normally expected that the computation of panel data estimates would be more complicated than the analysis of cross-sectional alone (where \(T = 1\)) or time-series data alone (where \(N = 1\)). However, in most cases, the availability of panel data actually simplifies the computation and inference.

Panel data gave the researchers a large number of data points \((N \times T)\), increasing the degrees of freedom and reducing the collinearity among explanatory variables. This, consequently, enhanced the efficiency of econometric estimates. It allowed control of heterogeneity of the cross-sectional units. It was to be expected that each cross-sectional unit had some intrinsic and immeasurable characteristics distinguishing it from others. However, panel data had the ability to control for individual fixed effects. Panel data also allowed better analysis of dynamic adjustments and it had increased precision of regression estimates (Wooldridge, 2002; Baum, 2006). Thus, longitudinal data allowed the researchers to analyse a number of important economic questions that could not be addressed using cross-sectional or time-series data.

For the case of the Zimbabwean data, the hyperinflationary environment that existed before 2009 made some of the statistics unsuitable for economic analysis. Zimbabwe adopted the multi-currency regime in 2009, and since then, the United States dollar was the main medium of exchange. The country is no longer using the Zimbabwean dollar which was made defunct in 2009. Thus, statistics as from February 2009 to date are more reliable due to the stability of the United States dollar. However, one cannot make serious econometric analysis using Ordinary Least Squares regression analysis due to the short period involved. The decision to employ panel data analysis in this study was, therefore, founded on the basis of the short time period (three years since 2009 to 2011) against a large sample size (thirty seven-firms).

4.5 Justification for the Choice of Variables
4.5.1 Capital Redemption Allowances (ca)
Capital redemption allowances are allowed in order to improve the capital outlay of mining companies since mining is a capital intensive venture. The period under study (2009-2011) was the time when many firms had just emerged from great financial distress and were characterised by obsolete machinery and hence the need to recapitalize. A positive relationship between capital redemption allowances and investment in fixed assets was therefore expected. This expectation was contrary to previous findings such as Galindo and Melendez (2010) although it was consistent with the findings of Teraoui et al (2011).
4.5.2 Gross profit (gp)
A profitable business venture is more likely to continue investing in fixed assets than one that is not profitable. This is because a firm that is making high profits is likely to be more liquid than a loss making firm. Apriori, a positive relationship between investments in fixed assets and profitability was expected. The turnover variable was used in prior studies like Teraoui et al (2011) and Devereux (1989), in place of the net profit or gross profit variable. Teraoui et al (2011) used the variable in place of net profit and argued that a substantial increase in output led to increased investment. On the other hand, Devereux (1989) used the variable to explain the investment behaviour of the United Kingdom firms. In this study, gross profit instead of turnover or other profitability indicators was used due to data availability and the fact that gross profit is also considered a better indicator of profitability when compared to turnover used in previous studies.

4.5.3 Corporate Income Tax (ct)
An increase in corporate income taxation reduces the levels of investment as indicated by Galindo and Melendez (2010). Even foreign firms would not want to locate their investments in jurisdictions which are heavily taxed (Klemm and Van Parys, 2010; Boadway and Shah, 1992). This is the reason why low tax jurisdictions like Mauritius and the Netherlands are regarded as tax havens for many multi-national companies. Taxation reduces the income levels of companies, and hence negatively affects their purchasing power. Income that was supposed to have been invested in fixed assets is foregone through paying corporate income tax. A negative relationship was therefore expected between the corporate income tax variable and the investment variable.

4.5.4 Corporate Income Tax Loss Carried Forward (al)
Tax losses carryforwards reduce the effective tax rate through the possibility of applying these losses carried forward from other financial periods (Sabaini and Velasco, 2010) and Orihara (2015). According to the study, assessed loss carryforwards also stimulate projects that mature slowly, in which a preliminary period of losses is anticipated before full integration into the market place can happen. Orihara (2015) found out that assessed loss carryforwards had an effect of boosting investment levels. A positive relationship between assessed loss carryforwards and investment in fixed assets was also anticipated in this study, taking a cue from economic theory.

4.5.5 Effective Tax Rates
The ETR variable was also used as a tax incentive variable in this study. Djankov, et al (2009) and Boadway and Shah (1992) used the effective tax rate variable to analyse investment behaviour. However, they did not find any effect of this variable. On the contrary, there are some studies that used the variable and found its coefficient statistically significant. These studies include Cummings and Hubbard (1995) cited in Devereux (2006) and Shah and Slemrod (1991).

5. MODEL ESTIMATION AND DISCUSSION OF RESULTS
5.1 Model Estimation
The results of the panel data econometrics regression analysis are presented in Table 1. The model was estimated in levels. In the first place, effective tax rates were included in the model, but when it was realized that they had no effect, the variable was dropped. The results of the estimation, including effective tax rates are presented in the first column, while the results of the estimation excluding effective tax rates are presented in the third column.
Table 1: Random Effects Model (REM) results with Dependent Variable Investments in Fixed Assets

<table>
<thead>
<tr>
<th>Variables</th>
<th>Random Effects (Variables include ETR)</th>
<th>Random Effects (Variables exclude ETR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Redemption Allowances</td>
<td>9.2618 ***</td>
<td>9.5952 ***</td>
</tr>
<tr>
<td></td>
<td>(1.1877)</td>
<td>(1.1567)</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>1.1361***</td>
<td>1.3197***</td>
</tr>
<tr>
<td></td>
<td>(0.4732)</td>
<td>(0.4481)</td>
</tr>
<tr>
<td>Corporate Income Tax</td>
<td>-13.1905***</td>
<td>-14.0585***</td>
</tr>
<tr>
<td></td>
<td>(3.2704)</td>
<td>(3.1951)</td>
</tr>
<tr>
<td>Assessed Loss Carried Forward</td>
<td>6.2010***</td>
<td>6.4206***</td>
</tr>
<tr>
<td></td>
<td>(0.8897)</td>
<td>(0.4481)</td>
</tr>
<tr>
<td>Effective Tax Rate</td>
<td>0.0041</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0034)</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.83</td>
<td>0.83</td>
</tr>
<tr>
<td>F-Statistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wild Chi 2</td>
<td>377.38***</td>
<td>374.06***</td>
</tr>
<tr>
<td>No. of Obs</td>
<td>82</td>
<td>82</td>
</tr>
</tbody>
</table>

Key: *** significant at 1%, ** significant at 5%, standard errors in parentheses

5.2 Discussion of Results

All the explanatory variables in the estimation with ETR depicted statistical significance using the adopted random effects models, except the ETR variable. On the other hand, when ETR variable was dropped all explanatory variables’ coefficients remained statistically significant using the adopted REM. The R-squared of the adopted REM was reasonably high in both cases at 0.83. This meant that about 83 percent of the variation in the dependent variables was explained by the variations in the explanatory variables.

5.2.1 Capital Redemption Allowances (ca)

This tax incentive variable was positively related to investment in fixed assets with a statistically significant coefficient at the 0.01 level for the chosen REM. Since the regression was run in levels, the interpretation is that a US$1 increase in capital redemption allowances results in a US$0.59 increase in the investment variable when ETR was dropped, and holding the other variables constant. This outcome is consistent with the results in Galindo and Melendez (2010)’s study. Their study also used firm level data to assess the impact of tax incentives for firms that invested in fixed assets in Columbia.

5.2.2 Gross Profit (gp)

This variable had a statistically significant coefficient at the 0.01 level and positively related to the investment variable. This finding is consistent with economic theory that a firm which is more profitable is likely to invest more in fixed assets. A profitable business venture is more liquid and hence can finance recapitalization from its own coffers. Even Teraoui, et al (2011) who used turnover in place of gross or net profit argued that a substantial increase in output led to increased investment. In this study, gross profit was preferred to turnover because data on gross profit was readily available. However, whether turnover or gross profit was used, the results were almost the same. The REM results indicate that a US$1 increase in gross profit increased investment in fixed assets by US$1.32, holding the other variables constant.

5.2.3 Corporate Income Tax (ct)

High corporate income tax is an indication of high firm profitability. This is usually the case where firms do not enjoy a number of tax privileges or deductions. Tax incentives result in a reduction in corporate income
The effects of corporate income tax incentives on mining firms’ investments in fixed assets

taxation and consequently an increase in investment in fixed assets. The coefficient of this variable was statistically significant at the 0.01 level, and it was negatively related to the dependent variable. The result means that a US$1 increase in corporate income tax reduces investment in fixed assets by US$14.06, holding the other variables constant. This result is consistent with economic theory. Shah and Slemrod (1991) also found a negative correlation between corporate income taxation and inward foreign direct investment.

5.2.4 Corporate Income Tax Loss Carried Forward (al)
The coefficient of this variable was statistically significant at the 0.01 level, indicating that the policy of allowing loss making firms to carry forward their assessed losses positively impacted on investment in fixed assets. This finding is consistent with the findings of Sabaini and Velasco (2010) and Orihara (2015). The two studies found that tax losses carried forward increased investments when the effective tax rates were considerably affected by these tax losses carried forward. In our study, the empirical investigation indicated that a US$1 increase in the assessed loss carryforwards, increased investment in fixed assets by US$6.42, holding the other variables constant.

5.2.5 Effective Tax Rate (etr)
A higher effective tax rate is an indication of higher corporate income tax to gross profit ratio. This is usually the case where firms do not enjoy a number of tax privileges or deductions. Tax incentives result in a reduction in taxation and consequently an increase in investment in fixed assets. The coefficient of this variable was not statistically significant, and it was negatively related to the dependent variable. This finding is consistent with economic theory. Shah and Slemrod (1991) also found negative correlation between effective tax rates and inward foreign direct investment. However, Fieldstein, cited in Boadway and Shah (1992) posited that net investment is dependent on the net-of-tax real return to capital, which also depends on the effective tax rate.

6. FINDINGS, POLICY RECOMMENDATIONS AND CONCLUSION
6.1 Discussion of Findings and Recommendations
The results from panel data econometrics methodology showed that corporate income taxes had negative effects in boosting a firm’s investment levels. In line with the recommendations from Boadway and Shah (1992), it is proposed that for the case of Zimbabwe, a further reduction in the rate of corporate income tax is necessary. In view of the principles of neutrality and equity, it is recommended that there be a gradual reduction of the general statutory rate of corporate income tax from the current 25 percent. This should be applied across all sectors of the economy, unlike the current policy which favours firms in a special mining lease agreement with government. This move is likely to encourage firms to comply, at the same time increasing their investments in fixed assets.

Capital redemption allowances were positively related to firms’ investment in fixed assets. It is therefore recommended that this tax incentive remains in place. However, in order to compensate for sudden loss of corporate tax revenues, these capital redemption allowances for the mining businesses may not be wholly allowed within the same year. There is no credible justification to warrant capital allowances in full within the same year of capital expenditure. The principle of equity in taxation requires that tax policies be fair and equitable across sectors. It is, therefore, recommended that the same treatment of capital allowances in other sectors of the economy be applied to the mining sector.

Similar to Orihara (2015)’s finding, it was found out that an increase in loss carried forward, resulted in an increase in a firm’s investment. As Boadway and Shah (1992) alluded, young firms are expected to face a period of negative taxable income while they are still establishing themselves in the market. During that time, they require such an incentive so that they do not die whilst in their infancy stages. However, there is no justification for continued granting of this incentive for unlimited time periods. It is therefore recommended that the incentive be granted with a time cap in the mining sector, like what is happening in
all other sectors. Currently, in other sectors of the economy tax losses are carried forward for a period of up to six years. This may be varied for the mining sector to say ten years as is happening in other jurisdictions like Zambia (Zambia Revenue Authority, 2016). This is due to the fact that mining is a capital intensive venture, which requires huge capital investments before realizing the benefits.

The current mining and taxation legislation are outdated, hence the need to amend them in line with current global trends. For instance, the current Income Tax Act Chapter 23:06 came into effect in 1967 and some of its legal provisions are now archaic in the modern economy. It is therefore recommended that mining and taxation legislation be updated in line with current global economic trends and international best practise.

6.2 Conclusion
Out of five explanatory variables analysed in this study, only one did not confirm a relationship between tax incentives and investment in fixed assets. The study concludes that in Zimbabwe’s mining sector, tax incentives had an effect of boosting firms’ investments in fixed assets. However, the study recommends that in granting tax incentives, policy makers should include sunset clauses unlike the current scenario where they are offered in perpetuity.

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The effects of corporate income tax incentives on mining firms’ investments in fixed assets


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Knowledge Management dimensions and their impact on retail performance in Zimbabwe

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ABSTRACT

The importance of Knowledge Management (KM) in retail organisations is widely acknowledged by many Human Resources practitioners and academicians in Zimbabwe and the world over, yet there seems to be a paucity of research in this field. To address this dearth of published studies, the current study seeks to investigate the impact of KM success factors namely leadership, corporate culture, Information Technology (IT) infrastructure, measurement and evaluation, employee needs, organisational structure, and roles and responsibilities on retail performance in Zimbabwe. The conceptualised model and the hypothesis are empirically validated using a sample of 175 retailers in Harare, Zimbabwe. The findings reveal that leadership, corporate culture, IT infrastructure, measurement and evaluation, organisational structure, and roles and responsibilities are significant predictors of retail performance. However, employee needs did not show a significant effect on retail performance. Therefore, to improve their performance, retail organisations should make efforts to invest in KM initiatives.

Key words: Knowledge management, performance, corporate culture, leadership, organisational structure, performance

1. INTRODUCTION

The Zimbabwean retail industry is becoming more congested as some foreign players such as Pick’n Pay and Choppies are making their way into the local market. More so, the increasing scourge of informal trading, shrinking markets due to low disposable income and high unemployment as well as general low economic activity characterised by liquidity crunch and poor industrial capacity have threatened the retail business. Apart from that, rapid changes in technology have exposed retailers to the risk of elimination from the distribution channel since producers and consumers can now interact more easily than ever before. In light of these threatening developments, most retail organisations are compelled to seek new strategies for survival and growth. In this era of information revolution, embarking on KM initiative appears to be a key strategic management tool that can be adopted in order to cope with the changing business environment. Indeed, every retail organisation seeking to gain competitive advantage in terms of efficiency, profitability and cost effectiveness is persuaded to embark on a KM initiative of some sort. Should implementation modalities be the missing link? This research will shed light by providing an assessment of the KM factors that enhance the performance of retail business in Zimbabwe.

Although there is much research work previously done on the aspect of KM, there seems to be little attention paid to the KM factors that enhance the performance of business, particularly with respect to retail business in a developing country like Zimbabwe. In their study of the critical success factors for implementing KM, Karami, Alvani, Zare and Kheirandish (2015) stress the need for a more systematic and deliberate study on critical success factors for implementing KM. Research is, therefore, needed to provide more insights on important KM factors that enhance organisational performance. Martensson (2000) conducted a critical review of KM as a management tool and emphasised the need for organisations in Sweden to exercise good capacity to retain, develop, organise and utilise their knowledge capabilities. The study maintains that KM is a necessary factor for organisational survival and competitive strength. Having noted that there is hardly any study previously conducted to assess the critical success factors of KM initiatives in the retail industry in Zimbabwe, this research seeks to fill the identified literature gap by addressing the following objective:
To ascertain the impact of KM success factors (leadership, corporate culture, IT infrastructure, measurement and evaluation, employee needs, organisational structure, roles and responsibilities) on retail performance in Zimbabwe.

The results of the study are expected to provide invaluable new insights and/or help cement existing ideas thereby adding some intellectual value to KM as a field of study in Strategic Management. This research can also produce valuable information that help retail organisations in Zimbabwe formulate successful strategies to ensure competitive advantage in business. Lastly, this research study is important in that it helps prepare a platform for further research by providing groundwork that might form part of literature in future studies on critical success factors of KM initiative.

The rest of the paper is arranged as follows: the second part presents the review of literature on critical success factors for KM and the influence on business performance. The third part discusses the methodology used in the study while the fourth part presents data analyses, results and interpretation. The study will be concluded by discussion of the results and suggestions for future research.

2. KNOWLEDGE MANAGEMENT

KM is about making sure an organisation can learn, and that it will be able to retrieve and use its knowledge assets in current applications as and when they are needed (Gamo-Sanchez and Cegarra-Navarro, 2015). It should not only be concerned with the notions of knowledge transfer and knowledge sharing, but with the entire knowledge acquisition and utilisation process, including locating and capturing as well as enhancing the creation of new and up-to-date knowledge within the firm (Barker, 2015). KM has now become the latest strategy for achieving organisational competitiveness (Gamo-Sanchez and Cegarra-Navarro, 2015). According to BenMoussa (2009), most firms now find it inevitable to invest heavily in KM with the aim of building a knowledge capacity and use it to achieve competitive advantage. On the other hand, Desouza (2003) mentions that KM has emerged as a pivotal task for organisations to survive in today’s competitive marketplace. Organisations now realise the need to exploit not only the tangible but also intangible assets such as business knowledge for effective and efficient attainment of organisational goals (BenMoussa, 2009). The benefits that are associated with successful KM initiative include providing competitive advantage through allowing organisations to solve problems and seize opportunities. The other benefits include increased responsiveness and innovation, cost-saving, supported decision making, facilitated collaboration among organisations’ members, increased employee productivity as well as mitigating knowledge loss associated with employee turnover (BenMoussa, 2009).

2.1 Critical Success Factors for Knowledge Management

The success of a KM initiative depends on many factors, some of which are within an organisation’s control and others are beyond. Joshi (2014) puts the critical success factors of KM into five primary categories, namely (1) leadership; (2) culture; (3) structure, roles and responsibilities; (4) information technology infrastructure and (5) measurement and evaluation. The other identified key success factors for KM which when implemented will improve business performance include strong link to business imperative, compelling vision and architecture, knowledge leadership, knowledge creating and sharing culture, continuous learning, well developed technology infrastructure and systematic organisational knowledge process (Bhuasiri and Xaymoungkhoun (YEAR?), Zo, Rho and Ciganek, 2012; Dulyami, 2015; Xu and Quaddus, 2012). Leadership plays a key role in ensuring success in KM because leaders model behaviour that ensures employee performance and consequently organisational performance (Donate, 2015). In the same vein, Soliman and Spooner (2000) submit that leadership drives business performance KM initiatives since it helps set a clear and well-planned strategy that provides foundation for the way in which organisations deploy their capabilities and resources to achieve their KM goals. With regards to organisational culture, Dulyami (2015) argues that management should ensure the right attitude, develop skills and aptitudes of employees in order to have an effective KM system. Wong (2005) emphasises that, establishing a group of people with
specific and formal responsibilities for KM is also crucial. In terms of measurement and evaluation, Wong (2005) proceeds to state that measuring KM is necessary because it enables the organisation to evaluate progress towards the attainment of its envisioned goals of KM. This is so because measurement provides a basis for organisations to evaluate, compare, control and improve on the performance of KM initiative. Another important success factor for KM is ensuring that the needs of employees are met because once employees’ loyalty is secured, knowledge transfer through mentoring, technology and diversification could be rightly harnessed for optimal results in entrepreneurial development (Lopez, Peon and Ordas, 2004). To BenMoussa (2009), the factors critical to KM include corporate strategy, motivation, employee retention, availability of resources, and an enabling environment.

In the same vein, other scholars such as Desouza (2003) and Du Plessi (2008) mention IT, leadership and the preparedness of the organisation’s stakeholders to share knowledge as important factors. To this end, BenMoussa (2009) suggests that the biggest hurdle to KM has nothing much to do with implementing cutting edge IT solutions but motivating people to contribute to the KM effort through sharing their knowledge at the workplace.

2.2 Business Performance

Most researchers tend to agree that both objective and subjective measures are now being used by organisations to assess their success (Chow & Van der Stede 2006; Panigyrakis & Theodoridis 2009). Objective assessment typically involves evaluating business performance with orientation to financial measures, while subjective measures are based on personal opinions about business performance (Reijonen, 2008). Traditionally, assessment of business performance has been based on financial measures such as return on investment, return on assets, return on sales, revenues growth, profitability as well as market share or number of employees (Juson, Ibrahim & Zainuddin, 2008; Reijonen, 2008). Pun & White (2005) agree with this argument and point out that financial methods are easy to measure and manage hence popular with organisations. The other advocates of financial measures are Verbeeten & Boons (2009) who argue that financial measures are subjected to internal controls thereby making them reliable and comparatively easy to comprehend. However, other researchers criticise financial measures for their lack of accessibility by researchers and the public and for their reliance on historical data (Panigyrakis & Theodoridis, 2009; Verbeeten & Boons, 2009). In this regard, some scholars (Chow & Van der Stede, 2006 and Robinson et al., 2005) recommend the use of non-financial business performance measures. Verbeeten & Boons (2009) state that, non-financial measures of business performance are those that provide information in non-monetary terms, for example, market share, customer satisfaction, employee turnover and new product development. Similarly, Juson & Parnell (2008) suggest varied subjective measures such as ethical behaviour, customer satisfaction and retention, employee motivation and retention, volume of sales, market share, quality of products/service, business image, delivery performance, process improvement, throughput time, quality, machine flexibility and inventory levels. Robinson et al. (2005) state that non-financial performance assessments have become essential because of the demand for variations in business reporting due to failure of businesses which exclusively relied on financial measures. Chow & Van der Stede (2006) argue for non-financial performance measures, citing that they cover several business performance aspects and activities that are not easily quantifiable. Similarly, Verbeeten & Boons (2009) suggest that non-financial performance measures provide better information on scopes that are not perfectly apprehended by traditional financial measures.

There is evidence to show that businesses now combine the financial and the perceptual measures to evaluate their performance. Verbeeten & Boons (2009) explain that the non-financial and financial indicators need to supplement each other in appraising business performance. Similarly, from their study of Malaysian manufactures, Juson et al. (2008) note that some organisations are equally employing financial and non-financial business assessment methods. Furthermore, Robinson et al. (2005) show that a significant number of organisations in UK use varied measures of both financial and non-financial methods to assess business performance. Juson et al. (2008) also believe that the integrated measurement system helps a business to evaluate its performance wholesomely.
Based on the literature from previous studies reviewed, the critical success factors being considered to underlie the implementation of a KM initiative include leadership, corporate culture, IT infrastructure, measurement and evaluation, employee needs, organisational structure and roles and responsibilities. In this study, retail performance is measured in terms of profitability and cost effectiveness. The independent variables are the KM success factors (leadership, corporate culture, IT infrastructure, measurement and evaluation, employee needs, organisational structure and roles and responsibilities) while the dependent variable is retail performance which is measured by profitability and cost effectiveness. From the foregoing discussion, the following hypothesis was postulated:

H1: KM success factors (leadership, corporate culture, IT infrastructure, measurement and evaluation, employee needs, organisational structure and roles and responsibilities) have a positive effect on retail performance.

3. METHODOLOGY
This research adopts a quantitative, cross-sectional design to study the critical success factors and benefits of KM initiative in the retail business. The quantitative research design was used because it is regarded as an effective method to produce conclusive results (Sahu, 2013). The population of this research was made up of formal retail organisations operating in the Zimbabwean retail industry and these include OK Zimbabwe Group, Spar chain, TM, Pick ‘n’ Pay, Choppies, Food World and several other independent retailers scattered around the country. The unit of analysis in this study included junior, middle and senior managers of retail organisations in Harare. The sampling frame was taken from the company register from Registrar of companies and confined to Harare supermarkets. Simple random probability sampling method was used as every retail outlet manager had the equal chance of being selected. The process resulted in 175 structured questionnaires being distributed to different retail organisations. 153 questionnaires were returned, giving an 87% response rate.

3.1 Data collection procedures
A structured questionnaire which included closed ended questions was used. The total number of questionnaires distributed to respondents was 175. Approximately, 75% of the questionnaires were emailed and about 35% were hand delivered in an endeavor to stimulate a better response rate. The questionnaires were accompanied by a cover letter which detailed the purpose of the study as well as the instructions on how to respond to the questions. The process resulted in 175 structured questionnaires being distributed to different retail organisations. 153 questionnaires were returned giving an overall response rate of 87.4%.

3.2 Data analysis
The data analysis for this study consisted of inspection of the questionnaires for completeness and correctness of information captured. Data was then captured into SPSS and an examination of descriptive responses according to frequency distributions and descriptive statistics was performed. Correlation analyses where performed to assess the degree of association between variables under study. Multiple regression analysis was also conducted so as to identify the extent to which the variables under study influence retail performance.

3.3 Reliability and validity measures
To test for reliability, the Cronbach’s Alpha (α), which is a measure of internal consistency between measurement items, was computed. As shown in Table I, the Cronbach’s alpha values ranged from 0.700 to 0.770, thereby surpassing the minimum threshold of 0.6 recommended by Saunders (2011). The spearman’s correlations coefficients were computed to assess convergent validity. The study reported significant positive correlations ranging from $r = 0.107$ to $r = 0.621$ (at $p < 0.05$) signifying the attainment of convergent validity. The construct correlation matrix is reported in Table II. Regression analysis was used to assess predictive
validity. Causality was shown by all independent variables, that is, leadership, corporate culture, organisational structure, roles and responsibilities, information technology infrastructure, measurement and evaluation, and employee needs, with the dependent variable, retail performance, as shown in Table 1, thus demonstrating the attainment of predictive validity.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>5</td>
<td>0.752</td>
</tr>
<tr>
<td>Culture</td>
<td>5</td>
<td>0.735</td>
</tr>
<tr>
<td>Structure</td>
<td>4</td>
<td>0.700</td>
</tr>
<tr>
<td>Information</td>
<td>5</td>
<td>0.700</td>
</tr>
<tr>
<td>Evaluation</td>
<td>6</td>
<td>0.718</td>
</tr>
<tr>
<td>Employee needs</td>
<td>4</td>
<td>0.700</td>
</tr>
<tr>
<td>Benefits</td>
<td>6</td>
<td>0.770</td>
</tr>
</tbody>
</table>

Table I: Tests for Reliability

4. RESULTS
4.1 Sample composition
In terms of gender of respondents, 51 (33.3%) were females and 102 (66.7%) were males. The highest frequent age group was 30 to 35 years while the age group ranging from 45 to less than 50 years appeared least frequent age group with only 6 out of 153 managers who took part in the study, thereby making up 3.9% of the sample. In terms of qualifications, the majority of respondents in the sample had a diploma which scored the highest frequency of 57 out of 153 participants which gives 37.3% of the sample. The least frequent qualification was certificate which scored a frequency of 21 participants which is 13.7%.

4.2 Correlation Analysis
In order to ascertain the degree of association between constructs under investigation, the Pearson correlation was computed. The results are shown in Table II below.

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Culture</th>
<th>Structure</th>
<th>Information</th>
<th>Evaluation</th>
<th>Employee needs</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Culture</td>
<td>0.314*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>0.186*</td>
<td>0.160*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>0.171*</td>
<td>0.218*</td>
<td>0.491*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>0.107*</td>
<td>0.205*</td>
<td>0.266*</td>
<td>0.473*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Employee needs</td>
<td>0.621*</td>
<td>0.35*</td>
<td>0.395*</td>
<td>0.668*</td>
<td>0.444*</td>
<td>1</td>
</tr>
<tr>
<td>Performance</td>
<td>0.303*</td>
<td>0.170*</td>
<td>0.259*</td>
<td>0.185*</td>
<td>0.400*</td>
<td>0.503*</td>
</tr>
</tbody>
</table>

*Correlation significant at 0.05 (one-tailed)

4.3 Regression Analysis and hypotheses testing
Regression analysis was conducted to establish the magnitude and direction of the causal relationship suggested by the correlation analysis performed above. The regression is run between selected KM success factors and the perceived benefits of KM initiative to a retail business. In this regression analysis, critical success factors of KM are considered as explanatory or independent variables while benefits of KM initiative
or retail performance form a composite explained variable or the dependent variable. The following table provides details of the regression results.

