Donor-funded procurement effectiveness in the public health medical laboratory services: Examining the moderation role for government policy in donor-support

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ABSTRACT

Background: The paper seeks to provide evidence on the government policy’s moderating role in donor-funded procurement in the laboratory services of Zimbabwe. Procurement is a key component for any organizations to function optimally and the medical laboratory service is no exception considering that the donors are the major funders of the department hence the need for this study to examine the government policy as the moderating variable for this research. Medical laboratory services plays a very important role in the functioning of any health sector as every disease have to be tested to ascertain the actual disease a person suffering from before any treatment can be commenced.

Aims: The aim of the paper was to examine the moderating role of government policy on donor-funded procurement in Zimbabwe’s laboratory services.

Methods: The paper made use of a quantitative method research method. Data was collected from 260 respondents sampled from a total population of 795 using RaoSoftware but only 214 respondents successfully returned the questionnaire from the Ministry of Health and Child Care, Zimbabwe and the analysis was done using STATA to run the structural equation modeling.

Results: The study found out that government policy (GP) moderates the pre-donation preparation process (PDPP) (β=0.15, p-value = 0.038) donation requirement process (DRP) (β=0.24, p-value =0.000), donation recipient planning process (DRPP) (β=0.22, p-value = 0.001) and donation implementation process (DIP) (β=0.18, p-value = 0.004) and the effectiveness of donor-funded procurement.

Conclusion: Based on the results, the study concluded that government policy has a role to play to support donor-funded procurement in the laboratory services in Zimbabwe and the world over and the study recommended that policy maker should take into consideration the important role as government policy plays as it support key health outcomes considering the crucial role the medical laboratory also plays.

Keywords: Donor-funded procurement; Donation implementation process; Medical laboratory; Moderating role; Disease; Pre-donation; Government policy.

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1. Introduction

Globally, laboratories are a fundamental component of the health system in the face of emerging and re-emerging diseases and contribute directly to improving health services. These include both private and public laboratories. Despite the nature of the laboratory, quality, reliable and timely results from laboratory investigations remain critical elements in decision-making in all aspects of health services. Laboratory testing identifies the cause of disease and provides data for the surveillance of diseases and early detection of emerging problems to guide an effective response to health threats. Maintaining functional and effective national public health laboratory services requires guidance, support, and regulations through well-laid-down policies and strategies. The laboratories operate with minimum standard requirements for equipment, reagents and supplies, staffing levels, and the correct required qualifications. The study is based on Transaction Cost Economic Theory, Person-Situation Interaction Theory and Agent Theory. The next section covers the objective of the study. The primary objective of this paper is to determine the moderating effects of government policy (GP) in support of the effective donor-funded procurement in the Zimbabwean public health medical laboratory.

2. LITERATURE REVIEW

Global support’s perspective

Despite ODA disbursing such funding to health in developing countries, Global Fund, on the other hand, has been playing a critical role in the health sector by mobilizing and funding low and middle-income countries to fight AIDS/HIV, Malaria, and TB (Global Fund, 2021) and in 2017 and 2018 alone a total of 4.3 billion and 3.1 billion United States Dollars respectively (WHO, 2020; Global Fund, 2021; OECD, 2021) was used to fund the health sector worldwide. As shown by the statistics above, donor funds contribute to and support the African continent. However, the effects of donor funding are not seen as most of these SSA countries destroy economies for the health sector at a large scale. The countries are creating a culture of dependency syndrome and laziness within their territories, affecting the general populace (Moyo, 2009; Madlongwa, 2014; Bachtiger et.al, 2021). The other downside of the donor funds in the African continent is that the governments neglect to provide services to the people they lead and concentrate on themselves, as witnessed by poor service delivery in various African countries (Odaro, 2014; Hangulu & Ankitola, 2017; National Health Laboratory Strategic Plan (NHLSP), 2017; Oswalia & Vasdev, 2021). Moyo (2009) concedes that Africa is failing to take note of the aid given due to corruption within the high ranks and files of the leaders of these countries and bureaucracy which makes approval so difficult for programmes to take place. One has to move from pole to window without success. With the high figures of monies making their way to Africa from Europe and other continents, nothing seems to change in deliverables (Alexander, 2010; Baporikar & Randa, 2020).

![Figure 1: ODA to Health by region](source: Development Initiative based on OECD (2018))
Sub-Saharan Africa perspective

However, with such donor funding being distributed to various lower to middle-income countries to fight diseases, sub-Saharan Africa (SSA) remains behind in terms of meeting targets such as Sustainable Development Goals (SDGs) and still is battling to meet Sustainable development goals (SDGs) target for the year 2030 (Jalilova et al., 2021). The governments of SSA will need to put policies in place to support donor-funded programs within their countries. For the donor funds to make progress, the world leaders, in 2005, met in Paris, France, in what is known today as Paris Declaration on aid effectiveness. This declaration on aid effectiveness was said to help improve health donor coordination and harmonization between donors and governments of various countries, mainly those with poor health systems, especially the SSA. In 2018, SSA got half of the Health ODA funding, as shown in Figure 1.

Figure 1 shows the Health ODA distribution for 2018, which has remained in place until 2021 and is expected to remain the same going into 2022. The SSA continues to get 54% of the total ODA health funding, which has been the norm ever since. Some of the SSA’s top beneficiaries of the above donor funding are illustrated in Figure 2.

![Figure 1: Top African beneficiaries of Health ODA](source)

Source: Organisation for Economic Cooperation and Development (2021)

Figure 2 indicates the top SSA beneficiaries of the ODA health funding despite some other countries not from SSA being included within the same category as the SSA. Nigeria tops the SSA countries with USD951 million, followed by Tanzania and Ethiopia in the 3rd place (OECD, 2021). The country (Zimbabwe) under study is the 7th ranked in terms of receiving global health funding. The above only represents the top nine SSA countries. SSA received 31 billion in 2019 and 39 billion in funding in 2020 in their health sectors to procure health goods and services and fight COVID-19. Bilateral, Multilateral, and private Foundations contributed to the SSA health sector in 2020, and they are tabled in Table 1.

<table>
<thead>
<tr>
<th>Donors</th>
<th>Amount contributed (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>6.5 billion</td>
</tr>
<tr>
<td>Global Fund</td>
<td>3.6 billion</td>
</tr>
<tr>
<td>Bill and Melinda Gates</td>
<td>2.8 billion</td>
</tr>
<tr>
<td>Global Alliance for Vaccines and Immunisation</td>
<td>1.9 billion</td>
</tr>
<tr>
<td>UK</td>
<td>1.8 billion</td>
</tr>
</tbody>
</table>

Source: UNICEF (2021)
In 2001, African states met in Abuja, Nigeria, known today as the Abuja Declaration, to deliberate on health funding. The African Union states members agreed to 15% of the national budget for health sector funding (Abuja Declaration Report, 2001). Unfortunately, most of these African states have failed to meet the agreed targets, and still, they are failing to meet and have no further discussions concerning this matter. For me, this was just a talk show of African leaders and only benefitted from the allowances given, but no implementation was given priority, although the idea was for the good of Africa as one. According to WHO (2019), only four countries managed to meet the target, and others only managed to increase their national budget funding towards the health sector. Today, no African country managed to surpass the 15% threshold. However, those other countries that had managed to meet the 15% have decreased their health sector budget for reasons known to them.

**Government policy**

Government policy is key to the improvement of the performance of public health laboratories because all the procurements, including those of donors, are guided and led by consistent policies (Mackenbach & McKee, 2013; Schaffer et al., 2022; Weerasekara et al., 2023). Government policy acts as a guide on all the donor procurement activities supported by the donor country policies, which both help to align with the constitutions of the countries involved. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks. According to OECD (2021), government policies should influence procurement of services and goods outcomes as it is used to measure the fairness, equitability of the systems in place, transparency, and cost-effectiveness. Moreover, the same policies may drive remuneration of attractive salaries to procurement officers and public health laboratory employees with the skills and qualifications required (Chigora & Chisi, 2009; Alisan & Gunawan, 2010; Witter et al., 2019; Gautier & Riddle, 2017).

There is a need to have trust with those international support donors and partners (PEPFAR, CHAI, World Bank, and Global Fund, to mention a few). There should be a favourable policy regarding donor funding in Zimbabwe. Based on WHO (2001; 2011; 2015) on donation equipment and procurement, the selected variables to support this study are pre-donation planning process (PDPP), donation requirement process (DRP), donation recipient preparation process (DRPP) and donation implementation process (DIP) as these are the expected procurement process as indicated on the hypotheses as follows;

- **H1a**: Government policy positively moderates the relationship between the pre-donation planning process and the effectiveness of donor-funded procurement.
- **H2b**: The relationship between the donation requirement process and effective donor-funded procurement is moderated by government policy.
- **H3c**: The donation recipient preparation process and effective donor-funded procurement relationship is moderated by government policy.
- **H4d**: The government policy moderates the relationship between donation implementation and effective donor-funded procurement.