### Table III: Regression Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised Coefficients</th>
<th>Standardised Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Standard Error</td>
</tr>
<tr>
<td>Constant</td>
<td>2.685</td>
<td>0.483</td>
</tr>
<tr>
<td>Leadership</td>
<td>0.186</td>
<td>0.012</td>
</tr>
<tr>
<td>Culture</td>
<td>0.214</td>
<td>0.039</td>
</tr>
<tr>
<td>Structure</td>
<td>0.173</td>
<td>0.128</td>
</tr>
<tr>
<td>Information</td>
<td>0.190</td>
<td>0.071</td>
</tr>
<tr>
<td>Evaluation</td>
<td>0.179</td>
<td>0.114</td>
</tr>
<tr>
<td>Employee needs</td>
<td>0.182</td>
<td>0.036</td>
</tr>
</tbody>
</table>

\[R^2 = 0.623, \text{ Adjusted } R^2 = 0.579, F=5.434, p<0.05.\]

As shown in Table III, the Model produced an adjusted \( R^2 \) of 0.579 implying that, about 58 percent of retail performance could be explained by the independent variables. The p-value was less than the critical 0.05, which demonstrates that the model comprising of leadership, corporate culture, organisational structure, roles and responsibilities, information technology infrastructure, measurement and evaluation, and employee needs is significant/fit to estimate retail performance with an F-value of 5.434 and p-value of 0.000. Considering the standardised coefficients in Table III, leadership (?= 0.089, p<0.05), corporate culture (?= 0.181, p<0.05), organisational structure, roles and responsibilities (?=0.027, p<0.05), information technology infrastructure (?= 0.64, p<0.05), and measurement and evaluation (?= 0.156, p<0.05) are significant factors predicting the retail performance as their p-values are less than 0.05. However, employee needs had rather an insignificant coefficient as the p-value was greater than 0.05 (?= 0.097). The standardised coefficients were used as they deal with variables that have been transformed into comparable units.

Therefore, the hypothesis stating that KM success factors (leadership, corporate culture, IT infrastructure, measurement and evaluation, employee needs, organisational structure and roles and responsibilities) have a positive effect on retail performance is partially accepted.

5. DISCUSSION OF RESULTS AND RECOMMENDATIONS

This study advances our understanding of the KM factors that determine the performance of retail organisations. KM dimensions namely leadership, corporate culture, organisational structure, roles and responsibilities, information technology infrastructure, and measurement and evaluation emerged as significant KM factors that influence the performance of retailers. This shows that these factors can be used to ensure an improved retail performance. The results imply that retailers operating in Zimbabwe and other developing countries need to enforce KM initiatives in order to ensure an enhanced performance. The implication is that, leadership that is up to the task is required as a means for driving success in KM initiative since it helps set clear and well-planned strategy that provides foundation for how organisations deploy their capabilities and resources to achieve their KM goals (Wong, 2005). Corporate culture is critical because it ensures the right attitude, skills and aptitude among employees in the organisation (Babalola and Omobowale, 2013).

IT infrastructure is important because it does not only lower the cost structure; it also increases strategic flexibility in addition to facilitating the creation and utilisation of knowledge, especially for firms competing in dynamic markets (BenMoussa, 2009). With regards to employee needs, Ben Moussa (2009) argues that, in order to deliver desirable goals of KM, employee motivation is critical. Retaining employees through providing opportunities to grow and advance their career is, therefore, central to successful KM.
Corporate culture (\( \beta = 0.181 \)) emerged as the most significant factor, followed by measurement and evaluation (\( \beta = 0.156 \)). This shows that an organisation culture that promotes learning and knowledge acquisition leads to improved performance. In addition, the more frequent and effective an organisation measures and evaluates progress in goal achievement, the more it may enhance its performance. However, employee needs showed an insignificant relationship with retail performance. This finding contradicts Du Plessis' (2008) assertion that unless employee needs are met, it is difficult to motivate them to work hard in KM activities. Desouza (2003) also points out that knowledge originates in the minds of individuals and so it must be realised that unless organisation's stakeholders are motivated to share, KM cannot deliver desirable goals.

The findings are important to Zimbabwe in particular and to developing countries in general because the business environments of these countries are characterised by limited KM initiatives. To encourage more KM initiatives thereby enhancing business performance, retailers should ensure the following: leadership that drives knowledge acquisition and sharing, constant measurement and evaluation of performance, invest in information technology, put in place proper corporate culture and a culture that promotes knowledge acquisition.

On the academic side, this study makes a significant contribution to both KM and business performance literature by investigating the KM success factors that influence firm performance in a developing country such as Zimbabwe. By and large, the findings of the current study provide tentative support to the proposition that KM factors namely leadership, corporate culture, organisational structure, roles and responsibilities, information technology infrastructure, and measurement and evaluation, should be recognised as significant antecedents for business performance in the context of a developing country such as Zimbabwe.

### 6. LIMITATIONS AND AREAS OF FURTHER STUDY

The study focused only on retailers operating in Harare, but due to different conditions and cultures, the results might not be applicable to other cities such as Bulawayo, Gweru and Mutare and to other developing countries. The study can be strengthened by carrying out a study comparing KM practices in large, medium and small retailers. It would also be insightful if other studies investigate KM initiatives in public enterprises and government departments. The study could also be improved by carrying out a comparative study between retailers and other sectors in the private sector. The findings of this study and the suggested future avenues of study can contribute in generating new knowledge to the existing body of KM in a developing country, a context that has generally been neglected by researchers.

### REFERENCES


Readiness of the Zimbabwe financial institutions to the establishment of Reverse Mortgages as a financial vehicle for the aged

Chengetai Zvobgo and Nyasha Kaseke

ABSTRACT

Zimbabwe is endowed with individuals who are asset rich but cash poor. Following the hyperinflationary period of 2007 to 2009 homeowners were left debts free as they were able to pay off for their properties at very low prices but the same are now getting meagre payouts in terms of pensions. This then has created an opportune time to establish the reverse mortgage market. The survey was used to assess the readiness of all financial institutions on the adoption of reverse mortgage. Questionnaires were administered to all financial institutions in order to elicit the options on managers. Findings show that the main condition for reverse mortgage to work has to do with willingness and ability of stakeholders, that is, employees and shareholders to use and accept it. The major factors that influences reverse mortgage were to do with those factors that pose financial risk to the consumer, namely, confidence in the market, tax issues, property prices and issues of indebtedness.

Key Words: Reverse mortgage, mortgages, financial institution, pensioner

1. INTRODUCTION

This research investigates the readiness of the Zimbabwe market to the establishment of a reverse mortgage market. In short, this market allows homeowners who would have reached retirement age, in most cases pensioners, to unlock asset value of their properties by getting regular payments for their homes without necessarily moving out of their homes until they either choose to move out or through death. This research was prompted by the realization that generally pension payouts are very low (National Social Security Authority (NSSA), 2015; Minerva, 2015). Meanwhile, most of the pensioners have housing wealth which they acquired during their working years either through mortgages or otherwise. This then creates a situation where pensioners are asset rich and cash poor but have no way of unlocking the liquidity locked in the properties. Reverse mortgage loan then allows homeowners to borrow against their home equity.

1.1 Background of the Study

1.1.1 The Concept of reverse mortgages

Reverse mortgage is a product that allows senior citizens to avail themselves of funds by mortgaging their residential property. The main difference between a reverse mortgage and a normal mortgage is that in a traditional "ordinary" forward mortgage, it is the borrower who pays a fixed amount to the lending institution but in reverse mortgages it is the lender who pays the borrower a fixed amount of money in a manner that he chooses (Rose, 2009). The amount can be paid on a monthly basis or as a lump sum figure but corresponding to a certain percentage of the value of the property. The loans are restricted to people who will have attained a certain age for instance, 62 years in the USA (Shan, 2009) while in India the minimum is 60 years (Pfeiffer et al., 2014; Nakajima and Telyukova, 2013). This is a financial product meant for retired people who are asset rich but cash poor to allow them to improve their cash flows and meet their medical bills and any other monetary expectations.

The major benefit of reverse mortgages is that the homeowners get loans from the bank while they continue to stay in the house. The loan is only due when they die or choose to move out of the house. The homeowner is also not subjected to any income qualifications and credit approval which is the major hurdle for getting an ordinary loan from a financial institution. The major drawback has been the costs on the product as it involves, origination fees, third party closing fees, mortgage insurance premium and servicing fee. There is also a high possibility of the home being sold in order to settle the loan and this wipes away an inheritance for the future generation.
1.1.2 Mortgage industry in Zimbabwe

The major businesses in the mortgage market in Zimbabwe are Building Societies which are registered under the Building Societies Act (Chapter 24:02) and regulated by the Reserve Bank of Zimbabwe. There are currently three registered Building Societies, namely Central African Building Society (CABS), FBC Building Society and Commercial Bank of Zimbabwe (CBZ) Building Society. Only CABS is currently offering 20 year mortgages while others offer at most 10 year mortgages. However, the Reserve Bank of Zimbabwe opened up mortgaging business to other financial institutions, not necessarily building societies, to come up with mortgage products in a bid to improve the mortgage related financing after realizing that in 2013, only 4% of the loans had been extended to the construction industry. According to RBZ (2014; p23) banking institutions are expected to take advantage of this initiative to offer mortgage banking products through the establishment of dedicated mortgage departments. As a result, commercial banks have established departments responsible for mortgages without necessarily registering as a building society. As a result, almost all commercial banks are now involved in mortgage financing and notably, BancABC, CBZ, MBCA and NMB have become significant players in offering mortgages to the public.

1.1.3 Background to Human life Trends in Zimbabwe

During people's working years, they build resources so that they have a better future in those years when they are no longer able to work. This investment for the future is done in two ways, through own savings and through a pension scheme which is mandatory for any employee to belong to one. Own savings imply that the individual decides how much they have to save and in what form they have to make the saving. However, due to a combination of lack of investment education and lack of investment options in Zimbabwe, many individuals have found themselves investing more in property than in other asset classes. At retirement individuals are left with properties and very little to spend as most of the properties do not generate enough, if any, cash flows. The retirement age is associated with costs like medical bills which have significantly been on the rise and out of the reach of many for those in need of decent treatment, albeit on very low pension payouts. Private pension schemes pay on average $30 per month according to Minerva Consultancy, one of the biggest pension fund administrators in Zimbabwe while the government driven National Social Security Scheme (NSSA) pays a minimum of $56 as is a defined benefit scheme (NSSA, 2015; Minerva, 2015). For senior citizens, who have a lack of regular income or financial support from children, this could lead to a financial crisis.

Furthermore, some children have moved abroad while others have moved to the eastern suburbs leaving their parents to stay in the high density suburbs and in those cases even in the event of the parents dying, the children may not even make use of the property. In that case it may be necessary for financial institutions to consider products that enable elderly people to unlock the value stored in their homes now while they are still alive.

Trends in the Zimbabwean economy have created a situation where a number of individuals are asset rich, in the form of property, but cash poor. On a positive note, because of the hyperinflationary period of 2007 – 2009, most homeowners have clean balance sheets with no debt and rich in assets. The mortgages were rendered valueless by inflation such that people would write a cheque to pay up the outstanding balance. This created a very good platform for establishment of reverse mortgages in Zimbabwe as this product is tailor made for an asset rich and cash poor society. In some countries, reverse mortgage market has proved to be a solution allowing homeowners to borrow from financial institutions against their properties.

The attractiveness of these products, for a third world country like Zimbabwe, is that the large proportion of homeowners is in the low income but home owning category. As Tribunella and Tribunella (2014) noted, from a pure economic perspective, there are welfare and efficiency gains from such loans that tap into home equity and boost consumption. There is a smoothening of lifetime and inter-generational consumption through re-injection of locked equity into the economy.
1.2 Problem Statement
The increasing accumulation of wealth locked in illiquid housing stock around the world has generated interest in new financing instruments that would enable consumers and investors to tap into this source of funds for more productive use. Most senior citizens own houses for which they have no debt but at the same time are facing difficult living conditions because of lack of decent income despite having accumulated property assets during their working years. An asset rich and cash poor consumer has been the panacea for establishment of a reverse mortgage market. Little is known about the benefits of reverse mortgaging in Zimbabwe and whether the market is ready for such a product and hence the need for empirical enquiry and academic scrutiny. This research therefore seeks to investigate the readiness of the Zimbabwe market necessary for establishing a reverse mortgage loan market and the benefits derived from such an initiative.

1.3 Research Objectives
The objectives of this study are:

a) To explore the conditions necessary for reverse mortgages facilities in Zimbabwe;
b) To determine factors that affect establishment of Reverse Mortgage Market; and
c) To provide necessary recommendation for policy development

2. LITERATURE REVIEW
2.1 Reverse Mortgages
A reverse mortgage is a loan that enables senior homeowners to convert part of the equity of their home into tax-free income without having to sell the home, give up title or take on a new monthly mortgage payment, (Shan, 2009). Reverse mortgage loans (RML) can also be referred to as Equity Release Products (ERPs) or Home Reversion Schemes (Luiz and Stobie, 2010). Equity Release scheme is the term primarily used in Anglo-Saxon countries to describe both the process and the products that allow homeowners to secure substantial lump sums or regular income payments by realising part of the value of their homes, while being able to continue to live in it (Redfoot et al., 2007). In Australia, reverse mortgages are defined as an arrangement where the owner of a property mortgages that property to receive a regular income from the mortgage lender (and not vice versa), based on the equity value of the property (Bloomsbury Reference, Dictionary of Banking and Finance, 2003).

Although the definition and terms may vary slightly, all reverse mortgages share common attributes. A homeowner has to attain a certain age and he gets a loan against his home in a manner that he chooses. One of the selling points of this product has been its flexibility in how one receives his cash (Tribunella and Tribunella, 2014). The cash one gets from a reverse mortgage can be paid as; a single lump sum of cash; a regular monthly cash advance; a “credit line” account that lets the owner decide when and how much of their available cash is paid to them; or a combination of these payment methods.

Salter (2014) defined a reverse mortgage as a “mortgage in reverse”. The “reverse” in reverse mortgage refers the fact that unlike a regular mortgage where the borrower makes monthly payments, in this case it is the lender who makes monthly payments to the borrower. A reverse mortgage loan becomes due when the last surviving borrower dies (i.e. in the case of a husband and wife), or if the borrower chooses, during the life of the loan, to sell the house. The bank first gives an option to the next of kin to settle the loan along with accumulated interest, without sale of property. If the next of kin is unable to settle the loan, the bank then opts to recover the same from the sale proceeds of the property. Any extra amount, after settlement of the loan with accrued interest and expenses, through the sale of the property, will be passed on to the legal heirs. If the sale proceeds are lower than the accrued principal plus interest amount, the loss is borne by the bank. This loss could happen in cases where the banks original estimation is not in line with the real estate market movement.
2.2 History of Reverse Mortgage Loans

According to Bedwell, Carden, Kibble and Stables (2009) reverse mortgage loans (RMLs) started in the 1970s, through what were known in those days as sales and leaseback transactions in which a property was sold to a new owner, who simultaneously leased the property back to the seller, who became a renter of the home he or she had owned. However, these transactions were not popular because they were complicated and costly to negotiate. This led to reverse annuity mortgages and then later on to reverse mortgages. During that metamorphosis, there were risks that were encountered and that had to be addressed. Some of the risks included fluctuating interest rates and an uncertain mortality as some of the homeowners died soon after taking the contract.

Although the first reverse mortgage was done in 1961, it was only in 1977 that a more formalized transaction took place (Redfoot et al., 2007). However, these early transactions involved a certain fixed term after which the borrower would be expected to repay the loan and this was not popular with consumers as it did not allow them to stay in their homes until death. As a result by 1988 only about 1,000 transactions had been closed. The search for consumer friendly and marketable reverse mortgages started in earnest in 1980 when the US federal Administration of Aging (AOA) launched a 2-year research project on “home equity conversion” administered by Wisconim Bureau of Aging (Redfoot et al., 2007). As a result of this research, the fixed term was then replaced with the open ended one that allowed consumers to stay in their homes for as long as they lived or wished for. The Home Equity Conversion Mortgage (HECM) insurance legislation was then signed into law in February 1988.

Ever since, reverse mortgages have been used to solve the problem of asset rich but cash poor consumers who are sitting on significant properties but with no cash. Statistics by Bishop and Shan (2008) indicate that Housing Wealth is often the largest non-pension wealth component for many elderly homeowners. The Survey of Consumer Finances (SCF) (2004) data suggest that for 27.8% of homeowners aged 62 or above, housing wealth represents at least 80% of their total wealth. In addition, 13.3% of homeowners aged 62 or above have a house-value-to-income ratio of at least 10. Economists believe that reverse mortgages have the potential to increase consumption of house-rich but cash-poor elderly homeowners while allowing them to continue living in their homes.

Hopson, Hopson and Vecchio (2009) and Taylor (2013) identified four factors that are important in the determination of the amount that can be borrowed in reverse mortgaging and these factors are: age; equity in the home; the interest rate; and the value of the home (which is capped at 95% of the median home price in the geographic area in which the borrower’s home is located).

Equity refers to that portion or part of the home that a house owner owns outright. If one has no mortgage on their home, then they own 100% of the equity. In other words, if that home is to be sold today, all the money from the sale would go to them. Figure 1 is a pictorial illustration of the life cycle of home equity for a consumer who takes a mortgage, from the conventional loan to the reverse mortgage loan.

Figure 1 shows that when an individual takes a forward mortgage and as they make periodic payments towards the home, they are increasing their stake in the home, which has been referred to as equity. When the mortgage is fully paid up then the individual assumes full home ownership and has no mortgage. At this stage home equity is at its peak, at 100%. At retirement, the retiree may want to unlock equity in the home by taking a reverse mortgage and as they receive periodic payments from the lender, they will be reducing their home equity. On death of the client or when the client chooses to move out of the house, the house is then sold and loan advanced is repaid. Since the value of the loan depends on age and value of property, then it follows that the older the borrower and the higher the value of the property then the higher the amount of loan that can be accessed by the borrower. The reasoning being that if someone is older, then “term to maturity” or the period until the person dies in order for the financial institutions to get its repayment is shorter (Redfoot et al., 2007).
2.3 How to calculate a reverse mortgage loan
Shan (2009) outlined how the amount a borrower receives is calculated:

Step 1: Determine the Maximum Claim Amount (MCA) which is the lesser of the property market value or the mortgage limit as set by the specific county rules in the USA.

Step 2: Determine the Initial Principal Limit (IPL) by multiplying the MCA by a factor between 0 and 1. The factor is determined by the borrower’s age and the expected interest rate at the closing of the loan, in other words, the future interest rates. The principal limit factor is designed in such a way that, the loan balance reaches the MCA at the time when the loan becomes due in expectation, and there are some assumptions factored in.

Step 3: Calculate the Net Principal Limit which is the amount the borrower can take as a lump sum in cash at closing, by subtracting from the IPL the upfront cost associated with the loan and a set-aside for monthly service fee.

2.4 Benefits of reverse mortgages
Reverse mortgages offer a number of benefits as studies have shown. Most authors tend to identify the same benefits despite the country or economy in which they would be studying. Firstly, Nakajima and Telyukova (2013) and Salter (2014) have shown that there are no income requirements which are usually a deal breaker in most loan applications. In all other loans, the borrower has to prove that he has a certain level of income and qualifies to borrow but with reverse mortgages, such requirement does not exist. This makes it possible for someone who is not employed to access the loans.

Secondly, there is no scheduled repayment requirement on a continuing basis and the repayment is on the ‘event occurrence’ basis mentioned above, that is death or when the homeowner decides to leave the house (Bardhan and Barua, 2003). When someone gets a loan from the bank, they sometimes struggle to meet the repayment obligations but reverse mortgage borrowers would not worry about that as the loan would be repaid right at the end. The third benefit is that, reverse mortgage is a non-recourse loan. As Neill and Kaplan (2007) put it, the homeowner cannot owe more that the value of the property at maturity and in the event that the principal and interest exceed, there is literally no recourse to any other source of funds except for the property that would have acted as security.
Salter (2014) also said that interest is tax deductible when paid and hence a benefit to the banking institutions. As an institution offers reverse mortgages, it creates a liability which reduces the amount on which it pays its tax. The institution can then choose to pass it to its customers or not. Another benefit to the customers is that, the line of credit cannot be called, reduced or cancelled (Nakajima and Telyukova, 2013).

2.5 Reverse Mortgage Conditions

2.5.1 Risk
Just like any other financial product, reverse mortgages are also prone to risk and likewise, there are basically two risks associated with the product that is default risk and market risk (McDonald and Thornton, 2008). Default risk refers to the probability that a borrower will fail to repay the loan according to the terms of the contract. This is when an issuer fails to meet the obligation of interest and principal payments. A single delay in an interest payment is considered a default. Market risk is defined as the risk related to the uncertainty of a Financial Institution’s earnings on its trading portfolio caused by changes, and particularly extreme changes, in market conditions such as the price of an asset, interest rates, market volatility, and market liquidity (Saunders and Connert, 2008 p75). Thus changes in interest rates result in market risk. Because mortgages tend to have a long life, up to 30 years, they tend to be exposed to a lot of market risk and a lot can happen during that 30 year period.

2.5.2 Regulation
The success of reverse mortgages also depends on the regulatory framework in which the market is operating. The annually conducted Banana Skin Reports named regulation as the number one risk for the financial sector in the 2005 and 2006 reports (Bedwell et al., 2009). This report is conducted regularly by the Center for Study of Financial Innovation in cooperation with Price Waterhouse Coopers. Shan (2009) highlighted that lenders with little experience in reverse mortgages often have to confront new and unfamiliar documentation and regulatory requirements. According to Caplin (2000) there are institutional impediments associated with this product because reverse mortgages sit at the intersection of many different, confusing, incomplete regulatory system and the incompleteness of these systems impacts on both demand and supply.

2.5.3 Knowledge of the product
Bedwell et al. (2009) identified lack of knowledge about the product as one of the reasons that had derailed growth of the reverse mortgage market. Based on 1999 and 2007 comparative survey figures done by AARP, the number of respondents who indicated that they had heard about reverse mortgages increased from 51% to 72%. The Harris polling organisations did a survey in 2007 as well and 64% of respondents had heard about reverse mortgages and this number was lower than those who had heard about other mortgage products. For instance 78% had heard about home equity loans, 74% on adjustable rate forward mortgages and 72% on forward fixed rate mortgages. Of those who had heard about reverse mortgages, only 15% said they were very knowledgeable while 34% said they were somewhat knowledgeable. This study, the researcher intends to find how the bankers themselves are knowledgeable about the product because if they are not knowledgeable about it then it would be difficult for this product to see the light of day.

2.5.4 Availability of a market
The first reverse mortgage in the USA was done in 1989 after Congress authorized the Department of Housing and Urban Development to do a pilot of 2,500 reverse mortgages which was increased to 25,000 in early 1990’s and increased again in 1996 (Caplin, 2010). However, the first serious attempt to clarify market potential was done by Venti and Wise (1991) using SIPP data. Their research confirmed that many elderly households live primarily on pension outcome, and that housing equity is the only asset available that could possibly increase their consumption. They estimated the median increase in annual income from such an annuity at around 10%. Rasmussen et al. (1995) showed that even when attention is restricted to
households sixty nine or older with income less than $30,000, there are 3 million who would gain at least 25% from reverse mortgages.

2.6 Factors affecting uptake of reverse mortgages

2.6.1 Housing Wealth

One of the main key drivers of the RML market is the percentage composition of housing wealth to a consumer’s total wealth. (Luiz and Stobie, 2010). Mitchell and Piggott argued that an owner occupied home is illiquid and from an asset allocation viewpoint, undiversified and as a result elderly households have lower incomes and yet on average possess greater housing wealth. Shan (2009) suggests that for 6.5 million homeowners aged 62 or above, housing wealth represents at least 80% of their total wealth. Studies show that in an environment where home equity to income ratio is increasing, reverse mortgages uptake would be most likely high. Although some researches looked at the proportion in relation to net worth and others, as a proportion of total wealth, the general trend is that the proportion in housing is too significant and cannot be ignored. It was also noted that through reverse mortgages, older homeowners were able to enjoy a more comfortable retirement without selling their homes.

2.6.2 Increased Life Expectancy

Life expectancy can improve as a result of increased health which leads to an active lifestyle into retirement, according to the Actuarial Profession (2005). For instance in Britain, life expectancy for males has increased sharply from 40 years in 1841, 49 years in 1900 and 76 years in 2000 and is projected to rise to 79 by 2020 (Actuarial Profession, 2005). This increase in life expectancy leads to an aging population. Sisk (2005) identified longevity as a “key selling point” noting that people are living longer and health expenses are outpacing inflation consistently. However in the case of Zimbabwe, life expectancy is getting shorter (Zimstats, 2015) due to diseases and poor living conditions. This decrease in life expectancy is a positive development for this kind of product since “term to maturity” would be reduced. Retirement age in Zimbabwe is 65 years although there are some cases where people can go on early retirement at 60 years like in the civil service.

2.6.3 Poor retirement planning and saving trends

According to Mitchell and Moore (1997), households saving rates dropped from over 10% in the 1950s to around 3% in the 1990s. This then raises concerns about the citizens’ ability to maintain consumption levels in old age. In successive budget statement by Zimbabwe’s Ministers of Finance in 2013 and 2014, government bemoaned the poor savings in the country. The working class has a low salary to take them from one month to another and let alone to save. This is not peculiar to Zimbabwe as Rose (2009) also noted the poor saving culture in the US such that nearly 43% of working individuals over the age of 55 years had less than $50,000 in savings, excluding home equity. In Zimbabwe consumers are spending almost all on consumption.

2.6.4 Decreasing employer and state support

As a result of an increasing aging population, government support to older people has been decreasing in many countries (Davey, 1998). This then shifts the responsibility of looking after the welfares of retirees to the retirees themselves and their families. Similarly, the government here in Zimbabwe does not have the fiscal space to accommodate its social responsibilities on the aged. The national budget is currently unbalanced with 92% going towards consumption while only 8% is channeled to capital projects (Zimbabwe National Budget, 2015). Reverse mortgages help to take some of these responsibilities away from government in this difficult period.
2.6.5 Property prices boom and interest rates
When property prices increase like what happened in the property boom in the USA in the 1990s, this results in significant value being embedded in residential property market. While it may be subjective on the real direction of property prices, a report by Oyster Real estate (2014) shows that the Zimbabwe property sector has been on the decline with rental arrears increasing from 14% to 20%, rentals decline to an average of $5 from $8 and occupancy levels declining. This situation would be a negative for reverse mortgages since home owners may not be willing to release their properties at current depressed value. There is a general assumption that that the current tough challenges are temporary and things will get better in the future and the property values could be restored.