**Theoretical: Integration of the three theories**

In this study, three key theories, that is the economic transaction cost (TCE) and person-situation interaction (PSI) theories, and agency theory, are considered in this study to integrate and seek to understand the relationship that exists in the donor-funded procurements and the Ministry of Health and Child Care participation in such processes. It is not an easy task, though, since there are more other theories left out of this study, and no one theory can apply to answer the challenges faced in this complex relationship in procuring public medical laboratory commodities. The TCE talks of the structure that exists for the proper organizational management and operations as well as outlining the causes of transaction costs (Coase, 1937; Williamson, 1979; Adoms, Hussein, & Agyem, 2018) putting forward key assumptions, which are bounded rationality (BR) and opportunism as major challenges, with key constructs asset specificity and uncertainty (Grover & Malhotra, 2003) that may affect the procurement of public medical laboratory commodities. BR is said to be limited to individuals.

Person-situation interaction theory is based on individual behaviours which affect the performance of donor-funded procurements and activities. For donor procurements to succeed, individuals must be goal-orientated and task-oriented. People's behaviour is affected more by the situations around the procurement than by the people around, as mentioned by Mischel (1968) and supported by Kihlstrom (2013). The Agency theory discusses the relationship between the donor and the MoHCC’s laboratory services. MoHCC’s laboratory services are the “principal”, and the donors are the “Agency” since they are procuring on behalf of the MoHCC...
This study proposes integrating the three theories as a theoretical contribution to the study. These theoretical factors will assist in improving laboratory performance since the organisational structures are manned by people who are self-aware of their obligations to improve the health welfare of the general populace of Zimbabwe through well-supported/functioning medical laboratories.

**Conceptual framework**

Figure 3 shows a proposed conceptual framework based on the hypotheses discussed above and that all the constructs have existing relationships, as shown by the direction of the arrow.

![Conceptual Framework](image)

The conceptual framework (Figure 3) envisages that the pre-donation planning process, donation requirement process, donation recipient preparation process, and donation implementation process directly affect the effectiveness of donor-funded procurement denoted by hypotheses H1-H4. Additionally, H5 indicates that government policy moderates the expected procurement outcome of donor-funded procurement and effective donor-funded procurement, as shown by hypotheses in the conceptual framework.

### 3. Methods

The study adopted a pragmatism philosophy associated with mixed methods research (Park, Artino & Konge, 2020; Biesta & Burbules, 2003; Tashakkori & Teddlie, 2003). Pragmatism allows the use of both quantitative and qualitative methods in a single research to build on the strengths and weaknesses of both methods (Morgan, 2007; Shannon-Baker, 2015; Cresswell & Plano Clark, 2011). This researcher adopted descriptive-exploratory research because they are complementary in this mixed-method research since descriptive research design helped this researcher to deal with quantitative methods and exploratory helped this researcher to collect data on the qualitative part of this research (Streubert & Carpenter, 1999; Larson-Hall, 2010; McNabb, 2010; Bernard, 2000), and this was explored through the experiences of the medical laboratory scientists and the procurement officers and SCMLTs. The research’s sample size was 214 questionnaires returned which were sampled using Raosoft sample size calculator from the population of 795 health employees which are Scientists, Procurement Officers and State Certified Medical Laboratory Technologists from the Ministry of Health and Child Care.

### 4. Results

Table 2 shows the frequency, percentages, median, factor loading, and alpha results for a government policy’s effects on donor-funded public health medical laboratories procurement. Table 2 show that 43.9% (n=94) of the respondents agree that we need government policy to motivate donor support, and 41.6% (n=89) of the respondents agree that we believe government policy promotes donor-funded procurement in the public health medical laboratory services. 39.3% (n=84) of the respondents agree that we trust the government policy helps to curb corruption in the procurement process for all supported public health medical laboratory services, 51.9% (n=111) of the respondents agree that we know government policy is a tool that influences support of recruitment of qualified employees, 50.5% (n=108) of the participants agree that we are aware that government policy can be used to set salaries that are attractive to avoid brain-drain, 47.2% (n=101) of the respondents agree that we accept that donor-funded procurement can be frustrated by unfavourable government policy, 49.1% (n=105) of the
respondents agree that we believe that procurement policy direction comes from consistent government policy, 53.3% (n=114) of the participants agree that we know that government policy may foil/support collaborations between the public health laboratory and donors, 50.9% (n=109) of the respondents agree that we believe that government policy influences harmonisation of equipment used in the public health laboratory and 54.2% (n=116) of the respondents agree that we know that donor-funded procurements may flourish due supportive government policy.