2.6.6 Tax Implications
Fischer-French (2011) noted two tax benefits of using RML, that the draw-downs on the loan are not taxable and that the estate, or equity, is reduced towards the time of death such that estate duty to be paid will be lowered.

2.6.7 Attitudes towards indebtedness
According to Davey (2005), the current older generation is traditionally risk averse and financially conservative. According to Bailey (2005), Australians are generally uncomfortable with debt as many people still want to “leave something for the kids”. While it is understandable that a 40 year old would wish to leave a house to his children, surely a 90 year old owes nothing to his children who will be 50 years or 60 years old and probably owning much better houses themselves. However, the benefit of reverse mortgages is that they would permit elderly homeowners to fine tune the amount of bequest (as dictated by the value of the property) which they might choose to leave to their heirs, (Bartel and Daly, 1980). For illustration, an elderly homeowner of a property valued at, say, $200,000 can choose to spend $80,000 of that property and leave the balance to his heirs. But that is only possible in an environment where reverse mortgages exist because of the indivisibility of property assets. Luiz and Stobie (2010) state that while the use of reverse mortgages is not particularly popular among elderly homeowners today, this may change over with the next generation. Bailey (2005) also identified a changing consumer attitude towards inheritance, suggesting that many were now “more willing to release their home equity rather than passing the maximum amount possible down to their children”.

2.6.8 Confidence in the market
The market already has existing products and in most cases the demand for existing products may be low. As Caplin (2000) puts it, “If the market was important, surely it would be here today”. Older people are wary of an investment scheme that puts risk to their only asset. This then raises suspicion about the market.

2.6.9 Rainy day approach
Many older people believe in preserving their assets for some unknown emergency in the future. Others however believe that their rainy day has already come and something needs to be done about enhancing their living standards while they are still alive (Davey, 2005).

2.6.10 Expectations from government
Older people have often seen it as a right as citizens to get assistance from government especially for the service they gave to the nation during their working years. As a result, they are reluctant to draw down on their housing assets (Davey, 2005). In USA, social security benefits provide 42.5% of retired people’s income while individual savings and personal investments provide approximately 36% and Employer and individual retirement accounts provide approximately 21.5% (Rose, 2009). Generally, people expect government schemes
to play a leading role in supplementing their lives in retirement and the government of Zimbabwe has created a ministry to deal with its social responsibility but due to lack of fiscal space, the government has found it difficult to honour that obligation. And as homeowners realise that the government is handicapped, they would see the benefits of turning to their own life savings and find it prudent to unwind the liquidity locked in their property investments.

2.6.1 Costs
The Australian Securities and Investments Commission (ASIC, 2005) states that costs can be assessed upfront with certainty. A number of variables have varying proportions like, initial and ongoing fees, interest charges, rental costs and licence costs as well as equity foregone.

2.6.12 Fear of taking risks
Risk is two pronged and at different levels between the risk feared by lenders and that of borrowers. A survey in Australia by Bailey (2005) identified main risks to their customers as interest rates unexpectedly spiking, the potential to lose control of their house and the temptation to borrow too aggressively, too early, and be unprepared for later medical emergencies. On the other hand financial advisers were afraid of the following risks; the potential to give misleading or poorly times advice on a complex product, the lack of regulatory control in the area and the reputational damage flowing on from these.

3. RESEARCH METHODOLOGY
This study is explanatory. Although this is a fairly new product which will be premised in the banking sector, the banking sector is already well established and well regulated. During the course of this research, CABS launched an equity release product on 01 January 2015 which is a form of reverse mortgage although the main difference is that the CABS product is targeting homeowners without restricting it to pensioners and the repayment period is 5 years. Which means the variables and factors at play in the sector are known. What the research wishes to establish though is whether these factors and the condition would favour the establishment of a reverse mortgage market in Zimbabwe. The researchers used the survey strategy. In this study, the population is all banking institutions in Zimbabwe. In this study, the researcher used a combination of random sampling and stratified sampling methods.

4. DATA PRESENTATION AND ANALYSIS
4.1 Reliability
The instrument scored a high score on the reliability test as measured by the Cronbach’s alpha of 0.792. A good instrument should have a Cronbach Alpha which is greater than 0.6. This implies that the results from the research instrument can be relied on as there is a high probability of valid and consistent results. Data transformation led to 5 different constructs namely; Conditions, factors, challenges, reverse mortgage market and performance, as outlined in the conceptual framework. Table below shows the reliability tests for each construct as well.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMM</td>
<td>5</td>
<td>0.783</td>
</tr>
<tr>
<td>Conditions</td>
<td>7</td>
<td>0.778</td>
</tr>
<tr>
<td>Challenges</td>
<td>5</td>
<td>0.791</td>
</tr>
<tr>
<td>Factors</td>
<td>14</td>
<td>0.785</td>
</tr>
<tr>
<td>Performance</td>
<td>4</td>
<td>0.784</td>
</tr>
<tr>
<td>Overall Cronbach’s Alpha</td>
<td>60</td>
<td>0.792</td>
</tr>
</tbody>
</table>
The number of items, indicate the number of questions under each construct, for instance, there were 5 questions under the reverse mortgage (RMM) variable and this variable yielded a Cronbach Alpha of 0.783. All variable had high reliability levels an indication that the participants gave consistent and valid responses.

4.2 Conditions affecting reverse mortgage market

Table 2: Responses on conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The current operating environment is ideal for a Reverse mortgage market</td>
<td>49%</td>
<td>39%</td>
<td>9%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>The current regulation does not pose a challenge to do reverse mortgaging</td>
<td>28%</td>
<td>44%</td>
<td>8%</td>
<td>15%</td>
<td>6%</td>
</tr>
<tr>
<td>The Management team is willing to start Reverse Mortgages</td>
<td>15%</td>
<td>40%</td>
<td>22%</td>
<td>21%</td>
<td>2%</td>
</tr>
<tr>
<td>The current shareholders are willing to offer reverse mortgages</td>
<td>13%</td>
<td>34%</td>
<td>33%</td>
<td>17%</td>
<td>2%</td>
</tr>
<tr>
<td>The bank has the capacity to offer Reverse Mortgages</td>
<td>26%</td>
<td>37%</td>
<td>8%</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>The bank is able to mobilize financial resources in order to offer reverse</td>
<td>34%</td>
<td>41%</td>
<td>2%</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>mortgagings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a market for Reverse mortgage product</td>
<td>44%</td>
<td>49%</td>
<td>5%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

SA= Strongly Agree; A=Agree; N= Neutral; D=Disagree; SD=Strongly Disagree;

Table 2 shows that there was an overwhelming response on how ideal the current environment is in as far as the introduction and success of reverse mortgaging is concerned with 88% agreeing (49% SA, 39%A) that the environment is ideal. Similarly, 72% also agreed (28%SA, 44A) that regulation was not a challenge. There was however, a split vote on the willingness of management and shareholders with only 55% agreeing (15%SA, 40%A) that management was willing and 47% agreeing (13%SA, 34%A) that shareholders were willing. On the banks’ capacity to offer the product as well as their abilities to mobilize financial resources the results were positive with 63% saying the banks had the capacity (26%SA, 37%A) while 75% also believe that banks are able to raise financial resources (34%SA, 41%A). There was also an overwhelming response on the availability of a market for the product with 93% (44%SA, 49%A) being of the opinion that the market for reverse mortgaging is there.

The results above indicate that generally the current conditions are ideal and reverse mortgages would blossom in this environment. The only areas that seem to be the stumbling block seem to be the willingness of shareholders and management who are the main participants in as far as launching a new product is concerned. If the environment is ideal, regulation is not an inhibiting factor and there is a potential market for the product, then the logical explanation as to why reverse mortgages had not been established up to now is that the management and shareholders have not realized the potential of this product or do not have a full appreciation of the product.

Table 3: Factor analysis for conditions

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Variance Explained</th>
<th>Initial Eigenvalues</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total % of Variance</td>
<td>Cumulative %</td>
<td>Total % of Variance</td>
</tr>
<tr>
<td>1</td>
<td>3.107</td>
<td>44.39</td>
<td>44.39</td>
</tr>
<tr>
<td>2</td>
<td>1.236</td>
<td>17.653</td>
<td>62.044</td>
</tr>
</tbody>
</table>

Table 3 shows that only 2 factors are necessary for this variable and these two factors account for a variation rate of 62%. Using the rotation sum of squares method, the first factor accounts for variation of 36% while the second factor accounts for 26% of variation.
Table 4 is known as a Rotated Component Matrix and it displays the loadings for each item on each rotated component, showing which items make up each component. There are two components here and the first component comprises of shareholders willingness, resource mobilization, capacity of bank and management willingness while the second component comprises of, market regulation, operating environment and market availability. The next stage was to identify a common theme for the factors in the two components and the researchers decided to rename the factors as ‘Stakeholder’ factor and ‘Environment’ factor respectively. The researchers were of the opinion that factors under component 1 were influenced by actions of the key stakeholders in an institution that is, employees and shareholders. Similarly, factors under component 2 were influenced by the operating environment. Thus, the transformed data indicates that for this study the main conditions for successful establishment of a reverse mortgage market are stakeholder considerations and environmental considerations.

4.3 Factors affecting uptake of reverse mortgages

Table 5: Responses on Factors

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property value to income ratio of consumers is increasing</td>
<td>42.52%</td>
<td>51.72%</td>
<td>2.29%</td>
<td>3.44%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Life expectancy in Zimbabwe is decreasing</td>
<td>5.74%</td>
<td>33.33%</td>
<td>5.74%</td>
<td>43.68%</td>
<td>11.49%</td>
</tr>
<tr>
<td>There is a poor retirement planning culture in Zimbabwe</td>
<td>51.72%</td>
<td>41.37%</td>
<td>2.29%</td>
<td>4.59%</td>
<td>0.00%</td>
</tr>
<tr>
<td>There is a poor saving culture in Zimbabwe</td>
<td>55.17%</td>
<td>39.08%</td>
<td>3.44%</td>
<td>2.29%</td>
<td>0.00%</td>
</tr>
<tr>
<td>State and Employer support to retired people is decreasing</td>
<td>20.69%</td>
<td>43.68%</td>
<td>4.59%</td>
<td>25.28%</td>
<td>5.74%</td>
</tr>
<tr>
<td>Property prices are increasing</td>
<td>18.39%</td>
<td>24.14%</td>
<td>12.64%</td>
<td>35.63%</td>
<td>8.04%</td>
</tr>
<tr>
<td>Current tax laws do not hinder development of new products</td>
<td>14.94%</td>
<td>39.08%</td>
<td>8.04%</td>
<td>37.93%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Depositors do not have a fear for indebtedness</td>
<td>5.74%</td>
<td>52.87%</td>
<td>3.44%</td>
<td>33.33%</td>
<td>4.59%</td>
</tr>
<tr>
<td>Confidence in the banking sector is low</td>
<td>47.12%</td>
<td>48.27%</td>
<td>2.29%</td>
<td>0.00%</td>
<td>2.29%</td>
</tr>
<tr>
<td>It is not difficult to dispose of a property that would have been lodged as security</td>
<td>18.39%</td>
<td>14.94%</td>
<td>10.34%</td>
<td>43.67%</td>
<td>12.64%</td>
</tr>
<tr>
<td>People are not worried about the cost on their loans</td>
<td>14.94%</td>
<td>20.68%</td>
<td>8.04%</td>
<td>35.63%</td>
<td>20.68%</td>
</tr>
<tr>
<td>People are worried about leaving an inheritance</td>
<td>57.47%</td>
<td>42.53%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>People are not afraid of taking risk</td>
<td>1.14%</td>
<td>22.98%</td>
<td>19.54%</td>
<td>43.67%</td>
<td>12.64%</td>
</tr>
<tr>
<td>Pension payouts are low</td>
<td>55.17%</td>
<td>36.78%</td>
<td>8.04%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
Table 5 shows that 58.3% of respondents agreed (5.7% SA and 52.9% A) with the proposition that consumers have no fear of indebtedness. In other words people have no fear of taking debt if though they know they already have an existing debt to such an extent that one would take a loan at work, another loan from the bank and then another loan from his circle of friends. On the issue of the current tax laws, 54% were of the opinion that the current tax laws are not an inhibiting factor in as far as new products in the banking sector are concerned. However, on the issue of risk, 56.3% of the respondents believe that people are afraid of taking risk and this could work against the potential of the market.

Table 6: Factor Analysis for factors affecting reverse mortgages

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Variance</th>
<th>% of Variance</th>
<th>Cumulative %</th>
<th>Total Variance</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.173</td>
<td>15.524</td>
<td>39.642</td>
<td>1.987</td>
<td>14.196</td>
<td>36.175</td>
</tr>
<tr>
<td>3</td>
<td>1.71</td>
<td>12.212</td>
<td>51.854</td>
<td>1.834</td>
<td>13.102</td>
<td>49.277</td>
</tr>
<tr>
<td>4</td>
<td>1.422</td>
<td>10.156</td>
<td>62.01</td>
<td>1.783</td>
<td>12.733</td>
<td>62.01</td>
</tr>
</tbody>
</table>

Table 6 shows the results of factor analysis done on the factors affecting reverse mortgaging. Thus there are only four components that can be extracted. These are the factors that met the cutoff point of eigenvalues greater than 1. It also shows that Component 1 accounts for 21.98% of the variability of all the 14 factors while Component 2 accounts for 14.2% and so on such that the four components have a combined 62.01% variability. The cut off eigen value was 1 and hence only components with eigen values greater than 1 were displayed. These results show that instead of having 14 factors, these have now been reduced to only four components as shown below.

Table 7: Rotated Component Matrix for factors

<table>
<thead>
<tr>
<th>Rotated Component Matrixa</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Indebtedness fear factor</td>
<td>.804</td>
</tr>
<tr>
<td>Tax Factor</td>
<td>.802</td>
</tr>
<tr>
<td>Low property Prices factor</td>
<td>.753</td>
</tr>
<tr>
<td>Attitude to Risk factor</td>
<td>.744</td>
</tr>
<tr>
<td>Banking confidence factor</td>
<td>.599</td>
</tr>
<tr>
<td>State and Employer support Factor</td>
<td>.771</td>
</tr>
<tr>
<td>Wealth to Income Factor</td>
<td>.721</td>
</tr>
<tr>
<td>Legacy factor</td>
<td>.616</td>
</tr>
<tr>
<td>Poor saving culture factor</td>
<td>.772</td>
</tr>
<tr>
<td>Low life expectancy Factor</td>
<td>.666</td>
</tr>
<tr>
<td>Poor retirement planning factor</td>
<td>.632</td>
</tr>
<tr>
<td>Costs factor</td>
<td>.871</td>
</tr>
<tr>
<td>Pension payout factor</td>
<td>.628</td>
</tr>
<tr>
<td>Interest rate Factor</td>
<td>.615</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Table 7 shows the four components and the factors that fall under each component. Component 1 comprised of Indebtedness fears, Tax, Low property prices, Attitude to risk and banking confidence and the common theme about these factors is **financial risk** since all the factors involve incidental risks or risks arising naturally from the activities of a business. These factors result in losses on the part of the consumers. Component 2 comprised of State and employer support levels, wealth to income ratio and legacy issues and the common theme here was the **Social welfare factor** since the factors are to do with social welfare and up keeping. Component 3 comprised of poor saving culture, low life expectancy and poor retirement planning and the common theme was **financial planning**. The last component involved the factors; cost, pension payout and interest rates and the common theme was **Cost** since these factors relate to items that cost the consumer.

5. CONCLUSIONS

5.1 Conditions under which reverse mortgages can be successful

The research concludes that the main conditions that influence reverse mortgages are stakeholders and environmental conditions. Stakeholder conditions are to do with willingness and ability of employees and shareholders while environmental factors encompass regulatory issues and availability of a market. In addition, the research concluded that it is the desire and willingness of management and shareholders that can shape the future of the reverse mortgage market despite what the environment looks like. The environment itself is ripe for the product as research has shown that the regulatory framework is not challenging and that the market for reverse mortgages is already there. In short, the Zimbabwean market conditions are ready for reverse mortgaging.

5.2 Factors affecting reverse mortgages

This research concludes that there are three factors that affect establishment of reverse mortgage market. The financial risk factors, however, remain dominant and these are factors that could result in potential loss to the borrowers; like market confidence, tax issues, property prices and issues of indebtedness. This was followed by the cost factors and financial planning factors. Social welfare factors like government support and legacy issues have been shown to have less significance. Thus, consumers are more worried about those factors that could lead them to losing their finances like what happened in the banking crisis of 2003 where consumers lost through bank closures and curatorship.

6. RECOMMENDATIONS

6.1 Management

The study recommends that management should think outside the box and not restrict themselves to the traditional banking products like current and savings accounts only but pursue other products that bring a balance between economic development and ensuring that any borrowings are adequately secured. Management also needs to look at their mortgage pricing policies since this research has highlighted that consumers are worried about costs of the products.

6.2 Regulator

The main factors that affect the reverse mortgage market are those factors that affect the risk of losses on the part of the consumers and as a result the researcher recommends that the regulator puts policies that improve confidence to depositors.

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Impact of public health expenditure on health outcomes in Zimbabwe (1980-2014)

Albert Makochekanwa and Cecilia Madziwa

ABSTRACT
The aim of the study is to investigate the impact of public health expenditure as a percentage of GDP on health outcomes (measured as life expectancy at birth, infant mortality rate, and under-five mortality rate) in Zimbabwe for the period 1980-2014. The study employs an Ordinary Least Squares (OLS) model to analyze the impact of public health expenditure on health outcomes. The regression results reveal that public health expenditure is an important factor which contributes positively towards health outcomes and specifically that increases in public health expenditure have the impact of reducing infant and under-five mortality and increasing life expectancy. The results also show that GDP per capita, gross female secondary enrollment, physicians per 1000 people as well as political environment are the major determinants of life expectancy at birth, infant mortality rate and under-five mortality rate in Zimbabwe. The policy recommendations from this study are that the Zimbabwean government should prioritise increasing public health expenditure whilst at the same time ensuring that education of females remains a priority. Furthermore, policies aimed at retaining medical personnel should be implemented. An economic policy that increases productivity in the economy should also be implemented to ensure increased GDP per capita. Existence of a conducive political environment is critical to the achievement of positive health outcomes as it contributes to good governance which is essential for efficiency in the health delivery system.

Keywords: public health expenditure, health outcome

1. INTRODUCTION
The health outcomes of a nation are a priority as they reflect and describe the state of wellbeing of a population and provide indicators on the state of human capital which is important for productivity enhancement and economic growth. The World Health Organisation (WHO) defines health outcomes as referring to changes in self-perceived health status or changes in the distribution of health determinants or factors which are known to affect health, wellbeing and quality of life.

Governments play the largest role in financing the health sector, and their decisions on allocations to the sector reflect their commitment to the improvement of health outcomes. According to the World Bank in most developing countries public health expenditure consists of recurrent and capital spending from government budgets, external borrowing and grants, including donations from international agencies, non-governmental organisations and social health insurance funds.

Zimbabwe’s allocation to the health sector has remained low ranging from 1% to 3.5% of gross domestic product (GDP) (between 1980 and 2014), which is lower than 5% which is considered to be recommended by the WHO (Savedoff, 2003). Consequently, health outcomes, measured as infant mortality rate, and under-five (child) mortality rate and life expectancy at birth) have also remained below global standards. In 2013 Zimbabwe recorded an infant mortality rate of 55/1000 live births whilst the global average stood at 46 deaths per 1000 live births, in addition, the global average life expectancy was 70 years in 2012, yet that

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1 Health outcomes can be measured using indicators such as life expectancy, infant mortality rate, under-five mortality rate. (WHO, 2014).
2 http://www.who.int/hia/about/glos/en/index1.html
3 Health status is a holistic concept that is determined by more than the presence or absence of any disease. It is often summarised by life expectancy or self-assessed health status, and more broadly includes measures of functioning, physical illness, and mental wellbeing (AIHW, 2015).
Impact of public health expenditure on health outcomes in Zimbabwe (1980-2014)

for Zimbabwe was 58 years. This can be an indication that the current allocation of public health expenditure as a percentage of GDP is not optimal for the Zimbabwean population. In the case of Zimbabwe, the low public health expenditure and poor health outcomes suggest that increasing public health expenditure may have a positive impact on health outcomes. Therefore recommendations on the direction that policy on public health expenditure should take require knowledge of the impact of this spending on health outcomes.

It is against this background that this study seeks to analyse the impact of public health expenditure as a percentage of GDP on health outcomes (infant mortality, under-five mortality and life expectancy at birth). The impact derived from the study will feed into policy recommendations on the priority that government should take in the allocation of resources to the health sector.

1.1 An overview of Zimbabwe’s Health Outcomes

Post independence decade 1980 to 1990

In the first post-independence decade (1980 to 1990) the government placed a high priority in the health sector. This was mainly to correct the inequalities in access to health and hence poor health outcomes that existed amongst the black majority prior to 1980 under colonial rule. During colonial rule the infant mortality rate among whites was 17 per 1000 while that among blacks was 120-220 per 1000 (Zhou, 2012). Similarly life expectancy among Africans was very low with an average of 49.8 and 53.3 for African males and females respectively and 66.9 and 74 for white males and females respectively (Zhou, 2012).

In the early 1980’s government focused on primary health care and sought to improve preventative services and curative services through public resource allocation to the previously marginalised rural areas. The increased public health expenditure from 2% in 1980 to 2.8 in 1987 resulted in a quantitative expansion in the health system which saw the construction of 316 primary health care centres and 450 primary care clinics which were upgraded to function as rural health centres (Mazingi and Kamidza, 2010). In addition, a total of ten district hospitals were built, immunisation coverage increased from 25 percent in 1982 to 70 percent in 1988, multi-disciplinary health training schools were constructed in all the provincial capitals and the School of Medicine at the University of Zimbabwe was expanded.

The first post-independence decade saw improved access to health care and recorded a positive change in the health status of the population evident through significant improvements in health outcomes. By 1988 life expectancy was 64 years, and infant mortality was 53 per 1000 (Mazingi and Kamidza, 2010).

The ESAP Period 1990 to 1995

By 1990 the indicators of health outcomes in Zimbabwe had deteriorated with under five mortality being 59.9 per 1000 live births. The 1990’s were characterised by the introduction of the Economic Structural Adjustment Programme (ESAP) which among others liberalized the economy. Overall, ESAP contributed to a subdued economic performance which impacted negatively on social sectors such as health. In the health sector ESAP influenced health policy by de-emphasising expenditure in social services and focusing on investment in the material production sectors such as agriculture, mining and manufacturing (Zhou, 2012).

Cost sharing measures were introduced which meant the introduction of user fees in the health sector. This tended to reverse the gains achieved in this sector in the 1980’s, with severe consequences on the health status of the low income groups who found the user fees to be too high (UNDP, 2010). This was despite the increasing incidence of HIV and AIDS in the country which indicated an increased demand for health service. The funds allocated to the SDF did not match the decline in health expenditure and this gap meant that only a portion of the vulnerable received assistance. The decrease in public expenditure on health care by 39 percent in 1994-95, implied diminished spending on common drugs, extension and preventative

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4 Infant mortality rates shows the number of infants which dies before their first anniversary (birthday).
4 Child mortality rates shows the number of children which dies between the ages of one and five years.
health services, specialist facilities and treatment, and other components of quality health care delivery (Saunders, 1996).

Economic crisis period 2000 to 2009
According to World Bank data between 2000 and 2003, public health expenditure as a percentage of GDP fell from 2% to 1.8%. Private healthcare spending fell from 3.6 percent to 3.4 percent of GDP, mainly due to the worsening economic situation. The health sector in Zimbabwe continued to deteriorate beyond the year 2000. The country experienced severe economic challenges with the economy performing at its lowest in 2008. The economic decline contributed to an unprecedented deterioration in the health infrastructure, loss of experienced health personnel, drug shortages and a drastic decline in the quality of health services available to the population. The volatile political environment during this period, poor governance and high levels of corruption contributed to further deterioration in implementation of health policy and prioritisation of maintaining the health delivery system.

In 2008, a number of health facilities closed, or provided limited services and lacked health commodities for treatment. During this time period, health service was provided by the mission hospitals and private clinics, which provide a diverse number of health services. However, the number of mission and private hospitals was inadequate to provide for the health care needs of all Zimbabweans (USAID, 2011).

The Government of National Unity Era 2009 to 2013
In 2009 a Government of National Unity (GNU) was established in Zimbabwe based on the Global Political Agreement of July 2008. During its tenure, the GNU set out to promote recovery of the economy and improve service provision in social services. Between 2009 and 2013 the country experienced improvements in the health sector mainly as a result of increased collaboration with development partners in sourcing financial resources to drive the recovery of the health sector. One of the achievements of the GNU, early in its tenure, was the mobilisation of financial resources to halt the cholera out-break that had resulted in about 4000 people losing their lives. The GNU also managed to ensure the reopening of referral hospitals and primary health care centres that had been closed due to a lack of resources (both financial and human) to run the centres. Drug availability also improved across the country by about 80 percent. Complemented by some improvements made in the economy during this period, the support to the health sector generally increased and health indicators improved. Life expectancy at birth increased from 51 years in 2009 to 58 years by 2012; infant mortality decreased from 59 per 1000 live births in 2009 to 55 per 1000 live births in 2013, while under-five mortality also decreased from 97 per 1000 live births in 2009 to 89 per 1000 live births in 2013 (See Figure 1).

During this period the country has been experiencing poor economic performance which has affected the provision of social services negatively. While hospitals and clinics have continued to operate, the inadequate resources allocated to the health sector have seen the maintenance of the user fees in most health institutions which continue to affect access to health care for most people in the country. Resources allocated to the health sector have declined with US$330million allocated for 2014 compared to US$407million in 2013. Zimbabwe shows a trend of health outcomes which suggests that increases in public health expenditure have a positive effect towards achieving health outcomes (see Figure 1). Apart from this suggested trend the country has gone through a number of changes in its political environment which has had a negative impact on the macroeconomic environment. Further to that, poor governance has also been linked to poor economic growth and it is manifested through corruption, political instability, ineffective rule of laws and institutions. (Zhangazha, 2010).

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6 In Africa poor governance has led to poor economic growth and it is manifested through corruption, political instability, ineffective rule of laws and institutions. (Zhangazha, 2010).
The share of government spending on health, a metric that can serve as a proxy for the extent to which health is prioritized by government, is crucial in the achievement of positive health outcomes (Tandon et al, 2014). Understanding the relationship between public health expenditure and health status is important for Zimbabwe for a number of reasons. Health status indicators in Zimbabwe remain relatively poor compared to international indicators\(^7\) and increases in public health expenditure may contribute to the improvements in the nation’s health status. Secondly, a reflection into the achievement of the MDGs shows that Zimbabwe falls short of achieving these goals and this is likely a consequence of lack of sufficient funding to the health sector. Thirdly, while Zimbabwe has gone through a number of economic, social and political challenges, it is important to understand the actual impact that public expenditure in health has on health outcomes with a view to informing policy on the need to seriously consider the specific effect of public expenditure on life expectancy at birth, infant mortality and under-five mortality which are the main indicators that tell the health status story of Zimbabwe. Lastly, there is evidence from Poullier (2002) that adjustments in public health expenditure in countries that spend less on the health sector have the potential to have a significant impact on health status.

\(^7\) In 2013 Zimbabwe recorded an infant mortality rate of 55/1000 live births whilst the global standard stood at 46 deaths per 1000 live births, while the global average life expectancy was 70 years in 2012, yet that for Zimbabwe was 58 years.
1.3 Objectives of the Study
The main objective of the study is to investigate the impact of public health expenditure on health outcomes in Zimbabwe. Specifically, the study investigated the impacts of public health expenditure on:

i. Under-five/child mortality rate
ii. Infant mortality rate, and
iii. Life expectancy at birth

2. ZIMBABWE’S HEALTH POLICIES 1980 TO 2014
Since 1980, Zimbabwe’s health sector has been guided by three main policy documents, namely Planning for Equity in Health (1982), the National Health Strategy, Working for Quality and Equity in Health (1997-2007), and the National Health Strategy for Zimbabwe 2009-2013, Equity and Quality in Health: A People’s Right. In addition the Public Health Act also outlines provisions for the general health of the population.

The common nerve in these documents is the emphasis on the primary health care approach and the integration of preventative and curative services in the health sector. In addition the principle of protection of the poor and vulnerable groups in terms of access to health is expressed in each of these documents through the allocation of adequate resources to the health sector and exemption from user fees for all public health services.

2.1 The Health Care System in Zimbabwe
The health policies outlined above are implemented through a national healthcare system. The health care system outlines how the country’s health delivery system is organised and gives an appreciation of the flow of health services in Zimbabwe.

The government is the main provider of health care services in Zimbabwe, complemented by mission hospitals, non-governmental organisations, company operated clinics, and private hospitals. In addition, a traditional medicine sector exists which provides treatment for various illnesses. The health delivery services are decentralised and health care is provided at primary, secondary, tertiary and quaternary levels. Policy and administrative guidance, decision making, funding allocation, coordination of national health responses, staff hires at district and provincial level, is centralised under the administration of the Ministry of Health and Child Welfare. At the provincial and district political levels, the health system is administered by provincial and district health offices, as representatives of the Ministry of Health and Child Welfare (MoHCW). The Provincial Medical Directorate (PMD) office administers provincial hospitals and all district health offices (DHOs) within its province; its function is to make certain that the province’s health services meet the needs of the population, as well as MoHCW objectives, goals, and health policies. The PMD is also responsible for allocating funds to the provincial hospitals and DHOs. At the district level, DHOs have responsibilities similar to their provincial level-counterparts, except that they play a more direct role in administering and managing rural health clinics (the lowest level of primary care facilities), as rural health facilities may only have a nurse on staff to provide primary care services and no administrative staff. The table below outlines the characteristics of the four levels of the health care system.

<table>
<thead>
<tr>
<th>Level</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Quaternary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility</td>
<td>— 1,118 rural clinics, hospitals and urban polyclinics</td>
<td>— 46 District Hospitals</td>
<td>— 7 Provincial Hospitals in all Provinces</td>
<td>— 6 central Hospitals in Bulawayo, Harare and Chitungwiza</td>
</tr>
<tr>
<td></td>
<td>— Constitute 78% of health facilities in Zimbabwe</td>
<td>— 5 Mission Hospitals</td>
<td>— Constitute less than 1 percent of facilities in the country</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>— Constitutes 3,6% of health facilities in Zimbabwe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1 (cont)

<table>
<thead>
<tr>
<th>Level</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Quaternary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources</td>
<td>Nurses</td>
<td>Doctors</td>
<td>Specialist Doctors</td>
<td>Specialist Doctors</td>
</tr>
<tr>
<td></td>
<td>Village health workers</td>
<td>— Nurses</td>
<td>— Nurses</td>
<td>— Nurses</td>
</tr>
<tr>
<td></td>
<td>Community based distributors</td>
<td>— Village health workers</td>
<td>— Community based distributors</td>
<td>— Clinicians</td>
</tr>
<tr>
<td>Services Provided</td>
<td>Basic prevention</td>
<td>Primary health care</td>
<td>Cases received from District hospitals</td>
<td>Deal with severe cases referred by provincial hospitals</td>
</tr>
<tr>
<td></td>
<td>Maternity</td>
<td>Emergency cases referred by clinics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curative services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referrals made to</td>
<td>District Hospitals</td>
<td>Provincial Hospitals</td>
<td>Central Hospitals</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>Community, ward and rural health centres under supervision of the DHO</td>
<td>DHO supervise the district hospitals together with hospital and district health committee</td>
<td>PMD and Provincial government</td>
<td>Report directly to the Ministry of Health</td>
</tr>
</tbody>
</table>

Source: Ministry of Health and Child Welfare various publications

2.2 Health Financing in Zimbabwe

According to the Health Transition Fund document, public health financing in Zimbabwe is mainly drawn from tax revenues, donor development aid, user fees and to some extent on health insurance income. National Health Accounts (NHA) give a synthesis of the flow of finances in a health system (WHO, 2007). According to the WHO the government of Zimbabwe has always prioritised the health sector and the Ministry of Health and Child Welfare has remained in the top five ministries in budget allocations by government. In the 1980’s soon after independence the country was able to mobilised funds through local revenue as well as donor funds which were allocated to the health sector for both recurrent and capital expenditure. Through the early 1990s and 2000s, Zimbabwe's health system was well funded and did not need substantial support from foreign donors. During this period, the government created a number of new agencies to manage specific aspects of the health system. For example, pharmaceutical management entities became semi-autonomous agencies in which funds came from revenues for their services. However, Zimbabwe's health system has recently shifted back towards centralization. The MoHCW has increased control over decision-making, while the system has become increasingly reliant on donor funds [namely from USAID, UK Department for International Development (DFID), EU, and UN] for supporting significant health programs (USAID, 2011).

As economic challenges began to set in, revenue from taxes dwindled and greatly affected the financing of the health sector. The health system has had to deal with challenges relating to reduced budget allocations to cover services provided to catchment areas; reduced funds for procuring quantities of health commodities; and outmigration of health staff, particularly clinical and senior-level administrators, who leave the system for positions with internationally supported health programs or positions in neighbouring countries that offer higher wages and reliable payment of wages.

3. LITERATURE REVIEW

3.1 Theoretical Overview

Schools of thought on Government Intervention: The discussion on government involvement through public expenditure to social sectors such as health can be drawn from early schools of thought populated by such
scholars as Musgrave (1996) which identify the key economic rationales for government to intervene in the health sector. Based on this perspective Government intervention can be used to improve efficiency when market failures lead to suboptimal social welfare outcomes, and to improve equity when market allocations lead to outcomes that are perceived to be unfair. Government intervention in the health sector is justified by the presence of externalities, the public good nature of certain health interventions, and the presence of extensive information asymmetries.

Wagner’s Law of Increasing State Activity: Based on comparisons from different countries Wagner came up with the notion that the extent and intensity of activities of the central and local government’s increases in progressive societies, as the government undertakes new functions for the benefit of the society.

Peacock and Wiseman Hypothesis: Peacock and Wiseman (1955) stated that increases in public expenditure depend on revenue collection. Peacock and Wiseman further noted that there is a huge gap between the expectations of the population about public expenditure and what can be described as the tolerance level of taxation. Governments cannot therefore ignore the demands of the population for various services especially when revenue collections are increasing at constant rate of taxation (Peacock and Wiseman, 1955).

The Production Function approach: According to this approach, health care has no intrinsic value on its own but is an intermediate good whose value is in its contribution (along with other inputs such as environmental and social factors) towards production of health itself. Healthcare therefore can be viewed as any other good or service in which each individual maximizes utility subject to a budget constraint. The production approach takes health status to refer to measures of the physical and emotional well-being of an individual or a population. The main indicators that are measured in Zimbabwe include life expectancy, infant mortality and under-five mortality. These indicators are widely used as they can be accurately measured as compared to morbidity. The basic economic theory of production provides a basis on the linkage of health expenditure and health outcomes. Inputs required in healthcare are usually financial, physical structures such as buildings, supplies and equipment, personnel, and clients while output refers to the direct result of the interaction of inputs and processes in the system; the types and quantities of goods and services produced by an activity, project or program. The use of inputs in healthcare leads to outcomes (Cremieux et al. 1999).

The Grossman Model: The Grossman model gives considerable insight into the determinants of health as well as allocations of time and money into health production. Grossman (1972) stated that the demand for health care is a derived demand which is produced through a process defined by a production function. The production function is useful in determining the relationship between health status (using variables such as life expectancy and under-five mortality and infant mortality rate), and other economic (income), social (education), environmental (urbanisation), demographic (population below or above a certain age) and health services (e.g., doctor to population ratio).

One of the main assumptions of this model is that individuals inherit an initial stock of health that depreciates over time and can be increased by investment and that death occurs when the stock falls below a certain level, implying that individuals can choose their length of life. Grossman (1972) also makes the assumption that gross investments in health capital are produced by household production functions which depend on certain environmental variables which include the level of education of the producer which influences the efficiency of the production process.

3.2 Empirical Literature Review

The study by Filmer and Pritchett (1999) investigated the interaction between health outcomes and public health expenditure and GDP per capita and found that income per capita was more significant than public

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8 According to Peacock and Wiseman (1955), with time the years, economic development results in substantial revenue to the governments, this enables increases in public expenditure.

9 Tax tolerance is defined as the amount of tax that a population is willing to tolerate and put up with. The tolerance to tax may also be determined by what the government is perceived to be spending money on (Pettinger, 2010).
health expenditure in determining health outcomes. Again Fayissa and Gutema (2005) also found that GDP per capita is significant in determining health outcomes.

Akinkugbe (2012) employed the Grossman (1972) model and used the same model as that by Filmer and Pritchett (1999) found that the analysis of 43 African countries revealed that public health expenditure is significant in determining health outcomes. Hilaire (2013) and Kyalo (2012) also found that public health expenditure has a significant impact on infant mortality, under-five mortality and life expectancy. Kim and Lane (2013) and Gani (2009) both found that the coefficient on public health expenditure is significant at 1% level in OECD and Pacific countries respectively. These studies also agree that GDP per capita is significant at 1 percent for under-five mortality and infant mortality. Both studies made use of the fixed effect model but differed in model specification with Kim and lane (2013) specifying a simple linear model (non-log) and Gani (2009) specifying a log-linear model.

Whist the above mentioned studies focused on establishing the determinants of health outcomes, another set of studies for both cross country and country specific data sought to analyse the relationship between health outcomes and public health expenditure and GDP per capita. Day and Tousignant (2005) in their study on Canada found that public health expenditure was weakly significant to health outcomes and concluded that this may be due to model misrepresentation which may reflect that at high levels of health of population, as that in Canada, the returns to increases in health spending are small. Deluna (2014) on the other hand found that for the Philippines the VAR results revealed that past values of public health expenditure had no effect on under-five mortality rates and this suggests that the past and present level of health expenditure is not sufficient enough to affect under-five mortality. On the contrary, the study on Nigeria by Sede (2015) revealed a strong significance of public health expenditure and GDP per capita on health outcomes. Unlike the Canada and Philippines studies which were limited to GDP per capita and public health expenditure and health outcomes as variables in their models, the Nigerian study included the level of education, inflation and unemployment which were found to be significant.

4. METHODOLOGY
Guided by the literature above, and for the period 1980 to 2014, the study made use of the model used by Kyalo (2012) who, on his Kenyan study, drew the theoretical basis for his model on the Grossman model and made use of the OLS estimation method for a single country. The study makes the necessary adjustments to the model to fit within the Zimbabwean context.

4.1 Model Specification
This study follows Kyalo (2012) and the general model is specified as follows:

\[ H_t = b_0 + b_1 PHE_t + b_2 GDPP_t + b_3 FES_t + b_4 PHY_t + g PC_t + \mu_t \]  

(1)

Where

- \( H_t \) Health outcomes
- \( PHE_t \) Public health expenditure as a percentage of GDP
- \( GDPP_t \) GDP per capita
- \( FES_t \) Female secondary gross enrolment rate
- \( PHY_t \) Physicians per 1000 patients
- \( PC_t \) Dummy variable for political environment (Which took 1 from 2000 to 2014 and zero otherwise)
- \( \mu_t \) Error term

This study considered three dependant variables which proxy health outcomes, hence three specific models are employed in this study as follows:
\[ LEX_t = b_0 + b_1 PHE_t + b_2 GDPP_t + b_3 FES_t + b_4 PHY_t + gPE_t + \mu_t \]  
\[ INF_t = b_0 + b_1 PHE_t + b_2 GDPP_t + b_3 FES_t + b_4 PHY_t + gPE_t + \mu_t \]  
\[ UFIVE_t = b_0 + b_1 PHE_t + b_2 GDPP_t + b_3 FES_t + b_4 PHY_t + gPE_t + \mu_t \]  

Where

- \( LEX_t \) = Life expectancy at birth
- \( INF_t \) = Infant mortality rate
- \( UFIVE_t \) = Under-five mortality rate

### 4.2 Definition and justification of variables

#### Dependent variables

**Life expectancy at birth**

Life expectancy at birth is the number of years that a newborn infant would live if the prevailing patterns of mortality at the time of its birth were to remain the same throughout its life. The study chooses to use life expectancy at birth as it is one of the most important measures of health outcomes in Zimbabwe. Life expectancy at birth is the number of years that an individual is expected to live after birth. A number of studies have revealed that there is a positive relationship between public health expenditure and life expectancy [Kyalo (2012), Kim and Lane (2013) and Fayissa and Gutema (2005)]. The inclusion of life expectancy as a measure of health outcomes is also justified by the fact that national health policy in Zimbabwe considers life expectancy as a major indicator which is used to trace progress in the achievement of interventions meant to improve health outcomes in the country.

**Infant mortality and child/under-five mortality**

An infant mortality rate shows the number of infants who die before their first anniversary (birthday), while a child mortality rate shows the number of children who die between the ages of one and five years.

#### Independent/explanatory variables

The following independent variables will be used across the three dependent variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors</th>
<th>Expected sign</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHE</td>
<td>Poullier, 2002</td>
<td>+ on LE; – on both IM &amp; CM</td>
<td>High PHE implies adequate provision of health services, resulting in increase in LE and reduction in both IM and CM</td>
</tr>
<tr>
<td>GDPP</td>
<td>Filmer &amp; Pritchett (1999)</td>
<td>+ on LE; – on both IM &amp; CM</td>
<td>High GDPP implies individual ability to purchase health services, resulting in increase in LE and reduction in both IM and CM</td>
</tr>
<tr>
<td>FES</td>
<td>Filmer &amp; Pritchett (1999), Fayissa and Gutema (2005)</td>
<td>+ on LE; – on both IM &amp; CM</td>
<td>High levels of FES implies that mothers/care givers are able to see the value of getting (and administering) medical services well on time, resulting in increase in LE and reduction in both IM and CM</td>
</tr>
<tr>
<td>PHY</td>
<td>Akinkugbe (2012) and Anyanwu (2007)</td>
<td>+ on LE; – on both IM &amp; CM</td>
<td>High PHY implies easily availability of physicians, resulting in increase in LE and reduction in both IM and CM</td>
</tr>
<tr>
<td>PC</td>
<td>Filmer and Pritchett (1999)</td>
<td>? (i.e., + or –)</td>
<td>The impact of political environment can result in increased PHE, in which case the effects indicated under PHE column applies, and the reverse will be true if PHE is reduced</td>
</tr>
</tbody>
</table>

**Source:** Author construction
4.3 Estimation Procedures

To investigate and estimate the impact of public health expenditure on health outcomes the study employed the model used by Kyalo (2012) and employ the OLS estimation technique. There are quite a number of methods of estimating regression functions, which can be used with the generally used ones being OLS and Maximum Likelihood (ML). The paper considered OLS over ML because of its ability to produce Best Linear Unbiased Estimate (BLUE). To ensure that the estimated variables are BLUE, the research conducted the following tests multicollinearity, stationary\(^\text{10}\), heteroskedasticity and autocorrelation. The results of these entire tests were favourable, implying regressions presented in this study are econometrically sound.

4.4 Data Sources

Secondary time series data from 1980 to 2014 was used in this study. The data was obtained from the World Bank, World Health Organisation and the Ministry of Health and Child Welfare and the Ministry of Finance.

5. RESULTS AND INTERPRETATIONS

Table 2 shows the estimated results. The R-squared values for the LEX, UFIVE and INF models are 0.776230, 0.858228 and 0.681740, respectively, indicating that about 78%, 86% and 68% of the variations in LEX, UFIVE and INF models are explained by combined variations in the regressors. This shows that the models are generally of a good fit shown by the fact that more than half of the variations are explained within the models. In addition the F-tests in all three models show probability values which are less than, 0.01, implying that all three models are valid at 1 % levels of significance.

Table 2: Estimated Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>LEX</th>
<th>UFIVE</th>
<th>INF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const</td>
<td>7.63624</td>
<td>126.745 ***</td>
<td>64.7791 ***</td>
</tr>
<tr>
<td>dPHE</td>
<td>0.217627 ***</td>
<td>-1.157192 ***</td>
<td>-4.245505 **</td>
</tr>
<tr>
<td>PC</td>
<td>?4.43775 **</td>
<td>15.0627 ***</td>
<td>6.88295 ***</td>
</tr>
<tr>
<td>dFSE</td>
<td>0.275945 ***</td>
<td>?0.317886 *</td>
<td>70.0698857</td>
</tr>
<tr>
<td>dGDPP</td>
<td>0.0289733 ***</td>
<td>?0.0307707 ***</td>
<td>70.00904573 **</td>
</tr>
<tr>
<td>PHY</td>
<td>-14.92926 ***</td>
<td>80.5244</td>
<td>-0.166999 ***</td>
</tr>
<tr>
<td>P-value(F)</td>
<td>2.49e-08</td>
<td>0.000002</td>
<td>0.00003</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.776230</td>
<td>0.858228</td>
<td>0.681740</td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td>1.875880</td>
<td>2.478877</td>
<td>2.090689</td>
</tr>
</tbody>
</table>

Source: Author regressions
Key: *, **, *** means significant at 10, 5, 1%

5.1 Public Health Expenditure as a % of GDP (PHE)

The results of the three models fulfil the expectations in terms of the signs of the public health expenditure coefficient. The sign of the coefficient for this variable is positive for life expectancy, and negative for both infant mortality and under-five mortality. The results of the three models estimated in this study indicate that a higher level of public health expenditure increases life expectancy and significantly reduces under-five mortality and infant mortality. Given that the coefficient of public health expenditure has a stronger significance (at 1 percent level) on under-five mortality than on infant mortality (at 5% level of significance) suggests that increased public health expenditure will have a greater impact in reducing under-five mortality.

\(^{10}\) The study applied the Augmented Dickey-Fuller (ADF) and show that LEX, INF and UFIVE are stationary in levels while the independent variables PHE, GDPP, FSE and PHY are non-stationary in levels but became stationary after first difference.
than the reduction in infant mortality. Generally, the estimation reveals that public health expenditure is a strong predictor for public health outcomes model shown by the p values which are less than 0.001 in all three models and thus implying high statistical significance. The results of this study are consistent with those obtained by Kyalo (2013) that public health expenditure is significant in life expectancy and infant mortality which were considered in his study.

5.2 GDP per capita (GDPP)
The sign on the coefficient of income is, as expected, negative for infant and under-five mortality rates and positive for life expectancy. The coefficient of GDP per capita is significant at 1 percent for life expectancy and child (under) five mortality, and at 5 percent for infant mortality. These results are consistent with previous studies carried out by Filmer and Pritchett (1999) which revealed that GDP significantly impacts under-five mortality at 1 percent level of significance. Whilst significance of GDP per capita on health outcomes is common among other studies the level of significance differs especially between infant mortality and under-five mortality. The results from Gani’s (2009) study reveal GDPPP significant at 1 percent for both infant mortality and under five mortality which is different from the Zimbabwean study in which GDPP has a larger impact on under-five mortality than infant mortality. Kim and Lane (2013) reveal that GDPP is significant at 5 percent for infant mortality, and it is significant to life expectancy at 1 percent. The results of this study therefore confirm the importance of income in the production of health outlined in the Grossman model emphasises the importance of income in the production of health.

5.3 Gross Female secondary enrolment (FES)
The signs of the coefficients of female secondary enrolment fulfilled the expected signs with the coefficient being positive in the life expectancy model and being negative in the infant mortality and under-five mortality models. In terms of significance, however, the coefficient of education for females is strongly significant at 1 percent level for life expectancy. Female education in this study is revealed as being weakly significant at 10 percent level of significance, and it is insignificant for infant mortality. This result is in line with Grossman’s notion that education has a significant impact on longevity which is represented by life expectancy in this study. According to Grossman (1972) level of education is one of the most important inputs in the production of health status and thus it is significant to health outcomes particularly those relating to the length of life. The results for Zimbabwe are consistent with the previous study by Fayissa and Gutema (2005) who found that literacy rate was significant at 5 % for life expectancy. Filmer and Pritchett who focused on female education level as was done in this study found female education to be significant to life expectancy as well as under-five and infant mortality. The results imply roughly 10 percent reduction in under-five mortality per additional year of schooling for females. Akinkugbe (2012) also found female education to be significant for all three health outcomes.

5.4 Physicians per 1000 patients (PHY)
The study expected that the variable for the number of physicians per 1000 patients would have a positive sign for life expectancy and a negative sign for both under-five and infant mortality. This would mean that an increase in the number of physicians available per 1000 patients would increase life expectancy while reducing infant and under-five mortality. The results of this study however reveal that the variable for the number of physicians per 1000 patients has a negative sign for life expectancy and infant mortality while it is also strongly significant for the two health outcomes. In relation to under-five mortality the variable’s coefficient is positive yet insignificant. The results for Zimbabwe are different from those found in previous studies including Anyanwu (2007) and Akinkugbe (2012) who found that the number of physicians is significant for under-five and infant mortality and life expectancy. The fact that in this study the number of physicians per 1000 patients is insignificant for under-five mortality but significant for infant mortality can be attributed to the fact that access to physicians in the first year of birth has a large bearing on the survival
of the child even beyond the first year. Medical attention from physicians in the first year may assist in identifying and rectifying any health challenges that the baby has been born with and by doing so increase chances of survival even beyond age one. The presence of physicians between years two up to year five will thus have less of an impact when proper attention is given to the child in the first year of survival.

5.5 Political environment dummy variable (PE)
The dummy variable was revealed as being significant in health outcomes in the three models. However the signs of the coefficient of the variable are not consistent with the expected signs. The signs are positive for under-five mortality and infant mortality and negative for life expectancy.

6. CONCLUSIONS AND POLICY RECOMMENDATIONS
The study has investigated the impact of public health expenditure, female education, GDP per capita, physicians per 1000 patients and the dummy variable representing political transition on life expectancy at birth, infant mortality and under-five mortality, for Zimbabwe from 1980 to 2014 using Ordinary Least Square technique (OLS). The results of OLS regression show that the coefficients of all explanatory variables were statistically significant in the three models except for female secondary enrolment being insignificant for infant mortality and the number of physicians per 1000 patients being insignificant for under-five mortality. Specifically, the study has revealed that public health expenditure has a significant positive impact on health outcomes for the Zimbabwean population. The hypotheses that an increase in public health expenditure will lead to improvements in health outcomes is thus accepted as true for Zimbabwe. The results imply that expanding public health expenditure is an efficient strategy to improve overall health conditions among the population. The results suggest that if Zimbabwe is interested in decreasing infant and under-five mortality and increasing life expectancy it should consider increasing public health expenditure to achieve these goals.

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Assessing potential economic costs and benefits from a Zimbabwe-China Free Trade Agreement

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ABSTRACT

This study investigated the potential impacts of the formation and implementation of a Zimbabwe-China Free Trade Area (FTA). The study employed the World Integrated Trade Solution (2015), Software for Market Analysis and Restrictions on Trade (WITS?SMART), to investigate the potential impacts of the FTA on exports, imports, tariff revenue and the overall welfare in Zimbabwe. The findings were that $44.39 million worth of new trade will be created with China while around $34.9 million trade will be diverted resulting in a positive net trade effect of $9.49 million for Zimbabwe. The results also suggest that Zimbabwe will lose around $44.68 million in tariff revenue. The study recommends that if Zimbabwe is going to commit itself to trade liberalization with China, it will have to come up with a new fiscal revenue base to compensate for the loss in tariff revenue. This can be done through putting more emphasis on non-trade taxes revenue sources as well as putting in place efficient fiscal revenue collection mechanisms. The study also recommends that since the FTA is also likely to affect welfare through employment losses welfare losses in Zimbabwe as imports from China will displace local production, there is need for undertaking adjustment programs that enhance skills and productivity in order to facilitate the relocation of labour into sectors where production will be expanding as a result of the FTA.

Key words: FTA, Trade, Zimbabwe, China, Welfare

1. INTRODUCTION

Due to forces of globalization, there has been increased interaction of actors across boundaries around the world. This has also resulted in the strengthening of the relationship between Africa and some East Asian countries such as China, India and Singapore. However, some have attributed the increasing relationships between most African countries and countries like China to the perceived decline in favourable treatment received by some African countries from the Western countries. For Zimbabwe, the emergence of ‘hostility’ through the use of sanctions by most Western countries especially European Union (EU) member states and the United States of America (USA) prompted the country to seek friendship with the East. The worsening of relations with the EU and USA precipitated into declining foreign direct investment (FDI) and donor assistance inflows from Western countries and therefore resulted in Zimbabwe seeking for alternative partners such as Iran, India as well as the People’s Republic of China (Edinger and Burke, 2008).

Following the establishment of formal relations between Zimbabwe and China, a number of Zimbabwean delegates including the President have made visits to China to explore ways in which the two countries can cooperate. The visit by President Mugabe in 2014 culminated in the signing of US$4 billion worth of deals and the historic visit by the Chinese President Xi Jinping in December 2015. Since their cooperation, several of the agreements which Zimbabwe and China have signed seem to be almost similar to the cooperation arrangements that China has established with other African states and presumably result from ad hoc initiatives generated by both sides. (Edinger and Burke, 2008).

In light of the issues highlighted above, this paper seeks to explore Zimbabwe’s growing trade relationship with China through analyzing the potential economic impacts of a Zimbabwe-China Free Trade Agreement (FTA) considering that the trade relations between the two countries has been on the increase since 2001.
1.1 Background to the study

1.1.1 Zimbabwe’s Trade Policy

Zimbabwe exercises trade policy options in line with regional and international obligations. It grants tariff preferences under bilateral, regional and multilateral trade agreements [Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA), World Trade Organisation (WTO)] to which it is a signatory. With respect to its trade with China, there is no special trade policy that governs trade between Zimbabwe and China, but to a larger extent the two countries seem to pursue liberal trade policies through their membership in the World Trade Organization (WTO). This situation, to some (lesser or larger?) extent disadvantages the two countries’ benefits from trade as other countries enjoy extra benefits from bilateral trade agreements outside the WTO. Zimbabwe has a number of bilateral Trade Agreements (PTAs) with a number of countries in the region and beyond. It is also part of the tripartite free-trade area (TFTA) encompassing the COMESA, SADC and East African Community (EAC) that was launched in 2015. In addition, the country is also negotiating the comprehensive EPA with the EU and it is one of the Eastern and Southern Africa (ESA) countries that have ratified an interim Economic Partnership Agreement (EPA) with the European Union (EU) following the expiry of the Cotonou agreement.