Table 2: Frequency, descriptive, median, factor loading, and the alpha on the effects of government policy on donor-funded procurement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree n (%)</th>
<th>Disagree n (%)</th>
<th>Neutral n (%)</th>
<th>Agree n (%)</th>
<th>Strongly Agree n (%)</th>
<th>Median (IQR)</th>
<th>Factor Loading</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GP01</strong>: We need government policy to motivate donor support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.03270</td>
<td>0.8133</td>
<td></td>
</tr>
<tr>
<td><strong>GP02</strong>: We believe government policy promotes donor-funded procurement in the public health medical laboratory services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.13338</td>
<td>0.7725</td>
<td></td>
</tr>
<tr>
<td><strong>GP03</strong>: We trust the government policy helps to curb corruption in the procurement process for all supported public health medical laboratory services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.17982</td>
<td>0.7721</td>
<td></td>
</tr>
<tr>
<td><strong>GP04</strong>: We know government policy is a tool that influences support of recruitment of qualified employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.23747</td>
<td>0.7619</td>
<td></td>
</tr>
<tr>
<td><strong>GP05</strong>: We know that government policy can be used to set attractive salaries to avoid brain drain.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16498</td>
<td>0.7657</td>
<td></td>
</tr>
<tr>
<td><strong>GP06</strong>: We accept that donor-funded procurement can be frustrated by unfavourable government policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.12421</td>
<td>0.7790</td>
<td></td>
</tr>
<tr>
<td><strong>GP07</strong>: We believe that procurement policy direction comes from consistent government policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.17880</td>
<td>0.7642</td>
<td></td>
</tr>
<tr>
<td><strong>GP08</strong>: We know that government policy may foil/support collaborations between the public health laboratory and donors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16206</td>
<td>0.7694</td>
<td></td>
</tr>
<tr>
<td><strong>GP09</strong>: We believe that government policy influences the harmonisation of equipment used in the public health laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.11042</td>
<td>0.7838</td>
<td></td>
</tr>
<tr>
<td><strong>GP10</strong>: We know donor-funded procurements may flourish due to supportive government policy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.10222</td>
<td>0.7853</td>
<td></td>
</tr>
</tbody>
</table>

The same results were confirmed by median (IQR) results. The factor loadings were estimated for each item and ranged from 0.0270-0.23742 and are not showing a good item contribution to the construct. The item reliability coefficients (alpha (α)) ranged from 0.7619 to the highest of 0.8133. The researcher went on to run the structural equation modelling using the collected data. The structural equation model provides and defines the causal
relationships and association between observed endogenous variables and the exogenous observed variables. The diagram is shown on Figure 4 below;

![Figure 4: Structural Equation Modelling](image)

The correlation coefficient measures the association of observed and measured variables. However, the correlation coefficient values should be between 0 and 1 to significantly influence the relationship between variables (Edwards, 2009; Sardeshmukh & Vandenberg, 2017).

5. Discussion

The objective was to examine the moderating effect of government policy on donor-funded procurement for public health medical laboratories in Zimbabwe. The researcher came up with the hypotheses, and all the hypotheses were supported, which talks about government policy (GP) moderates the pre-donation preparation process (PDPP) \( \beta=0.15, p\text{-value} = 0.038 \) donation requirement process (DRP) \( \beta=0.24, p\text{-value} =0.000 \), donation recipient planning process (DRPP) \( \beta=0.22, p\text{-value} = 0.001 \) and donation implementation process (DIP) \( \beta=0.18, p\text{-value} = 0.004 \) and the effectiveness of donor-funded procurement. The table below shows the hypotheses;

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Government policy positively moderates the relationship between the pre-donation planning process and the effectiveness of donor-funded procurement</td>
<td>0.038</td>
<td>Supported</td>
</tr>
<tr>
<td>H2b: The relationship between the donation requirement process and effective donor-funded procurement is moderated by government policy</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H3c: The donation recipient preparation process and effective donor-funded procurement relationship is moderated by government policy</td>
<td>0.001</td>
<td>Supported</td>
</tr>
<tr>
<td>H4d: The government policy moderates the relationship between donation implementation and effective donor-funded procurement</td>
<td>0.004</td>
<td>Supported</td>
</tr>
</tbody>
</table>