Zimbabwe’s average simple average rates of its preferential tariffs range from 0.2% (SADC, excluding South Africa) to 11.4% (South Africa) (WTO, 2011). The country grants at least most-favoured-nation (MFN) treatment to all its trading partners, including those that are not WTO members. According to the WTO (2015), its simple average applied MFN for agricultural products is 23.8% whilst for non-agricultural products is 15%. The heavily protected products are agricultural products with bound rates of 150% and applied average rates ranging between 4 and 47% whilst non-agricultural products are less protected.

1.1.2 China’s Trade Policy

China’s applied MFN tariffs are mainly ad valorem rates and these constitute about 99.5% of the total number of tariff lines and the balance of 0.5% is comprised of specific and alternate rates, and formula duties (WTO, 2014). Since 2009, the average applied MFN rate has not significantly changed from 9.4% as it is currently at 9.5%. Currently, agricultural products attract a higher applied rate of 14.8%, which is slightly lower than the averages for 2009 and 2011 (WTO, 2014). Since 2009, the average applied tariff on non-agricultural products has remained unchanged at 8.6%. As part of supporting local production, China imposes export taxes on certain products, and quotas or even bans on others.

China offers unilateral preferential treatment to Least Developing Countries (LDCs) and since 2013 it has lowered duties to zero on 95% of tariff lines for imports from LDCs that have diplomatic ties and have completed an exchange of notes with China (WTO, 2014). Zimbabwe as non LDC does not benefit from the Chinese preference scheme for Africa. In the absence of a preferential trade agreement with China and the inability to benefit through China’s preference scheme for Africa, Zimbabwe products faces MFN applied duties that ranges from 4.3% for wood and paper products to 28.7% for sugars and confectionary products. Appendix 2 shows China’s MFN applied duties ranges.

1.1.3 Zimbabwe-China Trade Performance

Since 2001, China has emerged to be an important trade partner for Zimbabwe and statistics have shown that China is now among the top five trading partners for Zimbabwe. Figure 1 shows trends in Zimbabwe’s trade with China between 2001 and 2015.

Figure 1 show that during the period 2001 to 2011, Zimbabwe’s total bilateral trade with China rose from US$125 million in 2001 to US$557 million in 2011 fell to US$439 million in 2012 and rose to US$469 million in 2013. During the same period (2001-2013), imports from China rose from US$20 million in 2001 to US$438 million in 2013 and exports have actually decreased from their 2001 level although marginal increases were noticed in 2010 when exports rose to US$237 million. Since 2014, total trade between Zimbabwe and China has declined. The decline in exports to China might be attributed to falling commodities
Assessing potential economic costs and benefits from a Zimbabwe-China Free Trade Agreement

1.1.4 Structure of Zimbabwe-China Trade
Zimbabwe’s exports to China are largely raw materials, whereas imports from China are mainly consumer products and increasingly capital goods. During the period 2001-2013, Zimbabwe exports to China were comprised mainly of beverages and tobacco, crude materials and miscellaneous manufactured articles. Imports from China consisted of machinery and transport equipment, manufactures classified mainly by material, chemicals and miscellaneous manufactures of articles. The composition of bilateral trade flows with China have however fed concerns about deindustrialization and become an issue in Zimbabwe’s engagement with China.

1.1.5 Zimbabwe’s Exports to China
Available data from the ITC\(^1\) show that Zimbabwe’s exports to the world economy rose from about $1.2 billion in 2001 to about $2.7 billion in 2015. The country’s exports to China have decreased from $104 million in 2001 to about $4 million in 2015 although in between the period 2001 to 2015 there were some years when exports increased beyond the 2001 level. Between 2010 and 2011, exports to China surged to US$237.3 million and US$186.2 million, respectively driven mainly by exports of tobacco and manufactured tobacco substitutes. The composition of Zimbabwe’s exports to China is not as diversified as its imports from China. These products are spread over agricultural products, crude materials, precious stones and metals. This trend is not compatible with the industrialisation aspiration of the country of exporting value added products.

1.2 The Research Issue and Objectives
Since independence in 1980, Zimbabwe has enjoyed strong trade relations with many developed nations particularly the European Union (EU), United States of America, Canada and many others. Most of

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\(^1\) International Trade Centre
Zimbabwe’s trade with these countries is governed by various bilateral, regional and multilateral trade agreements. Although, trade relations between Zimbabwe and these countries have lasted for decades, the developmental impact of these trade relations is contestable as Zimbabwe has not benefited much from the relationship besides the exploitation of its resources by the latter. Zimbabwe, just like other African countries argued that the utilization rates of the preferential agreements which developing countries had with most developed countries have been lower due to supply side bottlenecks and smart protectionism by the developed nations (Manchin, 2005).

Following the resurgence of some Asian countries especially China, many African countries including Zimbabwe have begun to diversify their markets to these countries (Pigato and Tang, 2015). China, as an emerging trade partner has created incentives to trade with African countries through increased foreign direct investment (FDI) and aid. In the early 2000s, Zimbabwe adopted the ‘Look East Policy’ as a way of countering the perceived ‘hostility’ it claimed to have received from Western countries. As a result, the relationship between Zimbabwe and China broadened further to incorporate economic and social cooperation which then culminated in the two countries signing a number of bilateral agreements covering areas such as investment and aid (Brautigam, 2011). China has upped its bid to institutionalize its relationship with Africa, Zimbabwe included, and therefore it will not be surprising to see in the near future the two countries negotiating an FTA modeled along the various agreements which Zimbabwe had with Western countries or modeled along the Economic Partnership Agreements (EPAs) with the EU. The possibility of such a development taking place calls for a careful and detailed analysis of the potential impact which an FTA between Zimbabwe and China will have on the economy of Zimbabwe. Besides, it is important to determine whether the pattern of trade relations between the two countries is compatible with Zimbabwe’s industrial development aspirations as outlined in the Industrial Development Policy of 2011-2016. In addition, it will be important for Zimbabwe to clearly interrogate the likely effects of such a trade agreement in order to avoid a repeat of the various trade agreements which the country had with a number of countries including the EU where the former had not really benefited in terms of increasing exports and diversifying production.

In order to avoid unnoticeable or contestable impact of bilateral trade agreements such as those described earlier, the critical issue to be addressed is whether Zimbabwe should enter into an FTA with China or not. This is important to determine whether or not to intensify trade flows between the two countries through bilateral trade agreements. The objective of this study is therefore, to analyse potential economic benefits and costs from an FTA between China and Zimbabwe. Specifically, it examines the potential economic gains and losses generated by trade agreements through tariff reduction schemes between the two countries, paying particular attention to the magnitude and sectoral distribution.

The study derives its motivation from the gaps in the literature in that most studies that have assessed the impact of trade relations between China and Africa have mainly focused on Africa or Sub-Saharan Africa (SSA), neglecting the country-specific developmental impacts of trading with China. Besides, the literature on this subject matter is dominated by aggregate descriptive analysis on past trade and investment relations and are limited by paucity of data with little policy lessons for future engagements. For example, in the case of Zimbabwe some of the studies that have been done include Edinger and Burke (2008) and Chun (2014). These are all dominated by aggregate descriptive analysis on past trade and investment relations. No study has ever attempted to analyse potential economic benefits from trade agreements between China and Zimbabwe.

2. LITERATURE REVIEW ON THE POTENTIAL EFFECTS OF AN FTA
2.1 Theoretical Literature Review
Free trade agreements (FTAs) can generate a number of positive and negative effects on the economies of the member countries as well as on the rest of the world. These effects fall into two major groups: changes on the patterns of trade of member countries (the static effects in Viner’s customs union theory) and structural change of production in the member countries (dynamic effects).
The analysis of the economic impact of free trade agreements gets its theoretical basis from the work of Jacob Viner in 1950, Meade (1955) and Lipsey (1957). Before Viner’s model was developed, the world’s perception was that FTAs were welfare enhancing. Viner’s model was important because it demystified this mythos, showing that an FTA could also have negative impacts on welfare. The model remains important as an analytical framework because it lays out some conditions that determine when an FTA will be harmful. This section considers the theoretical effects of such arrangements, and the theoretical foundations of empirical models that can be employed to estimate the potential economic effects of FTAs.

2.1.1 Viner’s Model (1950)
According to the Viner’s model, preferential trade agreements can generate both positive and negative impacts to the participating countries. This is because FTA can have both trade creation and trade diversion effects to the participating countries. In Viner’s spirit, the economic effects of preferential trade agreements can be summarized on the export and import sides (WTO, 2011). On the export side, an FTA will result in improved market access and preferential advantages when the agreement gives exporters in FTA partner countries preferential advantages relative to imports from third world countries which would otherwise not exist if liberalization were carried out in a non-discriminatory multilateral fashion.

On the import side, the effects are ambiguous as preferential trade agreements can result in trade creation or trade diversion effects in the importing country and the overall effect will then depend on whether trade creation effect is greater or less than the trade that would have been diverted. Trade creation refers to welfare change due to the replacement of higher cost domestic production and or higher cost imports by lower-cost imports and this welfare enhancing. Trade diversion refers to welfare change due to the replacement of imports from a low cost source by imports from a higher cost source due to the preferential arrangements and is welfare decreasing.

In summary, Viner’s theory specifies that countries are encouraged to enter into an FTA if the process is likely to result in more gains than losses. The work by Viner iss important in showing that customs unions and free trade areas are not always welfare-enhancing and may even lower global economic welfare, however, in its simple form the theory is incomplete. The theory focused mainly on the short-run effects of regional integration and failed to provide a convincing rationale why countries enter into such arrangements. Subsequently, Viner’s analysis was modified and added to by relaxing some of the more limiting assumptions on which it rested, preparing the way for a deeper understanding of the integration process. In particular, the understanding of how integration affects countries can be strengthened by the incorporation of economies of scale and terms of trade effects, which Viner had largely ignored. This was demonstrated by Lipsey (1958) who analysed the effects on the member countries assuming the small-union context. Lipsey (1958) made use of Meade’s three-good framework which focused on the effects of preferential trading on the world welfare. Viner’s model was criticized by Meade (1955) when an FTA leads to misallocation of the world’s resources. According to Meade (1955), the Vinerian argument may only hold when demand is inelastic and supply is perfectly elastic. In the event that demand is more elastic an FTA result in an increase in the volume of trade even though there is trade diversion and this effect was named “trade expansion”. Meade (1955) suggested that trade diversion in this case may not be that harmful and should therefore be added to the traditional Viner analysis of trade creation and diversion.

2.1.2 The Structural Change Theory
The dynamic effects of regional integration relate to the numerous means by which the FTA may influence the rate of growth of output both at the sectoral and aggregate levels (Balassa, 1961). In addition to trade creation, trade diversion, and trade expansion, the Structural Change Theory takes in account two additional effects, cost reduction and the trade suppression effects. The ‘cost reduction effect’ emanates from economies of scale (EoS) in production whilst the ‘trade suppression effect’ is a result of the replacement of cheaper imports from the rest of the world by more expensive domestic goods. Free trade among FTA members may
then be a necessary condition for securing such gains, but not a sufficient condition (Robson, 1987). In addition, when technology transfer is integrated into the analytical framework, the changes in productivity could lead to changes in sectoral output, and thereafter to changes in specialization and patterns of trade overtime. The launching of an FTA is expected to affect the volume of trade and foreign direct investment (FDI) which will induce changes in output growth and lead to structural change. The exposure of a country to trade and investment inflows allows the transfer of technology. Technology transfer can indeed reach an economy via three main vehicles namely: imports, learning by exporting and FDI.

2.1.3 Conclusion on the theory of FTAs

As can be seen from the review of the evolving theories, FTAs generate many effects. Given the level of development reached by Zimbabwe, an FTA with China will likely create different effects. For example, because of its low ‘absorption capacity’, Zimbabwe might not benefit from technology transfer to the same extent it would have if the absorption capacity was high. According to the Vinerian static framework, the net welfare effects accruing to the member countries of the FTA generally depend on the effects in terms of trade creation, trade diversion and trade expansion. However, when the elimination of non-tariff barriers is taken into account, trade diversion may not be welfare reducing.

In a dynamic framework, an FTA can be viewed only as a necessary condition for securing the gains among the member countries, but it is not a sufficient condition especially when economies of scale are taken into account into the analysis. The extent to which further gains can be realised as a result of technology transfer depends on a number of factors and macroeconomic policies in the host economy. World Bank (2000) also identifies a number of other “nontraditional effects” such additional effects of FTAs as enhanced security, increased bargaining power in international fora, as well as greater political stability associated with “locking in” domestic policy reforms. Moreover, the abolition of trade restrictions in an FTA between a developing and a developed country may also signal to the world that the former is ready and able to face competition from the latter. These effects are not as easily quantified as the more traditional ones and are thus often neglected in empirical studies. Yet, this does not mean that nontraditional effects are not substantial. By focusing exclusively on quantifiable impacts, empirical estimations can be expected to fail to capture the overall impact of an FTA.

2.2 Empirical Literature Review

To date, a number of studies have been done to analyse trade relations between China and Africa as a whole and with individual African countries. However, none of these African-based studies examined the potential costs and benefits from FTAs with China. Premised on this, it could be stated that there is dearth of studies on the impact of FTAs between African countries and China.

Mai et al (2005) did a study to model the potential benefits of an Australia-China FTA using the computable general equilibrium model. The study concluded that for both Australia and China, the FTA yields increased output and is welfare enhancing as enhanced. The FTA improved the competitiveness of the Chinese manufacturing sector through a reduction in the costs of intermediate inputs and also improved Australia’s terms of trade. The study results by Mai et al, (2005) were confirmed by Syquia (2007), Siriwardana and Yang (2008), and the Centre for International Economics (2009) who performed quantitative analyses of the economic effects of an Australia-China FTA.

Bhattacharya and Bhattacharyay (2007) examined the gains and losses of India-China trade cooperation using trade intensity index and a gravity model. The study reveals that India and China possess a significant bilateral trade potential which remains untapped. Also, it notes that in the short run, India’s potential gain from the trade relations is relatively lower than that of China due to the fact that it imposes high tariffs. However, in the long run, India’s gains are higher than China as soon as its tariff levels were reduced to

\textsuperscript{2} structural change refers to changes in sectoral output and thereafter in the patterns of trade among the member countries

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match that of China. The results from the study support the Vinerian arguments that FTA benefits tend to be higher the higher the initial import tariffs although there are endogeneity problems that arise due to the use of the gravity model especially when there are zero-trade flows.

Using the Global Trade Analysis Project (GTAP) and SMART models, Ahmed (2010) investigated the sectoral dimensions of the India-ASEAN FTA as a result of tariff liberalization. The study showed that both India and ASEAN would gain in terms of welfare while the terms of trade for India would deteriorate. The study revealed that in India the most affected products include processed food, grain crops, textiles and wearing apparel, light manufacturing goods and heavy manufacturing sectors. ASEAN’s exports of processed food items, and agricultural and fisheries products were likely to increase, which could have an adverse impact on employment and wages among the Indian working class. The study also found that the FTA would adversely affect India’s trade balance and cause fiscal revenue losses.

Cattaneo (2000) assessed the impact of the Southern African Development Community (SADC) FTA on the individual members of SADC. Study findings were that the FTA will have significant trade creation effects and in some cases very little or no trade diversion effects on some countries. The study also illustrated that, in consumer goods sectors, assumptions of excess capacity and equal elasticity of substitution between imports from SADC and the rest of the world (ROW) and between imports and domestic production in the Regional Trade Model for Southern Africa (RTMSA) seems to exaggerate the likely trade creation effects of a SADC FTA.

COMESA (2014) carried out eleven individual country studies using the Tariff Reform Impact Simulation (TRIST) to assess the effects of concluding an EPA with EU on eleven Eastern and Southern African countries that included Comoros, Djibouti, Sudan, Eritrea, Ethiopia, Madagascar, Malawi, Mauritius, Seychelles, Zambia and Zimbabwe. The results from the studies showed that EPAs will result in low to medium losses in total government revenue and displacement of local production by products from the EU in all the ESA countries covered in the studies.

For Zimbabwe, a number of studies (Scollay, 2002; COMESA Secretariat, 2003; Ndlela and Tekere, 2003; Busse et al., 2004; Karingi et al., 2005) concluded that EU EPAs will result in losses in total revenue, decline in the domestic output of some sectors which will also lower employment in those sectors. Overall, the studies concluded that EPAs will have negative impact on macro-economic growth. Results from the COMESA studies correspond with other studies that have employed partial equilibrium models that EU exporters are likely to benefit from EPAs as their exports to ACP countries will increase significantly following trade liberalisation under EPAs.

Rattso and Torvik (1998) carried out a study to assess the impacts of trade liberalization in Zimbabwe under the Economic Structural Adjustment Programme (ESAP). The study found out that Zimbabwean economy was adversely affected by trade liberalization as it resulted in contraction in output, loss of employment, increased imports and widening trade deficit.

It is clear from the theoretical literature review that the theory supporting trade liberalisation and in particular the conclusion of FTAs is very much a theory in the making. Overally, the literature tends to suggest that preferential agreements are most likely to produce benefits if they are wide in scope (including the elimination of tariff as well as non-tariff barriers) and if they go hand in hand with measures designed to facilitate trade and to promote cross border competition.

3. METHODOLOGY
This study uses a partial equilibrium model based on the System of Market Analysis and Restrictions of Trade (SMART) model, embedded in World Integrated Trade Solution (WITS) data retrieval system. The SMART model has been used to analyse the impacts of MFN tariff cuts on trade values by Yeats (1994), Jachia and Teljeur (1999), Milner et al (2005), Institute of Economic Affairs (2008), Karingi and Fekadu (2009) and Makochekanwa (2012, 2014).
The analytical tool applied in this study is based on the standard partial equilibrium framework that assumes dynamic effects to be constant. The assumptions made allow trade policy analysis to be undertaken one country at a time. The two main advantages of the partial equilibrium models are the minimal data requirements and provision of analysis at a fairly disaggregated level. The exposition of the WITS/SMART theorys summarized below is based on Laird and Yeats (1986).

3.1 Trade Creation (TC)
The trade expanding aspects of liberalisation that leads to the displacement of inefficient producers in a given preferential trading area are captured by trade creation. The analysis assumes full transmission of price changes when tariff distortions are eliminated. Laird and Yeats (1986) derived equation 1 which can be used to estimate the trade creation effects.3

\[ TC_{ijk} = \eta_{ij}^m M_{ijk} \left( \frac{(1 + t_{ijk}^1) - (1 + t_{ijk}^0)}{1 + t_{ijk}^0} \right) \]  

(1)

Where:
• \( TC_{ijk} \) is the sum of the value of trade created in dollars over \( i \) commodities affected by tariff change and
• \( \eta_{ij}^m \) is the elasticity of import demand for commodity \( i \) in the importing country from the relevant trading partner.
• \( M_{ijk} \) is the current level of import demand of the given commodity \( i \).
• \( t_{ijk}^0 \) and \( t_{ijk}^1 \) represent tariff rates for commodity \( i \) at the initial and end periods respectively.

Equation 1 therefore shows that the value of trade created as a result of an FTA depends on the current level of import demand, the elasticity of import demand and the relative change in tariff.

3.2 Trade Diversion (TD)
Unlike trade creation, trade diversion can reduce or increase trade globally. Trade diversion would take place, if as a result of the FTA, more efficient suppliers of the rest of the world into Zimbabwe are replaced by less efficient Chinese ones or conversely. Laird and Yeats (1986) explain the theory underlying the measurement of trade diversion in SMART. Equation 2 presents the trade diversion effect.

\[ TD_{ijk} = \left( \frac{M^{Ch} M^{RoW} \left( 1 + t_{CoW}^1 \right) - 1}{1 + t_{CoW}^0} \right) \frac{\delta_m}{\left( 1 + t_{CoW}^0 \right)^2} \]  

(2)

Where:
• \( TD_{ijk} \) is trade diversion on commodity \( i \) imported from country \( k \) (China) into country \( j \) (Zimbabwe);
• \( M^{Ch} \) and \( M^{RoW} \) represent current imports into Zimbabwe from China and Rest of the World, respectively
• \( t_{CoW}^0 \) and \( t_{CoW}^1 \) refer to pre and post integration tariffs on imports from China; and
• \( \delta_m \) is the elasticity of substitution between Chinese and RoW imports into Zimbabwe.

3 The derivation of the model are shown in the appendices
From equation (2), it can be noted that trade diversion is a function of the current level of imports from China and RoW, the percentage change of tariffs facing Chinese imports with those for RoW remaining unchanged and the import elasticity of substitution from the two sources.

3.3 Net Trade Effect
The net trade effect (TE) of the FTA is a summation of total trade creation and trade diversion and represented as:

\[ TE = TC + TD \]  

(3)

3.4 Revenue Effect (RE)
In theory, the tariff revenue is found by computing the product of the tariff rate and the value of imports. The net revenue effect (RE), which is the differential of total revenue with respect to import price and volume of imports after the change in tariff is given by:

\[ R_o = \sum \sum t_{ikb}^0 p_{ikb} M_{ikb} \]  

4)

When the tariff rate changes, the new revenue collected will be given by:

\[ R_1 = \sum \sum t_{ikb}^1 p_{ikb} M_{ikb} \]  

5)

The revenue loss as a result of the implementation of a FTA would then be the net effect between \( R_1 \) and \( R_0 \) which is the same as:

\[ RL = \sum \sum \Delta t_{ikb} p_{ikb} M_{ikb} \]  

6)

3.5 Welfare Effect (WE)
The net welfare effect for the FTA member countries is found by summing up consumers’ and producers’ surplus. The consumers in the importing country benefit as a result of lower import prices and this will then result in an increase in consumer welfare and is measured as follows:

\[ W_{ijk} = 0.5(\Delta t_{ijk} \Delta M_{ijk}) \]  

(7)

From equation (7), 0.5 is the coefficient that captures the average between the ad valorem occurrence of the trade barriers before and after their elimination/reduction. In equation (7), the elasticity of export supply is assumed to be infinite otherwise, the import prices in the importing countries fall by less than the full reduction in trade barriers. As a result, in as much as equation (7) can be used to measure welfare effect, it can no longer factor in consumer surplus alone but now has some element of producer surplus (Laird and Yeats, 1986).

3.6 Data Sources
The data for this study was obtained from the WITS which draw its data from United Nations Commodity Trade Statistics Database (UN COMTRADE) and Trade Analysis and Information System (TRAINS) databases. The base year that was used for the SMART model is 2015. This is because it is the latest base year that is available from the system. The COMTRADE Database contains detailed imports and exports statistics reported by statistical authorities of close to 200 countries or areas.

3.7 Simulation Design
This paper explores the impacts of a full trade liberalization scenario that looks into the effects of an FTA in which the partner countries eliminate all tariffs involving trade amongst them. This could also be entirely
consistent with the General Agreement on Tariffs and Trade (GATT) Article XXIV calling FTA member countries to exchange preferences involving ‘substantially all trade’. The analysis is done at HS6 level of disaggregation since it is the highest level of disaggregation for which internationally comparable data can be publicly available.

4. FINDINGS AND RESULTS DISCUSSION
In this section, the results of the simulations using the WITS/SMART partial equilibrium model are discussed, under the assumption of a full reciprocity and full liberalization scenario.

4.1 Trade creation impact
Table 5 shows trade creation simulated results for total removal of import tariffs between the two countries. As shown in table 5, Zimbabwe will gain US$44.39 million in terms of trade creation as a result of the FTA with China. The products in which the country is expected to gain the most include Human hair, dressed, thinned, bleached or otherwise worked (670300) (US$2.84 million), diesel or semi-diesel ignition internal combustion piston engines (870210) (US$1.98 million) and Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles, of any material (961900) (US$1.62 million). The top 10 products with the highest trade creation effects accounts for US$12.84 million or 28.9% of the total trade to be created across all the products. Dominance of some of these products in terms of trade created is not a surprise given that these are some of the products in which China has a competitive advantage and are the same products which attracts high tariff rates in Zimbabwe. The products with high trade creation currently attracts between 10% and 40% duty rate.

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Description</th>
<th>Applied Duty Rate (%)</th>
<th>Import share (%)</th>
<th>Trade Creation (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Human hair, dressed, thinned, bleached or otherwise worked</td>
<td>40</td>
<td>0.03</td>
<td>2.84</td>
</tr>
<tr>
<td>2</td>
<td>With compression-ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>38.75</td>
<td>1.31</td>
<td>1.98</td>
</tr>
<tr>
<td>3</td>
<td>Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles, of any material</td>
<td>17</td>
<td>1.29</td>
<td>1.62</td>
</tr>
<tr>
<td>4</td>
<td>g.v.w. not exceeding 5 tonnes</td>
<td>34</td>
<td>1.39</td>
<td>1.60</td>
</tr>
<tr>
<td>5</td>
<td>(2007-) — Other</td>
<td>10</td>
<td>1.60</td>
<td>0.85</td>
</tr>
<tr>
<td>6</td>
<td>Grinding balls and similar articles for mills</td>
<td>25</td>
<td>1.66</td>
<td>0.84</td>
</tr>
<tr>
<td>7</td>
<td>Of a kind used on buses or lorries</td>
<td>15</td>
<td>1.60</td>
<td>0.82</td>
</tr>
<tr>
<td>8</td>
<td>Bicycles and other cycles (including delivery tricycles), not motorised.</td>
<td>20</td>
<td>0.57</td>
<td>0.82</td>
</tr>
<tr>
<td>9</td>
<td>Parts</td>
<td>10</td>
<td>1.85</td>
<td>0.75</td>
</tr>
<tr>
<td>10</td>
<td>Other</td>
<td>18.33</td>
<td>1.01</td>
<td>0.73</td>
</tr>
<tr>
<td>Other Products</td>
<td></td>
<td></td>
<td></td>
<td>31.55</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>44.39</td>
</tr>
</tbody>
</table>

Source: Authors’ WITS simulation
4.2 Impact on consumer’s surplus
The WITS SMART model allows us to evaluate the total impact of the FTA on welfare as it captures the effects of liberalization on consumer surplus. In order to obtain a complete view of the impact on welfare, it is also necessary to address the effects on producers. Table 6 displays the Harmonized system chapters (HS6) yielding the highest welfare gains for Zimbabwe. The results show that the group of products yielding the highest gains for consumers are human hair (870210), dressed, thinned, bleached or otherwise worked (13.82%); followed by diesel or semi-diesel ignition internal combustion piston engines (11.07%) and g.v.w. not exceeding 5 tonnes (9.48%). Not surprisingly, our simulations show that taking into consideration only the effect on consumer welfare, Zimbabwean consumers should benefit greatly from trade liberalization. They will be able to purchase Chinese consumer goods at cheaper prices. Indeed, with full trade liberalization with China, the total improvement in Zimbabwean consumer welfare would equal US$3.721 million per year (Table 6).

Table 6: Impact of full liberalization on consumer welfare in Zimbabwe by product (in US$m)

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Description</th>
<th>Welfare in US$m</th>
<th>Welfare Changes (%)</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Human hair, dressed, thinned, bleached or otherwise worked;</td>
<td>0.514</td>
<td>13.82</td>
<td>13.82</td>
</tr>
<tr>
<td>2</td>
<td>ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>0.412</td>
<td>11.07</td>
<td>24.89</td>
</tr>
<tr>
<td>3</td>
<td>g.v.w. not exceeding 5 tonnes</td>
<td>0.353</td>
<td>9.48</td>
<td>34.37</td>
</tr>
<tr>
<td>4</td>
<td>Tobacco, partly or wholly stemmed/stripped</td>
<td>0.155</td>
<td>4.16</td>
<td>38.53</td>
</tr>
<tr>
<td>5</td>
<td>Tableware and kitchenware</td>
<td>0.086</td>
<td>2.30</td>
<td>40.84</td>
</tr>
<tr>
<td>6</td>
<td>Ceramic tableware, kitchenware, other household articles and toilet articles,</td>
<td>0.083</td>
<td>2.23</td>
<td>43.07</td>
</tr>
<tr>
<td>7</td>
<td>Grinding balls and similar articles for mills</td>
<td>0.076</td>
<td>2.05</td>
<td>45.12</td>
</tr>
<tr>
<td>8</td>
<td>Bicycles and other cycles</td>
<td>0.075</td>
<td>2.01</td>
<td>47.12</td>
</tr>
<tr>
<td>9</td>
<td>Outer soles and heels, of rubber or plastics</td>
<td>0.064</td>
<td>1.72</td>
<td>48.84</td>
</tr>
<tr>
<td>10</td>
<td>Granite</td>
<td>0.061</td>
<td>1.64</td>
<td>50.49</td>
</tr>
<tr>
<td></td>
<td>Other products</td>
<td>1.842</td>
<td>49.51</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td><strong>ALL PRODUCTS</strong></td>
<td><strong>3.721</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors’ WITS simulation*

4.3 Impact on exports
By providing duty free access to a Chinese consumer market with over 1.3 billion individuals, the FTA will stimulate Zimbabwean exports to China by 21.07%. The simulations show that this expansion would primarily concern the light manufactures which include g.v.w not exceeding 5 tonnes which will increase by 61.8%, ignition internal combustion piston engines (58%), sanitary towels (45%) and bicycles and other cycles (35.5%). It is important to note that an FTA with China will unlock market opportunities for these products considering that these are the sectors where Zimbabwean products are currently facing high tariffs (WTO, 2015). Amongst the products that will experience a surge in exports to China is tobacco, which is among the most important agricultural products in Zimbabwe. Study results indicate that the Zimbabwe-China FTA will result in Zimbabwe tobacco exports to China increasing by 253%. This will further enhance the welfare in Zimbabwe since China is among the countries that buy Zimbabwe tobacco at high prices.
### Table 7: Impact of full liberalization on Zimbabwe’s exports to China (in US$ millions)

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Description</th>
<th>Exports Before (US$m)</th>
<th>Exports After (US$m)</th>
<th>Change in Export (US$m)</th>
<th>Percentage Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>870421 — g.v.w. not exceeding 5 tonnes</td>
<td>6.30</td>
<td>10.20</td>
<td>3.90</td>
<td>61.84</td>
</tr>
<tr>
<td>2</td>
<td>870210 — With compression-ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>5.92</td>
<td>9.41</td>
<td>3.49</td>
<td>58.87</td>
</tr>
<tr>
<td>3</td>
<td>961900 Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles.</td>
<td>5.85</td>
<td>8.49</td>
<td>2.64</td>
<td>45.15</td>
</tr>
<tr>
<td>4</td>
<td>871200 Bicycles and other cycles (including delivery tricycles)</td>
<td>2.56</td>
<td>3.47</td>
<td>0.91</td>
<td>35.50</td>
</tr>
<tr>
<td>5</td>
<td>854370 Other machines and apparatus</td>
<td>1.05</td>
<td>1.62</td>
<td>0.57</td>
<td>53.87</td>
</tr>
<tr>
<td>6</td>
<td>240120 Tobacco, partly or wholly stemmed/stripped</td>
<td>0.21</td>
<td>0.76</td>
<td>0.54</td>
<td>253.60</td>
</tr>
<tr>
<td>7</td>
<td>100610 — Rice in the husk (paddy or rough)</td>
<td>7.60</td>
<td>8.13</td>
<td>0.53</td>
<td>6.93</td>
</tr>
<tr>
<td>8</td>
<td>870410 Dumpers designed for off-highway use</td>
<td>3.48</td>
<td>3.95</td>
<td>0.47</td>
<td>13.48</td>
</tr>
<tr>
<td>9</td>
<td>940540 Other electric lamps and lighting fittings</td>
<td>1.06</td>
<td>1.50</td>
<td>0.43</td>
<td>40.53</td>
</tr>
<tr>
<td>10</td>
<td>950300 Tricycles, scooters, pedal cars and similar wheeled toys; dolls’ carriages; dolls; other toys;</td>
<td>0.70</td>
<td>1.09</td>
<td>0.40</td>
<td>56.67</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>67.62</td>
<td>73.88</td>
<td>7.71</td>
<td>11.40</td>
</tr>
<tr>
<td></td>
<td>TOTAL (ALL PRODUCTS)</td>
<td>102.36</td>
<td>122.49</td>
<td>21.57</td>
<td>21.07</td>
</tr>
</tbody>
</table>

**Source:** Authors’ WITS simulation

### 4.4 Impact on Zimbabwean Tariff Revenues

In a full liberalization scenario, an FTA with China would significantly reduce Zimbabwean tariff revenues by more than US$44.68 million per year. The top ten products with significant revenue losses account for 12% of the total revenue losses. Products which will result in significant tariff revenue losses include g.v.w. not exceeding 5 tonnes (6.02%), ignition internal combustion piston engine (5.98%) and Grinding balls and similar articles for mills (4.19%). Nevertheless, in terms of evaluating the FTA for Zimbabwe, it is important to note that the revenue lost as a result of liberalization will adversely affect other government programmes. Combining this effect with the regional integration implications of the FTA, some questions arise as the picture portrayed seems to go beyond the arguments of the traditional trade theories. It is therefore critical that an analysis of the real weight of such a loss of revenue on government finance be conducted. If the FTA entails full liberalization of Chinese imports, Zimbabwe would have to forgo tariff revenues amounting to almost 13.86% of their tariff revenue. It is worthwhile noting that the revenue loss shown by the study simulations relates to imports tariff revenues. It is also important to note that some indirect taxes such as the Value Added Tax (VAT) are levied on the increased imports resulting from new trade created in Zimbabwe. As such, the revenue loss effect will be minimized as long as the FTA results in increased imports on which VAT will be levied upon. This will offset the loss in revenue and therefore reduce the effect of revenue losses. This however depends on whether the elasticity of the VAT and indirect taxes is significantly higher than that for import duties. In that case, it is unlikely that the additional indirect tax revenues will adequately compensate for the lost import tariff revenue. Table 8 shows the effects of trade liberalization on tariff revenue in Zimbabwe.
Table 8: Impact of full liberalization on tariff revenue losses in Zimbabwe (millions of US$)

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Description</th>
<th>Change in Tariff Revenue in US$ million)</th>
<th>Percentage Change in Tariff Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 870421</td>
<td>g.v.w. not exceeding 5 tonnes</td>
<td>-2.69</td>
<td>6.02</td>
</tr>
<tr>
<td>2 870210</td>
<td>With compression-ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>-2.67</td>
<td>5.98</td>
</tr>
<tr>
<td>3 732591</td>
<td>Grinding balls and similar articles for mills</td>
<td>-1.87</td>
<td>4.19</td>
</tr>
<tr>
<td>4 401100</td>
<td>Of a kind used on motor cars (including station wagons and racing cars)</td>
<td>-1.32</td>
<td>2.95</td>
</tr>
<tr>
<td>5 401120</td>
<td>Of a kind used on buses or lorries</td>
<td>-1.12</td>
<td>2.51</td>
</tr>
<tr>
<td>6 961900</td>
<td>Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles.</td>
<td>-1</td>
<td>2.24</td>
</tr>
<tr>
<td>7 842121</td>
<td>For filtering or purifying water</td>
<td>-0.6</td>
<td>1.34</td>
</tr>
<tr>
<td>8 730820</td>
<td>Towers and lattice masts</td>
<td>-0.58</td>
<td>1.30</td>
</tr>
<tr>
<td>9 100610</td>
<td>Rice in the husk (paddy or rough)</td>
<td>-0.58</td>
<td>1.30</td>
</tr>
<tr>
<td>10 871200</td>
<td>Bicycles and other cycles (including delivery tricycles), not motorised.</td>
<td>-0.52</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>-31.73</td>
<td>71.02</td>
</tr>
<tr>
<td>ALL PRODUCTS</td>
<td></td>
<td>-44.68</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Authors’ WITS simulation

4.5 Impact on third countries
The FTA between Zimbabwe and China will affect not only on trade between these two countries, but also on Zimbabwe’s trading relationships with other countries. The results show that the country from which most trade will be diverted will be South Africa (US$23.23 million) which is Zimbabwe’s largest trading partner. The FTA will also have marginal adverse effects on the other Southern African countries which include Mauritius (US$0.39 million), Malawi (US$0.33 million) and Zambia (US$0.33 million) (Table 9).

Table 9: Impact of full liberalization on Zimbabwe trade with African countries (in US$ millions)

<table>
<thead>
<tr>
<th>Partner Country</th>
<th>Total Trade Diversion (US$ millions)</th>
<th>Partner Country Trade Diversion as Percentage of Total Imports (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 South Africa</td>
<td>-23.23</td>
<td>1.01</td>
</tr>
<tr>
<td>2 Mauritius</td>
<td>-0.39</td>
<td>0.81</td>
</tr>
<tr>
<td>3 Zambia</td>
<td>-0.33</td>
<td>0.12</td>
</tr>
<tr>
<td>4 Malawi</td>
<td>-0.33</td>
<td>0.73</td>
</tr>
<tr>
<td>5 Egypt</td>
<td>-0.28</td>
<td>2.06</td>
</tr>
<tr>
<td>6 Botswana</td>
<td>-0.24</td>
<td>0.44</td>
</tr>
<tr>
<td>7 Mozambique</td>
<td>-0.17</td>
<td>0.10</td>
</tr>
<tr>
<td>8 Tanzania</td>
<td>-0.14</td>
<td>1.23</td>
</tr>
<tr>
<td>9 Kenya</td>
<td>-0.08</td>
<td>0.68</td>
</tr>
<tr>
<td>10 Namibia</td>
<td>-0.02</td>
<td>0.08</td>
</tr>
<tr>
<td>Rest of World</td>
<td>-34.90</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Source: Authors’ WTIS simulation
Results from the study also show marginal decreases in Zimbabwe trade with countries outside the Southern African region. Countries likely to suffer from Chinese competition comprise mainly Asian and European countries. These countries include Hong Kong China which will lose US$1.56 million worth of exports to Zimbabwe which is about 1.73% of its 2015 exports to Zimbabwe. Other countries likely to have their exports to Zimbabwe displaced by Chinese exports to Zimbabwe include Japan, India, United Arab Emirates and the United Kingdom which will lose US$1.41 million, US$1.31 million, US$0.91 million and US$0.89 million respectively (Table 10).

Table 10: Impact of full liberalization on Zimbabwe trade with other countries outside the Southern African Region (in US$ millions)

<table>
<thead>
<tr>
<th>Partner Country</th>
<th>Total Trade Diversion (US$ millions)</th>
<th>Partner Country Trade Diversion as Percentage of Total Imports (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hong Kong China</td>
<td>-1.56</td>
<td>1.73</td>
</tr>
<tr>
<td>2 Japan</td>
<td>-1.41</td>
<td>1.09</td>
</tr>
<tr>
<td>3 India</td>
<td>-1.31</td>
<td>0.55</td>
</tr>
<tr>
<td>4 United Arab Emirates</td>
<td>-0.91</td>
<td>1.1</td>
</tr>
<tr>
<td>5 United Kingdom</td>
<td>-0.89</td>
<td>0.90</td>
</tr>
<tr>
<td>6 United States</td>
<td>-0.51</td>
<td>0.73</td>
</tr>
<tr>
<td>7 Singapore</td>
<td>-0.45</td>
<td>0.03</td>
</tr>
<tr>
<td>8 Germany</td>
<td>-0.27</td>
<td>0.75</td>
</tr>
<tr>
<td>9 Korea, Rep.</td>
<td>-0.24</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Source: Authors’ WTIS simulation

The risk that countries affected by trade diversion, retaliate (negative response) is likely insignificant. For a country like South Africa which is the most concerned country in terms of trade diverted by Chinese imports into Zimbabwe, the loss of export represents only 1.01% of the total South African exports to Zimbabwe. For Mauritius, the corresponding percentage is 0.81% and for Zambia, it is 0.21%. However, this does not mean that South Africa and other affected countries will accept in the future negotiations with Zimbabwe trading conditions which would be less favourable than those which would have been granted to China.

The partial equilibrium results show that the products where trade diversion will be greatest include g.v.m not exceeding 5 tonnes, used motor vehicles, sanitary pads and internal combustion piston engines. It is interesting to note that with the exception of g.v.m not exceeding 5 tonnes, all the other products are South African manufactured. Furthermore, these South African products which are to be displaced by Chinese products are already zero rated under the SADC Trade Protocol and this somehow suggests the competitiveness of Chinese products. The products where trade diversion is greatest products are very crucial for Zimbabwe’s industrialisation as well as the development of its regional partners. Liberalising trade with China will be a blow to the ongoing regional integration initiatives in SADC and COMESA where countries have committed themselves to promote development in the region through expanded intra-regional trade.
Table 11: Most vulnerable products to trade diversion in case of Zimbabwe-China FTA

<table>
<thead>
<tr>
<th>Partner Name</th>
<th>Product Code</th>
<th>Product Description</th>
<th>Trade Diversion Effect (US$ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>870421</td>
<td>— g.v.w. not exceeding 5 tonnes</td>
<td>-1.02</td>
</tr>
<tr>
<td>South Africa</td>
<td>401110</td>
<td>— Of a kind used on motor cars (including station wagons and racing cars)</td>
<td>-0.95</td>
</tr>
<tr>
<td>South Africa</td>
<td>870421</td>
<td>— g.v.w. not exceeding 5 tonnes</td>
<td>-0.89</td>
</tr>
<tr>
<td>South Africa</td>
<td>961900</td>
<td>Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles, of any material.</td>
<td>-0.80</td>
</tr>
<tr>
<td>South Africa</td>
<td>870210</td>
<td>— With compression-ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>-0.71</td>
</tr>
<tr>
<td>South Africa</td>
<td>732591</td>
<td>— Grinding balls and similar articles for mills</td>
<td>-0.64</td>
</tr>
<tr>
<td>South Africa</td>
<td>730820</td>
<td>— Towers and lattice masts</td>
<td>-0.49</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>870210</td>
<td>— With compression-ignition internal combustion piston engine (diesel or semi-diesel)</td>
<td>-0.39</td>
</tr>
<tr>
<td>South Africa</td>
<td>401120</td>
<td>— Of a kind used on buses or lorries</td>
<td>-0.33</td>
</tr>
<tr>
<td>South Africa</td>
<td>392330</td>
<td>— Carboys, bottles, flasks and similar articles</td>
<td>-0.27</td>
</tr>
</tbody>
</table>

Source: Authors’ WITS simulation

4.6 Net trade effect (TE).
The simulated results show that trade liberation between Zimbabwe and China will yield a net positive trade effect of US$9.5 million. This implies that liberalisation of trade between Zimbabwe and China will be beneficial for Zimbabwe. These results contradict the findings from a study by COMESA (2014) which found out that trade liberalisation with the EU under the EPAs will have negative consequences for the economy. A possible explanation for the different results could be that for trade liberalisation with EU, there are limited benefits for Zimbabwe as the country was already enjoying zero duty under the Generalised System of Preferences. This is different from China where the country is currently facing high tariffs for most products (WTO, 2015).

5. CONCLUSIONS AND POLICY IMPLICATIONS
The article analyzed the potential impacts on exports, imports, tariff revenue and the overall welfare in Zimbabwe of a Zimbabwe-China FTA using the WITS?SMART Model. Specifically, it examined the relative gains and losses to be generated by the trade agreement through tariff reduction between the two countries. Analysis of tariff structure indicates that tariff rates are higher in Zimbabwe than in China for all major traded products; however, the applied MFN rates in both Zimbabwe and China on most products have been falling, this is attributed to a number of factors including recent trade and investment ties between China and Zimbabwe and the liberal trade policies pursued by the Zimbabwean government.

Empirical results show that close to $44.39 million worth of new trade will be created with China while around $34.9 million trade will be diverted resulting in a positive net trade effect of $9.49 for Zimbabwe. The results also suggest that Zimbabwe will lose around $44.68 million in tariff revenue following removal of import duties on imports from China. A reciprocal tariff reduction by 100% by both China and Zimbabwe will lead to a rise in Zimbabwe’s exports of a number of products particularly Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles; tobacco, partly or wholly stemmed/stripped and some manufactured products. Overall, an FTA between Zimbabwe and China will result in positive trade effect of US$9.5 million. Thus the results from the study lead us into rejecting the hypothesis that an FTA between Zimbabwe and China will negatively affect Zimbabwe’s economy.
With regards to policy suggestions, the study finds that the implementation of the Zimbabwe-China FTA will lead to losses in tariff revenues, which contribute a significant proportion of fiscal resources in Zimbabwe. Clearly, if Zimbabwe is going to commit itself to trade liberalization with China, it will have to come up with a new fiscal revenue base to compensate for the loss in tariff revenue. The country might need to shift from dependency on trade and focus on raising revenue from other non-trade tax sources. Mechanisms need to be put in place to tighten the collection of VAT and excise taxes on all imports not only from China but from the rest of world.

Study results highlighted that the FTA will have adverse effects on employment in Zimbabwe as increased imports from China will displace local production. To address net welfare losses related to employment displacement, it is recommended that production and employment adjustment programs and skill development and productivity enhancement activities be undertaken. These will be critical in facilitating the movement of labour from the affected sectors of the economy into those sectors where output will be growing as a result of the FTA. To ensure that maximum benefits are derived from the removal of tariff barriers, it is also critical that the tariff removal be accompanied by policies that remove other non-tariff barriers. In most cases, it has been noted that a number of countries have resorted to the use of what has been termed ‘smart protectionism’ which raises the cost of doing business and normally reflected through high commodity prices.

Zimbabwe’s export of primary products to China and China’s export of manufactured products to Zimbabwe is incompatible with Zimbabwe’s industrialisation aspiration. Therefore, Zimbabwe needs to increase its exports to China by encouraging strategic manufacturing and exporting to that country. Thus, the existing export incentive schemes should be reviewed to make them more effective and country-oriented by considering a bilateral trade agreement. In effect, Zimbabwe should cultivate non-reciprocal preferential trade agreements with China and increase exports to the Chinese markets by promoting the production of these commodities’ output for export in the immediate and medium-term. Since a free trade agreement is inevitable in the long-term the state of economic infrastructure in the country requires great improvement to ensure adequate and regular power supply to reduce cost of production and high transactions cost generally. This is likely to change the pattern of trade between Zimbabwe and China, currently dominantly inter-industry.

REFERENCES
Assessing potential economic costs and benefits from a Zimbabwe-China Free Trade Agreement

Institute of Economic Affairs, Nairobi.


APPENDICES

Appendix 1: Zimbabwe Tariffs and Imports by Products

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Final Bound Duties</th>
<th>MFN Applied Duties</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AVG</td>
<td>Duty free in %</td>
<td>AVG</td>
</tr>
<tr>
<td>Animal Products</td>
<td>150</td>
<td>0</td>
<td>30.1</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>150</td>
<td>0</td>
<td>27.9</td>
</tr>
<tr>
<td>Fruit, vegetable, plants</td>
<td>139</td>
<td>3.8</td>
<td>29.1</td>
</tr>
<tr>
<td>Coffee, tea</td>
<td>139.6</td>
<td>0</td>
<td>32.7</td>
</tr>
<tr>
<td>Cereals &amp; Preparations</td>
<td>148.4</td>
<td>0</td>
<td>21.2</td>
</tr>
<tr>
<td>Oilseeds, fats and oils</td>
<td>146</td>
<td>0</td>
<td>11.3</td>
</tr>
<tr>
<td>Sugars &amp; Confectionary</td>
<td>150</td>
<td>0</td>
<td>13.2</td>
</tr>
<tr>
<td>Beverages and tobacco</td>
<td>150</td>
<td>0</td>
<td>53.6</td>
</tr>
<tr>
<td>Cotton</td>
<td>105</td>
<td>30</td>
<td>4.0</td>
</tr>
<tr>
<td>Other Agricultural products</td>
<td>124.7</td>
<td>0</td>
<td>9.3</td>
</tr>
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<td>Fish and fish products</td>
<td>4.7</td>
<td>78.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Mineral and Metals</td>
<td>11.8</td>
<td>3.6</td>
<td>12.8</td>
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<tr>
<td>Petroleum</td>
<td>—</td>
<td>—</td>
<td>22.2</td>
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<tr>
<td>Chemicals</td>
<td>18.4</td>
<td>0</td>
<td>7.4</td>
</tr>
<tr>
<td>Wood, paper etc</td>
<td>12.2</td>
<td>0</td>
<td>17.2</td>
</tr>
<tr>
<td>Textiles</td>
<td>26.4</td>
<td>0</td>
<td>16.7</td>
</tr>
<tr>
<td>Clothing</td>
<td>—</td>
<td>—</td>
<td>66.8</td>
</tr>
<tr>
<td>Leather, footwear etc.</td>
<td>5</td>
<td>0</td>
<td>22.5</td>
</tr>
<tr>
<td>Non-electrical machinery</td>
<td>8.9</td>
<td>0</td>
<td>5.9</td>
</tr>
<tr>
<td>Electrical Machinery</td>
<td>3.3</td>
<td>76.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>12.5</td>
<td>0</td>
<td>12.6</td>
</tr>
<tr>
<td>Manufactures n.e.s</td>
<td>20.4</td>
<td>0</td>
<td>16.5</td>
</tr>
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</table>

### Appendix 2: China’s Tariffs and imports by product Groups

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Final Bound Duties</th>
<th>MFN Applied Duties</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AVG in %</td>
<td>AVG in %</td>
<td>Duty free in %</td>
</tr>
<tr>
<td>Animal Products</td>
<td>14.9</td>
<td>14.1</td>
<td>14.2</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>12.2</td>
<td>12.1</td>
<td>0</td>
</tr>
<tr>
<td>Fruit, vegetable, plants</td>
<td>14.9</td>
<td>14.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Coffee, tea</td>
<td>14.9</td>
<td>14.7</td>
<td>0</td>
</tr>
<tr>
<td>Cereals &amp; Preparations</td>
<td>23.7</td>
<td>22.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Oilseeds, fats and oils</td>
<td>11.1</td>
<td>10.4</td>
<td>9.1</td>
</tr>
<tr>
<td>Sugars &amp; Confectionary</td>
<td>27.4</td>
<td>28.7</td>
<td>0</td>
</tr>
<tr>
<td>Beverages and tobacco</td>
<td>23.2</td>
<td>22.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Cotton</td>
<td>22</td>
<td>18</td>
<td>10.0</td>
</tr>
<tr>
<td>Other Agricultural products</td>
<td>12.1</td>
<td>11.2</td>
<td>8.5</td>
</tr>
<tr>
<td>Fish and fish products</td>
<td>11.0</td>
<td>10.5</td>
<td>5.0</td>
</tr>
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<tr>
<td>Petroleum</td>
<td>5.0</td>
<td>4.5</td>
<td>21.1</td>
</tr>
<tr>
<td>Chemicals</td>
<td>6.9</td>
<td>6.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Wood, paper etc</td>
<td>5.0</td>
<td>4.3</td>
<td>36.2</td>
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<td>Textiles</td>
<td>9.8</td>
<td>9.5</td>
<td>0</td>
</tr>
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<td>Clothing</td>
<td>16.1</td>
<td>16.0</td>
<td>0</td>
</tr>
<tr>
<td>Leather, footwear etc.</td>
<td>13.7</td>
<td>12.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Non-electrical machinery</td>
<td>8.5</td>
<td>7.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Electrical Machinery</td>
<td>9.0</td>
<td>8.1</td>
<td>24.7</td>
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<tr>
<td>Transport Equipment</td>
<td>11.4</td>
<td>11.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Manufactures n.e.s</td>
<td>12.2</td>
<td>11.6</td>
<td>10.4</td>
</tr>
</tbody>
</table>

*Source: WTO World Tariff Profiles, 2015.*
Appendix 3

The derivation begins with the following basic trade model composed of simplified import demand and export supply:

The import demand functions for country \( j \), from country \( k \) of commodity \( i \) can be expressed as follows:

\[
M_{ijk} = f(Y_j, P_{ij}, P_{ik}) \tag{1}
\]

Where

- \( M_{ijk} \) is country \( j \)'s imports of commodity \( i \) from country \( k \).
- \( P_{ij} \) is the domestic price of commodity \( i \) in country \( j \).
- \( Y_j \) is country \( j \)'s income.
- \( P_{ik} \) is the domestic price of commodity \( i \) in country \( k \).

In this study, country \( j \) will be Zimbabwe whilst \( k \) will be China. The export supply function of commodity \( i \) of China to Zimbabwe can therefore be shown as follows:

\[
X_{ijk} = f(P_{ijk}) \tag{2}
\]

Where \( X_{ijk} \) is country \( j \)'s exports of commodity \( i \) to country \( k \).

The trade between the two countries in a partial-equilibrium model at equilibrium is given as:

\[
M_{ijk} = X_{ijk} \tag{3}
\]

In a free trade environment, the domestic price of commodity \( i \) in country \( j \) (Zimbabwe) from country \( k \) (China) would change with the change in an ad valorem tariff as follows:

\[
P_{ijk} = P_{ijk}(1 + t_{ijk}) \tag{4}
\]

Therefore the export revenues earned by country \( k \) are given by:

\[
R_{ijk} = X_{ijk} \cdot P_{ijk} \tag{5}
\]

To come up with the trade-creation formula, the price equation (4) is differentiated totally to:

\[
dP_{ijk} = P_{ijk} dt_{ijk} + (1 + t_{ijk})dP_{ijk} \tag{6}
\]

The elasticity of import demand equation is given by:

\[
\frac{\Delta M_{ijk}}{M_{ijk}} = \eta_{ij} \frac{\Delta P_{ijk}}{P_{ijk}} \tag{7}
\]

Substituting equations (4) and (6) into the elasticity of import demand equation gives

\[
\frac{dM_{ijk}}{M_{ijk}} = \eta_{ij} \left[ \frac{dt_{ijk}}{(1 + t_{ijk})} + \frac{dP_{ijk}}{P_{ijk}} \right] \tag{8}
\]

From the identity in equation (3), \( \frac{dM_{ijk}}{M_{ijk}} = \frac{dX_{ijk}}{X_{ijk}} \) can be used to derive the following expression for elasticity of export supply:

\[
\frac{dP_{ijk}}{P_{ijk}} = \frac{1}{Y_j} \frac{dM_{ijk}}{M_{ijk}} \tag{9}
\]

which when used in equation 6 allows the computation of the trade creation effect. From equation (3), the trade creation effect is equivalent to exporting country \( k \)'s growth of exports of commodity \( i \) to country \( j \):
Assessing potential economic costs and benefits from a Zimbabwe-China Free Trade Agreement

If , then equation (9) can be simplified as follows:

\[
TC_{ij} = \eta_i^{\alpha} M_{ij} \left( \frac{(1 + t_{ij}^0 - (1 + t_{ij}^1)}{(1 + t_{ij}^1)} \right)
\]

Where:

- \( TC_{ij} \) is the sum of the value of trade created in dollars over \( i \) commodities affected by tariff change and
- \( \eta_i^{\alpha} \) is the elasticity of import demand for commodity \( i \) in the importing country from the relevant trading partner.
- \( M_{ij} \) is the current level of import demand of the given commodity \( i \).
- \( t_{ij}^0 \) and \( t_{ij}^1 \) represent tariff rates for commodity \( i \) at the initial and end periods respectively.
ABSTRACT

This article reflects on the contribution of externally fostered processing and marketing of selected non-timber forest products (NTFPs) in marginal districts of Zimbabwe and assesses the opportunities and challenges encountered by rural people as they become part of the production and marketing chain of these products. The contribution of the NTFPs processing and marketing to rural household income and food security is assessed vis-à-vis the poor who are largely collectors of raw materials. The study findings show that rural people as collectors and producers of the products such as baobab, marula nuts, mopane worms and masau and honey are part of the lower levels of the value chain and do not control the process since the role of NGOs in the value chain remains central. Community producers do not understand the NTFP marketing system and heavily rely on intermediaries and NGOs who are knowledgeable and have information and connections with the NTFPs markets. Thus, they remain delinked to the end user or consumer of the products they produce, despite generating income from the marketing of the products. The study conducted in Muzarabani, Gokwe and Mwenezi districts shows that without the intermediaries and supporting NGOs, the processing and marketing of NTFPs is not likely to continue as it remains a new livelihood activity externally fostered. However, despite the delink between producers and the markets, there is evidence of positive contribution to household income although sustainability questions remain unanswered. The markets exist but are beyond the reach of the producers, without the intermediaries, the markets do not exist. At the policy level, community producers should be capacity-built beyond production to be active high level market participants in the value chain.

Key Words: Non-Timber Forest Products, marketing value chain, poor producers, income generation, markets, food security, technologies, and livelihoods

1. INTRODUCTION

This article assesses the contribution of externally fostered non-timber forest products (NTFPs) processing and marketing to household income, based on the position of rural producers in marginal districts along the marketing chain. The study also brings out the role of rural producers of selected products such as baobab pulp and oil, marula oil, honey, masau and mopane worms from three districts of Zimbabwe (Gokwe, Muzarabani and Mwenezi) in the marketing of the NTFP products. The article also brings out the role being played by intermediary players, particularly private companies and non-governmental organisations in the production and marketing of NTFPs and how this is affecting the role of producers and the overall returns to communities. The study used a triangulation of qualitative research methods including in-depth interviews, focus group discussions and observations. This study contributes to the understanding of the externally fostered evolution of the rural economy with a very abstract market-based system. The study also contributes to the understanding of the inequalities that exist in the new marketing system of non-agricultural products.

1.1. Objectives of the Study

The objective of this study was to unravel the contribution of externally fostered NTFPs marketing to household income in marginal areas of Zimbabwe. The study also brings out the marginal role played by rural community producers in the market value chain. The article also questions the sustainability of the production and marketing of NTFPs in a market value chain with multiple players including intermediaries.
1.2. The problem statement
Despite the successful commercialisation of NTFPs in the areas under study, supported by non-governmental organisations and intermediary organisations, the rural poor collectors and harvesters of the products remain peripheral in the market value chain and are only reduced to consumers of the processing by-products. The marketing of the products to international markets remain largely controlled by intermediary players in the value chain. Thus, despite income being generated, producers remain peripheral in the market value chain and income is not significant and this renders the production and marketing of NTFPs unsustainable.

2. UNDERSTANDING NTFPS PRODUCTION AND MARKETING
Non-Timber Forest Products (NTFPs) have fuelled many debates over the past two decades as resources for survival and poverty alleviation, particularly in marginal areas where agriculture does not do well. FAO (1993) defined NTFPs as non-wood forest products which include all goods of biological origin, as well as services derived from forest or any land under similar use, and exclude wood in all its forms. Newman and Hirsch (2000) argue that economics drives rainforest destruction as local people clear forests for various livelihood activities. Over the past 15 years, conservation groups and local communities looked for innovative ways to counteract these pressures and have fought back with market based strategies. This is one of the reasons that has prompted the analysis of the contribution of NTFP products to household income, given the role of rural producers in the market value chain.

As argued by Newman and Hirsch (2000), the development of enterprises based on the extraction of sustainably harvested non-timber forest products became one of the strategies of conserving the forests through production and marketing of the NTFPs but with little attention being given to the profits that the rural producers are likely to generate from a market they do not have control over.

Some NTFPs have high poverty alleviation potential because markets exist for them and many people make use of them. Padoch (1993) in his study of NTFPs marketing in Bolivia contends that there are various socio-economic factors that may render some subsistence NTFPs to become commercial and some commercial NTFPs to become subsistence within different time scales. He further shows that this creates some dynamism in the production and marketing of NTFPs. Campbell et al. (2002), however, observed that there was a positive economic viability of NTFPs production and trade with the increasing interest in natural ingredients in the treatment of diseases in the developed world.

However, the study falls short of showing the contribution of income generated from the trading in NTFPs to household livelihoods, given the role and positioning of producers in the market value chain. Campbell (2002) is convinced that rural producers, particularly in Zimbabwe, remain poor as they do not benefit from the value of the products they produce, as the products move through the market chain to the end user. The study shows that this situation is created by lack of information, low value addition and poor competition in the market place. Adding value to what local producers are already selling can generate higher revenues without increasing off-take of natural resources.

Newman and Hirsch (2000) are of the view that markets for NTFPs are not easy as they argue that if markets were perfect, then forests would be valued differently and NTFPs might be easier. They do not doubt that rural producers of NTFPs face numerous market failures and barriers to entry in commercialising their products. The first are classic market failures, that is, lack of capital and information. Producers may have immediate access to products in which the market has great interest but firms and producers usually do not know about each other and face huge investment costs in bridging the gap. Pimentel et al. (1997) similarly show that creating strong markets for NTFPs involves working along the entire length of the value chain from the forest to the end. She contends that building financially healthy enterprises in the middle of the forest without running water or electricity, is fairly a daunting task.
2.1. Product Selection and Technology use

Clark and Sunderland (2004) correctly point out that NTFP product selection should make the best economic sense for the producers over the long term. Selection of products based on particular clients makes producers totally dependent on a single buyer. Edwards (1996) shares the same view as he indicates that to have the real value, products must have a market and it must be possible to commercialise them. He believes that improving the value chain for existing products is important. In most rural areas, the harvesting, production and marketing of most products is not always done efficiently. When linking producers with the market, a realistic assessment should be made of the markets’ needs, the producers existing production capacity and the economic and ecological time pressures. To Edwards (1996), as one travels along the value chain processing, marketing and distribution, strategies become more complex hence, making it difficult for the poor to manoeuvre.

Sauter et al (2008) view NTFP production technologies as critical in adding value as producers working without conventional sources of energy and requisite technologies need to be creative in gaining efficiencies and reducing costs in their production systems. High costs may reduce opportunities of generating significant income. Thus, any NTFP requires investment in innovative harvesting and production technologies to increase product competitiveness and bring greater benefits to the producer. According to Newman and Hirsch (2000), the expectations of local income generation potential have frequently been unrealistic and not achievable in practice.

2.2. NTFPs Marketing Value Chains

Malleson (2001) asserts that a value chain describes the full range of activities required to bring the product from the producer to the consumer, emphasising the value that is realised and how it is commercialised. Different literatures use the terms supply, value and marketing chain. Supply chain is favoured by economists to highlight issues of competitiveness (Malleson, 2001). The sociological literature tends to use value chain when examining the relationships between actors. Where products are traded internationally, the term global value chain is used, the analysis of which is concerned with how lead firms go about setting up and maintaining production and trade networks (Kanti, 1997).

To Padock (1993a), value chains include at least two separate functions that are production through collection and then sale of the product. Most value chains require some combination of processing, storage, transport and marketing of NTFPs. In most cases, the role of the producer, processor and trader are quite different. Sauter et al. (2008) indicate that in the value chain, there is collection, management and transportation of the wild resource from the harvesting site to the home, along the value chain, identifying and developing good market niches, and then sale, often between several sets of actors in the value chain. Sauter et al (2008) warn that in NTFPs, it would be a misconception to think of value chains as simple linear sequences of activities. Most value chains closely resemble networks in which many activities, such as storage and transport, are repeated several times by different people and at different locations before the final product reaches the end consumer.

Newman & Hirsch (2000) note that analysis of value chains is required for the design of appropriate policies and development interventions, which are often based on the assumption that the poor and politically powerless extractors suffer from high levels of exploitation by intermediaries.

In the value chain, processors and intermediary traders tend to make higher profits than community collectors, except when processing is occurring at community level. In the value chain, income and access to credit, as well as level of education, is higher for NTFP traders than collectors (Clark and Sunderland, 2004). Most traders are from outside the producing communities or are members but staying outside their communities. Thus, very few poor NTFP collectors and producers are able to move along the value chain and become traders. FAO (1993) shows that in NTFP trading, traders can only make a reasonable return if they trade high volumes for which financial capital to buy, store and transport the product is needed.
Lack of information in the value chain keeps local producers of NTFPs in weaker positions to traders. Cavendish et al. (1997) contend that only a more transparent marketing chain would enable the local producers to be aware of monthly price information from key points in the marketing chain. To Cavendish et al. (1997), a sound knowledge of all producers, buyers, sellers, importers, exporters, brokers and agencies, among others, in the marketing chain would enable local producers to have a stronger bargaining power with traders. Mater (1993) shows that NTFP marketing has been largely ignored in research and management partly due to their geographical fragmentation and lower dollar returns per unit of labour time.

2.3 Contributions of NTFPS to Household Income
Cavendish et al. (1997) observe that NTFP-based incomes in livelihood vary greatly between products and communities and that there is also a great deal of variation in productivity, between households. The study shows that some households may barter their NTFPs for household goods rather than being paid in cash. Gondo (2007) is of the opinion that NTFP- derived income is supplementary to more important farm and non-farm income generating activities. A study by Flynn (2001) in Bolivia shows that NTFP activities are carried out on a regular basis often in the non-agricultural season and contribute between 7-79% of cash income to the household. There is no doubt from Cavendish’s (2000) study that NTFPs are a source of cash income in subsistence communities where families often have no other cash generating opportunities. Campbell et al. (2002) in theirs study in Chivi district of Zimbabwe, approximated that about one third of rural household income has been estimated to come from NTFPs with the proportion higher in poorer households. McGregor’s (1995) study in the same district shows that about 15% of the non-timber forest products contribute to the household income and the household’s value per year is US$99.00 per season. McGregor is convinced that NTFPs help bridge the seasonal gaps in income and food. In Zimbabwe, in recent years, the dependence on NTFPs has relatively increased due to the prevailing weak micro- economic system. The same conditions affect the role played by community level producers in the value chain and also affects the income generated from the sale and ultimate contribution to household income.

3. STUDY METHODS
A triangulation of qualitative research methods was used for the study. A total number of 32 interviews with 32 different key informants and six focused group discussions (FGDs), each with an average of 15 people giving a total 90 participants were carried out. Sampling of the 32 interviewees and 90 FGD participants was purposive and convenient, aimed at targeting those known key stakeholders and participants involved in the collection and marketing of selected NTFPs supported by non-governmental organizations involved in the promotion of NTFPs.

The study purposively targeted officials from various stakeholders such as key informants (six NGO officials from SAFIRE and Plan International, seven ward councillors, two officers from Phyto Trade, a private company involved in the processing and trading of NTFPs locally and internationally, three officials from three rural councils, three officials from Forestry Commission and eight traditional leaders). Specific interview guides for the key informants were developed to gather specific information regarding their roles and control of resources. This method also gathered data with regards to the sustainability of the production and marketing of NTFPs beyond external support from NGOs.

A total of six Focus Group Discussions (two FGDs in each district) with an average of 15 participants (men and women) were conducted largely with rural producers of marula, baobab and mopane products. Focus group discussion guides were also developed and the data gathered was triangulated with findings from interviews. Group discussions gathered data on insights into the roles played by community producers, opportunities and the challenges they are facing in the NTFP production and marketing. Participants in FGDs also suggested what they thought could be done differently for the producers to have a key role in the value chain and marketing of NTFP products, given the nature of the work and labour requirements in the collection and processing of the products.
4. FINDINGS AND DISCUSSION

4.1 Externally Fostered Commercialization of Non-Timber Forest Products

According to FAO (1987), small-scale rural enterprises were seen as a major source of livelihood in developing countries as the capacity for agriculture declined. FAO observed that small forest-based activities, mostly in dry districts, accounted for a substantial proportion of the total income of rural populations in developing countries. This corroborates the study findings on the commercialisation of non-timber forest products, which show that non-timber forest products play an important complementary role to agricultural production in semi-arid districts. The role of non-timber forest products was more noticeable during periods of food deficit and considerable income was generated to purchase maize and other basics for food security. The intervention was aimed at enhancing dry communities’ benefits through the development, production, expansion and marketing of non-timber forest products in areas of marginal agricultural potential.

Although findings show that it is a challenging task to convert poor rural smallholder farmers who are largely dependent on agriculture into small-scale entrepreneurs producing non-timber forest products for consumption and food security; smallholder farmers had no choice but to co-operate with supporting NGOs. SAFIRE officials highlighted that a lot of investment is needed to develop marketable products, identify and develop markets for the products, ensure production capacity and linking them to private partners for sustainability and growth. However, this is the challenging part of this intervention that is largely dominated by NGOs. Specific sub-interventions focused on product development and improvement, natural products technology development and production, market identification and marketing, and capacity building of poor people as well as natural resource management, to ensure sustainable harvesting to avoid depletion.

Below is a summary of specific interventions under entrepreneurship based on commercialisation of non-timber forest products.

4.2 Product Development and Improvement

For NGO officials, product development is a continuous process involving exploratory, development and improvement work even after commercialisation of the product. The process involves considerable investment in equipment and highly skilled personnel to conduct regular reviews of the product performance, production systems and technology performance. During the past decade, a number of products were developed and marketed at both local and international markets to generate cash income for rural people to buy cereals for food security.

i) Marula products

Marula (sclerocarya birrea) trees are found in abundance in most semi-arid regions of Zimbabwe. The fruit is usually eaten fresh, and has edible nuts. People crack the nuts to eat the kernel inside. Before commercialisation, there were only two ways to consume them but now there are three major products that are developed from marula, for both local consumption and marketing.

Marula jelly, made from ripe marula fruit pulp, is developed for food security at community level. The fruit is picked from the forest, the skin is removed and the fresh pulp extracted. The pulp is then cooked with sugar to produce the jelly, which is used mostly for feeding children. This is convenient to produce at the community level because sugar is the only addition.

In Mwenezi district, 11,258 households were trained by SAFIRE and PhytoTrade technical personnel to produce the jelly for household consumption during the period 2007-2013. In Muzarabani, a further 11,643 households benefited from the same intervention during the same period.

The fresh fruit is also used to produce marula jam for sale and for household consumption. Rural people pick the fruit and sell it to Specialty Foods of Africa, a company based in Harare that specialises in the commercialisation of wild fruit products. However, not all people were engaged in harvesting, processing and marketing of the natural products, but only certain target groups were noted to have adopted the activity.
It emerged in the Participatory Rural Appraisals (PRA) sessions that the commercialisation process was not very popular because rural people found that the proceeds from selling fresh fruit to Specialty Foods of Africa were too low to be attractive. People preferred to consume the fruit in the form of jelly for food security purposes.

*Marula oil* is the third marula product. It is extracted from the nut for both commercialisation and local consumption. SAFIRE links various households from producing communities to Specialty Foods for commercial purposes. SAFIRE has qualified food scientists who test and develop products from wild fruits in an endeavour to commercialise and to increase various products for rural people to benefit. Marula crude oil was developed for the purposes of local household consumption since very few rural households can afford to buy conventional cooking oil from the local stores. The crude oil product observed is thick and has more residues from processing and is recommended for household consumption by local people.

The oil can further be processed to reduce the residue. This improves its quality by removing impurities and facilitates its use as edible oil as well as lengthening its shelf-life and, making it more viable for marketing, according to an interviewed food scientist from SAFIRE. The refined marula oil generates more income if sold at international markets. The SAFIRE product development officer indicated that the oil attracted a number of international and local markets after further purification.

Government officials from the Department of Natural Resources indicated that the products are only meant for commercial purposes, because the final quality product is too expensive for local communities and the markets are international and beyond the reach of the local poor from marginal areas. The government assists with the quality control of the products before they are sold on the international market. Marula oil production is very labour intensive, particularly marula nut cracking to access the kernel inside. These products are developed by skilled people from NGOs based in Harare and then brought to rural communities. This process takes away the ownership of the product development from the community. Community beneficiaries are largely trained in areas of production that are not the actual development of the product. During the period 2007 to 2013, 1800 people were trained in Mwenezi and Muzarabani for production to a point but had no idea of how the products were further developed. The majority of these people produced crude marula oil on a small scale for their own household consumption and marketing.

*Marula butter* is a by-product of marula oil processing. It comes from the residue that remains after marula kernel pressing for oil production. This product is developed for local consumption at household level. The product has diversified food availability at household level as communities use it as butter on homemade bread and as a replacement for cooking oil. More than 125,000 households, according to statistics from SAFIRE, benefit from the consumption of marula butter, either directly or indirectly in communities where marula oil production takes place.

**ii) Baobab Products**

Baobab interventions were aimed at income generation for the rural poor. Three products (baobab oil, baobab cake and baobab pulp) were developed for commercialisation in Muzarabani district since 2005 because of the area's high density of baobab trees. A number of by-products such as baobab flavoured yoghurt and chocolate were developed from baobab pulp with support from SAFIRE in partnership with Specialty Foods of Africa.

Baobab oil was extracted from baobab seeds with an oil pressing machine developed and procured from ATA, a technology development centre in Harare, and distributed to local producing communities. However, unlike the marula oil, baobab oil is not recommended for home consumption because it is believed to have side effects on the reproductive system of human beings if consumed in excess. Health and nutrition officials from the Ministry of Health and Child Care indicated that the oil, if consumed continuously, would cause sterility, especially among men.
The baobab oil producers sell baobab oil to local people for consumption despite health warnings, and generate their own income for other livelihood activities. On a commercial basis, the oil is used in the cosmetics industry. SAFIRE collects large quantities of oil produced by rural communities and sells it to international markets in Europe and Asia on their behalf. Based on statistics from SAFIRE, large quantities of baobab oil are produced in the dry districts including others not covered by this study, intended for export to Australia, France, Switzerland and India. Findings also show that the product requires high hygienic standards during production to meet the quality standard required for international markets.

**Baobab pulp**, the second product from the baobab fruit, is the main product from the tree consumed by rural people. Baobab pulp is used for cooking porridge in rural areas without necessarily generating income. This has added more value and a different dimension to how rural people benefit from the common natural product that they have been using for many years. Rural communities were provided with a crushing machine for free by SAFIRE and a separation machine that separates pulp from seed. This technology increased the uptake of baobab commercialisation in rural communities.

Well sieved pulp from selected quality baobab cobs is packed into 10kg or 20kg bags, mainly for a local market. To SAFIRE officials, baobab pulp is used for producing infant porridge and in children’s homes in Zimbabwe. Since 2007, baobab pulp has been used to produce baobab flavoured yoghurt, a product formulated by the Dairy Development Programme in association with SAFIRE and community producers. The yoghurt is produced from a mixture of milk and pulp and other additives for preservation and colouring. This product increased the range of the baobab pulp market for rural people.

In 2007 a new baobab product, the bao-bar chocolate, was developed from baobab pulp mixed with different cereals or nuts, such as crisped rice, roasted oats, dried apricot, syrup, sesame seeds and other additives. The new product was developed by SAFIRE and Specialty Foods for Africa to increase the range of baobab products, create a new demand and expand the market for the baobab pulp for rural people to remain in business. The product has been commercialised and community producers are now marketing the baobab pulp to Specialty Foods of Africa for baobab chocolate production.

**Baobab cake**, the fourth baobab product, is the residue left after pressing the baobab for oil. It is used for cattle feed, mainly in semi-arid districts. After a vigorous marketing strategy by Specialty Foods for Africa, commercial livestock farms buy the cake from the community producers and this has become a key livelihood activity for the producers in the communities involved.

### iii) Mopane Worm

Findings show that a variety of insects are widely used across Zimbabwe and form an important part of many rural people’s diet. Among these insects is the caterpillar that feeds on the mopane tree leaves, known as the mopane worm. It is found in most semi-arid districts but has been commercialised only in Mwenezi and Muzarabani districts. The mopane worm, according to community participants, is a delicacy for rural people, and is becoming increasingly so in urban areas.

The interventions focus on value addition through the improvement of the quality of the mopane worm for marketing locally, nationally and regionally. The quality of processed mopane worms has improved over the past eight years through processing and packaging, including canning. The trade in mopane worms, according to the interviews, is now worth several thousand USD a year. However, during plenary discussions, community participants indicated that the mopane worm breeds unpredictably and most of the value is captured by mobile, large-scale traders rather than poor local communities because middlemen buy in large quantities at low prices from local harvesters and processors.

Specialty Foods of Africa in Harare is the largest buyer of the mopane worm for canning and marketing, which requires controlled drying and processing. The improvement and marketing of this product increased the levels of harvesting and processing of mopane worms, mainly by children and women, as a key livelihood activity.
iv) **Honey Production and Processing**

In Mwenezi and Gokwe districts, honey benefits a total of 3 206 bee-keeping farmers trained by Practical Action, an international NGO, with technical support from the Department of Agricultural Extension Services. The support developed rural technologies for improved bee keeping in partnership with German Agro-Action and Care Zimbabwe in Gokwe and Mwenezi respectively. The training, according to PRA participants, focused on honey harvesting, processing and marketing and this helped improve the quantity and quality of honey from rural communities.

Community level data shows that, on average, each farmer has a minimum of 30 Kenyan Top Bar (KTB) hives and at least 20 traditional bark hives for honey production. During the 2007 harvest season, one farmer in Gokwe produced 500kg of honey, realising about USD9 000. This shows that the intervention contributes to income generation for rural livelihood diversification.

German Agro Action officials indicated that in Gokwe, all wards benefit from honey production for income generation. A number of beekeeping associations and enterprises were established in the two districts with both government and donor support because the districts are found to be conducive for honey production. For commercialisation purposes, harvested honey is processed and packaged in clean bottles for selling locally and nationally. The various enterprises were provided with honey pressing machines to ensure that quality honey without residue would be acceptable for sale, generating income for other livelihood activities such as procuring inputs for agricultural production.

v) **Masau Jam and Strips**

Muzarabani district is renowned for its indigenous masau trees, which have been a source of livelihood for its inhabitants for years. They grow naturally and the seeds are very strong and drought resistant, so they grow during the rainy season. Large tracts of the trees are communally owned but over the years, most families have privatised communal land where there are fruit trees to control the produce.

Rural District Council officials indicated that the fruit is sold in urban areas in both their fresh and dried state. The raw fruit can be sold for up to USD40 per 50kg bag in Harare. The trade is dominated by middlemen who travel to Muzarabani district to purchase the fruit at low prices and bring it for resale in urban areas where it is sold at higher prices and in smaller quantities. Although the fruit is seasonal, some farmers earn more income from the fruit than from the maize and rapoko or millet they grow for subsistence. Some farmers use the raw fruit to barter for maize, chicken, goats and even clothes with the middlemen who come to buy it.

Phiri (2003), a researcher into African fruits, estimated that Zimbabwe produces 200 000 tons of the fruit per year, but most of this is subject to post-harvest losses. In fact, over 60% is wasted due to incorrect methods of drying and storing. In an endeavour to reduce this loss, Specialty Foods of Africa developed masau strips as a new product to improve its nutritional quality, appearance and shelf-life. The masau fruit pulp is ground to produce the strips, which are dried using a solar drier. This is usually used for food security and local consumption, with limited marketing because the market for the product is not readily available, nor is it familiar.

Masau jam was easily commercialised in the local market and it is one of the products sold in most retail chain shops such as Spar and the Thomas Meikles Retail Chain Group (TM). The fruit’s skin and nut are separated from the pulp and the pulp is then made into jam with a few additives to increase its appeal and shelf-life before it is canned. PRA sessions revealed that rural people harvest fresh ripe fruit for sale to Specialty Foods of Africa for jam making, but the income is limited because they are not involved in processing the fruit into the final commercial product. The development of this product established a ready market for rural people in the district. This enabled them to generate income when the fruit is in season, usually from April to August. The challenge is that local people simply harvest the fruit and market it without adding any value, and this does not generate sufficient income for harvesters.
For successful development and commercialisation of products, appropriate technology development is required. Different processing technologies have been developed locally by different companies for non-timber forest products since the industry started in 2003. Interviews with officials in these companies revealed that the objective of technology development is to improve the processing, packaging and storage of processed products.

Concerns were raised by these officials that technology for non-timber forest products is not readily available, and requires adaptation and modification of other processing technologies. This indicates that most of the technology is modified and more time is taken in experimenting with various technologies to meet the requirements of crushing, separating and grinding specific fruit, depending on their texture. The findings show that during the past eight years, this aspect was at the centre of the production of natural products by rural communities, driven by the partnership between NGOs and the private sector. Adoption of each technology by rural communities determined the levels of commercialisation of each of the wild fruits discussed above. The following are the specific technologies developed to ensure the success of non-timber forest products in the two districts.

### 4.3.1 Natural Oil Expressing Technologies

Various oil pressing machines were observed during the study field visits. A total of 26 rural enterprises in Mwenezi and Muzarabani districts benefited from this technology. Two types of oil pressing machines were observed. The first was for marula oil, a relatively simple machine for pressing soft marula kernels. The second was for pressing baobab oil and this is a far more powerful machine because baobab seeds are much harder than marula kernels. The third machine type observed during the visits was the baobab fruit dehulling machine that separates baobab pulp from seeds.

Dehulling machines have a thick sieve that shows great resistance and low wear and tear. It has the capacity to process about 150kg of unsieved pulp per day, which produces about 145kg of clean and marketable baobab pulp. Using a manual process, ten people can produce only about 10kg of pulp per day. A SAFIRE technology expert indicated that one dehuller, operating at full capacity and maximum efficiency, can produce up to 21 750kg in six months. Based on the 2007 calculations by SAFIRE, this translates to USD32,625, assuming that raw material supply and technology performance remains constant. This demonstration shows that the development of this crushing and separating machine increased the efficiency levels of processing baobab products at an early stage.

The baobab oil pressing machine has the capacity to produce up to 15kg of crude oil per day, translating to 300kg of oil per month as they work five days per week. If the machine operates at maximum efficiency for six months, it can produce about 1,800kg of crude oil, generating a total income of USD19,800 if sold on international markets where higher prices prevail. However, officials indicated that there is a lot of training investment required for the appropriate use of these technologies at community level. The performance of the machines also depends on the entrepreneurs’ skills, availability of electricity and labour turnover in the use of the machine. These machines facilitate both baobab and marula oil production in the three study areas as well as the successful establishment of oil pressing enterprises.

### 4.3.2 Honey Production Technologies

Information from the Bee Keepers Association of Zimbabwe shows that the Kenyan Top Bar beehives were introduced to commercialise honey production, and replaced the traditional beehives made from tree bark. The new beehives have a bigger carrying capacity, make harvesting easier and allow bees to continue making honey after the harvest. In essence, they are bee-friendly. Communities were provided with honey harvesting kits such as veils, hats and smokers that do not kill bees, unlike traditional approaches that use fire during harvesting. A new honey pressing machine was also introduced for processing. The technology, though manual, produces quality honey for marketing in bigger quantities, which generates higher income.
5. MARKETS AND MARKETING OF NATURAL PRODUCTS
The natural products industry is a relatively new one at nine years. Developing the right market for the products means the industry can evolve at the community level and become viable by generating income for both livelihood options and business recapitalisation. The slow development and growth of markets is attributed to the generally slow uptake of new products by consumers who were used to agricultural and other conventional products. It was also affected by risk-averse companies reluctant to undertake new product development, as well as by low levels of disposable consumer incomes in the increasingly inflationary economy during the period under study.

Despite these challenges, statistical information collected from PhytoTrade indicates that most of the already developed and new products attract the interest of a small but growing market. The available markets were identified on behalf of the rural communities by NGOs through public exhibitions such as Zimbabwe International Trade Fairs, Harare Agricultural Shows and Travel Expos, among others, including e-marketing. The available information from the small industry shows that there are 14 markets (six international and eight national markets) excluding, individuals interested in the products.

Aldivia from France and Nature Shop from Australia are international markets for baobab oil and marula crude and refined oil, whilst Dioniso from Switzerland is a market for baobab pulp. Nationally, Specialty Foods for Africa is a market for baobab oil, marula oil and mopane worms. Makonde industries are a market for baobab pulp and Natravista for baobab and marula oil. During the intervention, particularly during the period 2008-2013, concerted efforts by different supporting stakeholders, including PhytoTrade Africa, resulted in a steady growth in demand for these oils, particularly for cosmetic purposes. During the mentioned period, the stakeholders recorded a considerable increase in the size and number of orders for oils from both international and local markets.

During the period 2008 to 2013, 3 200kg of marula and baobab oil was ordered by both international and local markets, but the producing communities only managed to produce 830kg (730kg baobab oil and 100kg of marula oil) to realise a total of USD9 530. The international market identification is disadvantageous to local communities because they are not directly linked to these markets, but are dependent on intermediary organisations. Development agencies act as intermediaries for the local communities and there are transactional costs involved when marketing the products to international markets. Community producers do not benefit as expected from the production process. Below is a summary table that shows production figures and what was ordered by the markets as well as income generated for the year 2007.

Table 1: Summary of non-timber forest product markets and revenue generated in 2012 in Mwenezi and Muzarabani Districts

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity Client</th>
<th>Quantity Ordered/kg</th>
<th>Actual in USD/kg Supplied</th>
<th>Product Price in USD/kg</th>
<th>Total Revenue generated in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baobab pulp</td>
<td>SFA, Extra care</td>
<td>200 000</td>
<td>4 874</td>
<td>1.50</td>
<td>7 311</td>
</tr>
<tr>
<td>Baobab oil</td>
<td>Nature Shop, Natravista</td>
<td>1 600</td>
<td>730</td>
<td>11.0</td>
<td>8 030</td>
</tr>
<tr>
<td>Marula oil</td>
<td>Nature Shop, Natravista</td>
<td>1 600</td>
<td>100</td>
<td>15.0</td>
<td>1 500</td>
</tr>
<tr>
<td>Mopane worms</td>
<td>SFA, Jaggers</td>
<td>17 500</td>
<td>1 270</td>
<td>2.50</td>
<td>3 175</td>
</tr>
<tr>
<td>Honey</td>
<td>Local markets</td>
<td>500</td>
<td>364</td>
<td>1.05</td>
<td>2 638</td>
</tr>
<tr>
<td>Masau jam</td>
<td>SFA</td>
<td>1 500</td>
<td>1 200</td>
<td>3.50</td>
<td>4 200</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>26 854</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: SAFIRE Marketing Statistics, 2013
The figures in the table indicate that although international markets are readily available, local communities do not meet the demand. Operational challenges that hinder production include the newness of the interventions and the fact that technology is a challenge for rural people not familiar with it. This leads to frequent break down of pressing machines.

Statistical information from PhytoTrade shows that total revenue of USD26 854 was generated within a year, benefiting 100 people. According to the Consumer Council of Zimbabwe report (2009:19), the average income for rural people in dry districts is between USD0.50 and USD1 per day. Based on these calculations, there is evidence that the intervention increased average income for beneficiaries to USD7, 10 per day. A total of USD26 854 for 100 people translates to USD2 600 per person per annum or USD213 a month. This is seven times more than the average income in the dry districts of Zimbabwe. This intervention contributed to increased income in dry areas used for procuring livelihood assets and food for immediate survival.

The failure to meet demand also indicates that, due to food deficits in semi-arid regions of Zimbabwe, most of the producers consumed what they produced for their own survival and only sold surplus. This explains why rural communities did not meet market demand. One local producer in Mwenezi pointed out that marula seed produces more oil than baobab, so people prefer to consume it and sell the surplus for income generation.

6. CONCLUSION
The study shows that the processing and marketing of NTFPs is not an old livelihood activity in rural Zimbabwe but was externally fostered by non-governmental organisations and private players to support rural producers improve their livelihoods through income generation. Significant income is generated from the marula and baobab oils as the products are sold to international markets, however, producers remain peripheral in the market value chain as they do not negotiate for prices but are involved at the benevolence of external players. The community producers remain largely collectors not processors due to technology and capacity limitations. Most of the packaging, storage and transportation to intermediary centres is done by intermediaries, indicating the important role they play for rural communities to benefit from the marketing of NTFPs. There is evidence that the majority of the products are locally consumed during periods of scarcity and this limits the amount of products left for marketing. For international markets, demand for certain products, particularly oils, is high and the supply side is very limited due to capacity and the nature of the business. This also limits the contribution of NTFPs to household income. The withdrawal of NGOs from the target communities would, however, signify the collapse of the new industry in target communities.

6.1 Policy Recommendations
The article recommends that for the full participation of communities in the market value chain and maximisation of benefits, there is need to link them with both the regional and international markets such that they do not continue to occupy the lower echelons of the value chain.

NTFPs processing technology at community level should be simplified so that machinery can be repaired locally to reduce long periods of breakdown that may affect the marketing chain of the products.

Whilst the role of intermediary NGOs is commended, there should be an exit strategy that ensures the smooth taking over by local communities in the processing and full marketing of NTFP products.

Since NTFPS are seasonal, the interventions should not ignore agricultural activities but rather, income generated from NTFPs should be used to fund other livelihood activities to reduce food security deficit periods.

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Community capacity building, tourism and environmental conservation: The case of the Honde Valley Bamboo Crafts Project, Zimbabwe

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ABSTRACT
Production of bamboo baskets for the Zimbabwean mass market resulted in the depletion of the bamboo grass which threatened the livelihoods of the Honde Valley community who derived their income from selling bamboo crafts. The objective of the study was to assess the impact of community capacity building programmes on stakeholders’ attitudes towards environmental conservation, changes in livelihoods, creation of new bamboo basketry products and opening up of new markets. The study used the qualitative methodology. Face-to-face interviews were held with community members in the Honde Valley. A review of related literature was undertaken and annual reports of the NGO working with the community were also accessed. The study found out that after initial training community members realised the advantages of producing high quality high value bamboo basketry for the tourism industry as compared to producing high volume low value products for the local mass market. The study further found out that the new products demanded low volumes of bamboo material which resulted in sustainable use of the resource. Finally, the study observed general improvements in the livelihoods of community members in terms of increased household income, increased technical skills and exposure to the tourism market through national and international network linkages. The study concluded that the programmes enhanced the practical skills of the community members in bamboo basketry making, improved their livelihoods, expanded their mental and social horizons and created new markets for their products. The study recommends expansion of the capacity building programmes to include business management and entrepreneurship, expansion of the market linkages and targeted exposure of the products to the tourism industry.

Key words: Capacity Building, Tourism, Environmental Conservation, Bamboo Basketry.

1.0 INTRODUCTION
Honde valley is situated at the foothills of Inyangani Mountain in Mutasa Rural District (RDC) in the eastern part of Zimbabwe. The area experiences a tropical climate and was originally dominated by tropical vegetation which included woody bamboo grass. The location of the study area is indicated in Figure 1 below.

Figure 1: Location of the Honde Valley study area

Source: Google maps
The bamboo is a versatile plant. Within the Honde Valley, bamboo has been used as raw material for building, for making fish traps, for making a wide range of household baskets and for crafts making. An increase in demand for bamboo baskets in the country led to the depletion of the resource. The development threatened the future of a large part of the community whose livelihoods depend on the sale of bamboo crafts on the domestic market.

One of the country's non-governmental organizations, Sustainable Tourism Enterprise Promotion, (STEP) identified the challenge that the Honde Valley community were facing and decided to engage it with a view of minimizing the depletion of the bamboo resource and at the same time, maximizing community benefits from the resource. This was in line with the organization’s vision and mission. The vision and mission of the organization are spelt out as follows:

**Vision**

To be the leading agent for sustainable Community Based Tourism in Southern Africa.

**Mission**

To advocate for, and promote, sustainable tourism enterprise for the disadvantaged rural and urban communities in Southern Africa.

STEP Zimbabwe focuses on ensuring that tourism becomes a meaningful tool for enhancing the livelihoods of disadvantaged local communities. Its activities, which are aimed at supporting the local communities, include the following:

- enterprise and product development;
- market entry of community based tourism and services;
- promoting community based tourism as a local action for sustainable natural resource management;
- promoting community based tourism as an adaptation action against climatic change; and
- promoting community-based tourism as a local action for preservation of cultural heritage.

In order to assess the challenges that the community was facing, and to seek stakeholder consensus on what needs to be done, STEP undertook a needs assessment study of the area in 2010. The study was carried out in four wards of the district; Chikomba, Zindi, Mandeya and Muparutsa. The criteria used to select the wards were high concentration of bamboo vegetation and presence of large numbers of households weaving bamboo basketry products.

Out of an estimated 500 people who participated in the needs assessment study, a total of 200 people were screened for participating in the project (STEP, 2011). The group was made up of 120 women and eighty men. The choice of the participants was based on their basketry-weaving skills and entrepreneurial potential.

### 2. OBJECTIVES OF THE STUDY

The objectives of the study were:

- to examine the impact of community capacity building programmes on stakeholders' attitudes towards environmental conservation;
- to identify the changes that have occurred in the livelihoods of the project participants;
- to assess the creativity of bamboo basketry products; and
- to analyse the opening up of new markets for the bamboo basketry products.

### 3.0 REVIEW OF RELATED LITERATURE

Globally, the bamboo vegetation is found in the tropical and subtropical parts of the world. Currently, 65% of the resource is found in Asia with China and India accounting for largest concentration of the resource.
Africa accounts for 7% of the bamboo vegetation (Ghimire, 2008). The woody plant has a wide range of uses (Sharma Bhattacharya, 2010) which include the following:

- building material for houses;
- building material for poultry and domestic animal cages;
- construction material for durawalls around homesteads;
- manufacturing of household furniture;
- manufacturing of baskets, mates, storage containers;
- manufacturing of a multiplicity of crafts; and
- timber for construction of bridges.

The versatility of the plant's usage has given rise to its special association with community livelihoods. For example, in China, it is referred to as "the poor man’s timber", in India it is referred to as "the friend of the people" and in Vietnam as "the brother" (Ghimire, 2008: 6-7). The multiplicity of use of the plant has led to its over exploitation in different parts of the world. For example, the Environmental Bamboo Foundation, in its proceedings in 1995 in Indonesia, highlighted the challenges that were then being encountered in the depletion of the resources. Ghimire (2008) noted a similar problem in his study in Nepal where 70% of the farmers involved in bamboo crafts manufacturing had resorted to planting their own bamboo woodlots to ensure constant supply of the raw material. In their study on green design utilizing bamboo material, Chen, Tu and Gaung (2013) advocated for the adoption of the 6Rs concept (Reduce, Reuse, Recycle, Replace, Recovery and Repair) in the use of the bamboo resources. They believed that the adoption of the concept would help halt the depletion of the resource globally and hence lead to its sustainable use.

In many parts of the world where communities have taken up bamboo crafts manufacturing as a livelihood option or as a supplement livelihood option, a number of common challenges have been observed (Ngo and Duc, 2005; Kalita, 2010; Ghimire, 2008 and Wei, 2013). The challenges include quality of products, market access, inadequate skills, limited product range, resource depletion and limited government support in facilitating the growth of the community businesses.

Before the intervention of STEP in the Honde Valley, communities involved in the bamboo basketry craft faced similar challenges. In order to ensure that they had an income that would sustain them, the communities resorted to production of high volume low value baskets for sale on the domestic market. The approach led to the depletion of the bamboo resource in the area and therefore threatened the sustainability of the community's livelihood base.

4.0 METHODOLOGY
The study used the qualitative research method to collect data on the project and its impact on the livelihoods of the Honde Valley community. The strategies used to conduct the research included face to face interviews with 20 participants in the community project in the study area and the director of STEP at her offices in Harare. Further, direct observation was made on the livelihoods of the community members who were involved with the project and those who did not participate in the project. A number of indicators were used to make the comparisons, for example, type of houses owned, households assets and possession of a passport. A review of related literature was undertaken in order to obtain a global perspective on the use of bamboo as a source of livelihoods, tourism development and resource conservation. Minutes of STEP board meetings and its annual reports were consulted with the objective of getting a clear view of the dynamics that drove the project.

5.0 FINDINGS
STEP sourced and accessed funding from the Global Environment Fund (GEF) through the GEF Small Grants Programme to implement the bamboo crafts and natural resources management programme. In broad terms the project included the following activities;
Community capacity building, tourism and environmental conservation

- community capacity building,
- product marketing and promotion;
- natural resources conservation; and
- livelihoods improvements.

5.1 Community Capacity Building Programmes
The needs assessment study identified a number of training gaps within the stakeholders that had been selected to participate in the project. These included, among others, poor basketry weaving skills, limited product design knowledge, lack of product pricing and poor marketing and entrepreneurial skills.

The first training programme was a three day workshop conducted at Hauna growth point, a service centre in Hondo Valley in 2011. It was conducted by two Indian basketry weaving experts that had been sourced by STEP through the Indian embassy in Harare. Participants were taught a number of ways of improving the quality of their products. Basic business skills in bookkeeping, marketing and sales were also imparted during the workshop. Furthermore, participants were also exposed to different types of bamboo products manufactured in other parts of the world.

Subsequently, a one day follow up training programme was conducted at each ward in the area. Besides assessing how far the participants were using their newly acquired skills, the ward-based training programme also gave the STEP facilitators the opportunity to assess livelihood changes in project members as well as natural resources utilization in each ward.

Exchange programmes were arranged within the country where some members of the community visited other community based projects in Masvingo and Matabeleland provinces. The visits exposed participants to different ways of conducting business and strategies of sustainably using natural resources.

The second training programme entailed members of the Hondo Valley project travelling to India. STEP, with the assistance of the ministry of Small and Medium Sized Enterprises, engaged the Indian embassy in Harare and secured funding for some project members to travel to India for a two-week exchange training programme. The programme was undertaken through India’s International Craft Exchange Programme. Twenty members, ten men and ten women, travelled to Tripura province in India where the training took place. A STEP staff member and an official from the Mutasa Rural District Council accompanied the participants on the trip.

The third major training programme was the British Council coordinated European Union National Institutes of Culture Network (EUNIC) project which was conducted in 2013. The project was aimed at building the capacity of basket weaving communities in the country through interacting with local and international buyers, training experts, designers and visual artists. Participants were drawn from basket weaving communities from rural areas of Lupane and Binga in Matabeleland North province, Bulawayo province, Masvingo province and Hondo Valley in Manicaland Province. A total of 35 weavers from the Hondo Valley project participated in the programme which was hosted by Zimbabwe National Art Gallery in Harare.

Finally, in 2014 STEP secured funding from the Chinese embassy in Harare to send two project members on a 45 day bamboo products skills training programme to China. The training was conducted in Zhejiang Province at the Provincial Cultural Centre.

The capacity building programmes that the project stakeholders have participated in since the inception of the project in 2010 has enriched them with technical, business and new social skills. Participants have been able to improve the quality of the standard bamboo crafts such as “the carrying basket”, “tswanda”, “rusero” and “chitengu” which they sell on the domestic market. The improved products are competitive in the market and hence are fetching a good price, for example, the standard “carrying basket which used to be sold for US$2 is now fetching a price of US$4 in the rural areas and US$6 in urban areas. The increase in revenue per unit has reduced the pressure to mass produce the products. The overall harvesting of the bamboo has therefore been reduced and this has helped to improve the regeneration of the natural resource.
5.2 Marketing and Promotion
The products from the Honde Valley community have been promoted at both the domestic and international markets through the facilitation of STEP, utilizing different distribution channels.

Firstly, STEP participated in a number of exhibitions held annually in the country at which it was able to showcase basketry products from the Honde Valley community. The exhibitions included the Zimbabwe Agricultural show held annually in August, the Sanganai/Hlanganani travel expo held annually in October, and the Harare International Festival of the Arts (HIFA) held annually in May in Harare.

Secondly, STEP, in association with other NGOs that had participated in the EUNIC training programme, were offered the opportunity to mount an eight-month exhibition at Zimbabwe National Art Gallery. The exhibition known as “Basket Case II” (British Council, 2014) was again coordinated by the British Council. It showcased basketry crafts from different parts of the country including those from the Honde Valley project to local and international markets. The exposure of the crafts resulted in orders for some of the products. For example, one of the community members was ecstatic about the sales that he made from the exhibition. “I received orders for lamp sheds and office dustbins worth US$800. I had to call in my friends to help me with the order. This is the largest amount of money I have ever made in two weeks in my life!” In January 2015, the whole exhibition in the National Art Gallery moved to Frankfurt in Germany under the auspices of the European Union National Institute of Culture Network.

Finally, STEP secured an agreement with the National Handicraft Centre through which the latter agreed to distribute products from the project on a commission basis. A number of other partners were secured for the distribution and sale of the products, including some hotels in the country.

5.3 Natural Resource Conservation
When community members joined the project, they undertook to participate in the national tree planting day which is held at the beginning of December each year. The commitment has been honoured since the project became operational. In 2013, the community members had planted a total of 6000 trees (STEP, 2014). The trees planted included both indigenous and exotic ones. In order to accelerate the natural resource conservation of the area, STEP secured a piece of land in Zindi ward where it established a nursery from which project members accessed seedlings for planting in their wards (STEP, 2016).

5.4 Livelihoods Experiences
A visit to the project area revealed a number of changes that had occurred in the livelihoods of the project participants. The changes were noticed through observations as well as through comments and information that were given by project members through face to face interviews.

Project members pointed out that income from the sale of their basketry crafts had improved as they were now selling high quality products to different market segments. Members whose homesteads were visited showed off new assets they had acquired as a result of their improved income. These included, among others, household assets such as bedroom suites, dining room suites, solar lanterns and wheel barrows. The view expressed by one of the participants, a single mother with three children, summarized the general outcomes of the project; “In the past I was unable to pay school fees for my children, but now I have managed to enrol my five year old daughter in nursery school without any fear of failing to pay for her school fees”. Several members in the five wards had constructed two or three bedroomed brick houses which were roofed with asbestos sheeting.

Ownership of mobile phones has become universal to members of the project. This was partly in response to STEP’s awareness programmes at the beginning of the project which highlighted the role of mobile phone in effective networking. The high level of mobile phones ownership was also a result of improved incomes of the project members.
The majority of the project members had been able to acquire passports through the encouragement and facilitation by STEP. For the members who participated in the exchange programmes to India and China, the experience had been the highlight of their lives. It changed their view of the world. The view was summarized by one of the participants who said:

I had never thought of applying for a passport in my life. What STEP did changed my life and my view of the world. I can never forget the day I received the passport and I was told that I will be travelling to China in two weeks' time. The day is the highlight of my whole life.

5.5 Current status of the project
The project has moved into a stage where participants are establishing a factory at Hauna growth point which will be used for manufacturing some of their products using machinery sourced from India. The factory will also be used as a warehouse and retail outlet for some of the products of the members of the project. Funding for the current phase of the project was secured from the United Nations Development Programme (UNDP). Further, the new stage of the project will expand the activities of the project members to include ecotourism, indigenous food processing, natural resource conservation, biodiversity improvement and bee keeping. These activities will offer additional livelihoods alternatives to the project members.

6.0 DISCUSSIONS
6.1 Capacity building outcomes
Ghimire (2008) noted in the case of the Nepal community that training led to the improvement in the quality of products manufactured by the weavers. A similar development occurred within the Honde Valley community. Technical skills acquired during the training sessions both at home and outside the Honde Valley area have resulted in the improvement of the design and presentation of the crafts. Further, knowledge acquired in Harare, India and China has enabled project members to create new products. Product improvement has further been enhanced by the use of simple machinery which was donated by the government of India as part of the exchange visit programme. The new products range has opened up new markets for project participants. These include hotels, offices and high income residential areas. Products being targeted for the new markets include bamboo lamp shades, bamboo dustbins, bamboo office trays and bamboo fruit containers. The international tourist market has also been a target for the new products.

The business knowledge and skills gained has enabled project members to make sound business decisions in terms of allocation of their time to different livelihoods activities. The knowledge has also helped them to decide on the type of basketry products to concentrate on and type of market to target.

The proceedings of the Environment Bamboo Foundation (1995) noted that afforestation programmes implemented by some national forestry authorities had helped to encourage local communities to conserve their forest plantations in different parts of the world. Within the Honde Valley community, participation in the annual tree planting activities as well the development of homestead bamboo lots has increased community awareness of the value of natural resource conservation, which is resulting in the sustainable use of the bamboo grass. The development was confirmed by one of the participants who said:

I have stopped making big baskets which I used to sell at Mbare market in Harare. I now produce baskets for offices and hotels which are used as dustbins. I only go to Harare and other towns to deliver what would have been ordered. This has given me time to do other income generating activities at home such as tending to my banana plantation.

6.2 Marketing and Promotion
Ngo and Duc (2008) pointed out that communities involved in bamboo crafts in rural areas of Vietnam were unable to depend fully on the activity for their livelihoods because of lack of effective marketing. For
Honde Valley, the situation has been totally different. Their attendance of trade exhibitions in Harare and their participation in both local and international exchange programmes helped them to understand the needs of different market segments. Furthermore, the networking opportunities that were created by the project have enabled community members to diversify their markets and improve their product distribution networks. In a number of cases, members are now able to use social networks to promote their products in identified markets. Technology has therefore helped these rural communities to leapfrog into the global village. The net result has been a general increase in household income, which has led to overall livelihood improvements.

6.3 Natural resource conservation
The establishment of homestead bamboo woodlots has given project members an assured source of raw materials which they are able to manage. A similar observation was made by Ghimire (2008) in his study of a project in Nepal. Once the ward community bamboo woodlots were established, the communities had a guaranteed renewable source of raw material for their basketry weaving activities. In Zimbabwe, the homestead and ward bamboo woodlots will, in the long term, make a major contribution towards the prevention of soil erosion and general environmental degradation in the area. Further, the annual tree planting activities being practiced in the area have helped to re-green the whole of Honde Valley. The area’s biodiversity is, therefore, gradually improving and this has led to discussions between STEP and the Zimbabwe Birding Association which are aimed at reintroducing some of the birds that were no longer available in the area as a result of habitat loss. The current developments in the area reflect the 6R concept that was advocated for by Chen et al. (2013), which emphasises the need to reduce natural resource use through replacement and other methods.

Given the scenic nature of Honde Valley, it is envisaged that the improvement of its natural resources would lead to the development of cultural and ecotourism. Already, there are nascent tourism activities which are based on white-water rafting along the Pungwe River. This development will offer the communities an additional option for their livelihoods as well as provide incremental potential market segments for the bamboo products.

6.4 Livelihoods outcomes
The introduction of the capacity building project in Honde Valley positively changed the economic and social lives of the communities in the area. The sale of high quality products to the domestic market improved household income. Incomes were further improved by selling of new products to new market segments in urban areas. Besides being able to buy new assets for themselves, the communities were able to meet their social obligations without asking for assistance from relatives or government. For example, payment of children’s school fees and payment for health services is no longer a burden it used to be in the past. The Honde Valley case differs in many respects from that of Khipon Barodur which was investigated by Sari and Suwarno (2009) who concluded that the poor quality of the crafts produced made them unattractive to tourists. The rural people were therefore not able to use bamboo craft making a viable source of livelihoods.

Training in basic business management has helped a number of the project members to plan their economic and social activities. They are now able to make informed decisions on how much time to devote to the different income-generating activities that are open to them. Further, a number of the participants have become teachers to their neighbours who are not part of the programme. This has increased their social standing in the community with the result that their advice on environmental issues is now being taken more seriously that was the case before the start of the project.

Acquisition of passports, mobile phones and other symbols of modern life have helped to improve the self-image of the majority of the project participants. Those that were able to travel to India and China are looked upon with envy and admiration by their neighbours. In essence, the majority of the project members
are now socially part of the global community.

7.0 CONCLUSIONS
Discussion with project participants and observation of the products that are currently being sold clearly showed that the participants had acquired new technical skills which they were using to design new products. It was also evident from the way the participants were running their businesses that they had gained valuable marketing and business management skills. New material assets that were on display at the homesteads of members visited during the field study were a clear testimony of the improvement of households’ income. Travel outside the local area had broadened members’ horizons of the world and this has boosted their confidence in their activities. Further, the production of high quality products and the establishment of homestead bamboo woodlots have helped to ensure sustainable use of the bamboo grass and the overall improvement of the area’s biodiversity. Finally, biodiversity improvements have created potential for the development of cultural and ecotourism in the whole of Hondo Valley.

8.0 RECOMMENDATIONS
It is recommended that STEP find partners who are able to fund additional capacity building programmes. Given the technical skills that members have acquired to date, the training programmes should focus on business management, entrepreneurship, marketing and sales and basic bookkeeping. Another key area to focus on for further training is natural resources management.

STEP needs to engage schools in the four wards with a view to introduce bamboo clubs for children at the schools. Parents who are involved in the bamboo weaving programmes would be encouraged to volunteer to impart their skills to the children at set times at the schools. Besides getting useful skills, the programme will also help to increase the children’s awareness of the need to conserve the environment, especially bamboo grass.

It is further recommended that STEP, in collaboration with Zimtrade, and Zimbabwe Tourism Authority (ZTA) facilitate the access of the products from the project to regional and international markets. ZTA should consider showcasing these products at all travel expos that they participate in, for example, Indaba in Durban, South Africa, World Travel Market (WTM) in London, and ITB in Berlin, Germany.

REFERENCES
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