The research results show that government policy moderates these variables and shows positive relationships. The study’s positive results accept that government policy has a role in supporting the effectiveness of donor-funded procurement. This assertion is supported by the views held by the OECD (2019) that government policies should influence procurement of services and goods outcomes as it is used to measure the fairness, equitability of the systems in place, transparency, and cost-effectiveness. Moreover, Odaro (2014) and Gautier and Riddle (2017) postulate that the same policies may make remuneration attractive to procurement officers and public health laboratory employees with the required skills and qualifications.
When the government policy is inconsistent, there is no control, and as seen by the positive results of this study, donors and procurement agents behave in a way that suits their agenda (Witter et al., 2019; Weerasekara et al., 2023). As stated by OECD (2021), government policy acts as a guide on all the donor procurement activities supported by the donor country policies, which both help to align with the constitutions of the countries involved. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks. The results further speak to the decision-making that takes a long time. Every document passes through different offices before the final decision or approval can be obtained. This slows the implementation of the procurement processes and can be manipulated by corrupt decision makers in their favour, and such policies are anti-progress (Mackenbach & McKee, 2013; Schaffer et al., 2022).

The study immensely contribute to the body of knowledge considering that the study area has not been studied much if ever it was studied focusing specifically on the medical laboratory services. The study will contribute so much in the field of medical laboratory services and health at large. In addition to the above, the theoretical and practical implications are that the success of the donor-funded procurement is hinged upon improved policies that are in support of the medical laboratory services and stakeholders who benefits from these procurements should hold the government to account such that the testing services are given and cascaded down to the ordinary populace of the country. Laboratory service is a known neglected health sector department and this study will further influence the stakeholders to pressurise the government of Zimbabwe and the governments in Africa. When the GP is put in place and practised has the potential to influence the procurement of goods and services that improves the health outcomes. Additionally, since the government of Zimbabwe struggles with funding the medical laboratory services, policy-makers may need to put in place policies that support the procurement of goods and services and further stop working against the donors who have become the key procurement cornerstone in support of the laboratory services. The stakeholders have the duty to advise the government to put policies that make medical requirements procurement efficient.

6. Conclusion

The study revealed that government policy is a blueprint that guides donor-funded procurement and assists in driving better remunerations to attract the right skills and qualified employees in procurement and laboratory testing, such as scientists, SCMLT, and others who push the agenda forward. However, the government of Zimbabwe's policies is anti-Western donors due to the "regime change agenda" and political terms that have generally affected the laboratory and health sector's development. Furthermore, the study found that the government policy does not provide the lost trust between the donors and the government. Additionally, the study found that corruption, unethical practices, and lack of government commitment are some challenges that Zimbabwean government policy is failing to curtail. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks.

Furthermore, the government policy should provide a legal framework that can monitor the administrative systems that take a long time to approve the requirements for further procurement processes as the bureaucracy drastically increases over time, thereby increasing the cost of funding. The study's findings also demonstrate a positive relationship between the factors determining successful donor-funded procurement and those factors. The researcher concluded that based on the research results, government policy should be proactive in support of the general populace who benefits from such procurement policies such that the laboratories perform above the current scenarios where donors are not held responsible for supporting the laboratory system and the policy should compel adequate funding that brings in confidence in the laboratory systems. The results below confirmed the above argument;

✓ Government policy moderates the pre-donation preparation process – effective donor-funded procurement relationship ($\beta = 0.15$, p-value = 0.038).
✓ Government policy moderates the donation requirement process – effective donor-funded procurement relationship ($\beta = 0.24$, p-value = 0.000).
✓ Government policy moderates donation recipient preparation process – effective donor-funded procurement relationship ($\beta = 0.22$, p-value = 0.001).
✓ Government policy moderates the donation implementation process – effective donor-funded procurement relationship ($\beta = 0.18$, p-value = 0.004).

In addition to the above, medical laboratory services cannot be separated from the core health business as is the case in the Zimbabwe health services and this importance of the laboratory services became bare during COVID-19 period, hence the MLS should be supported the same way other departments are supported such as...
pharmacy and hospitals in terms of procurement and health funding. This may improve overall health outcomes. Additionally, the study’s practical implications are that there is a need for resource allocation based on higher needs as the laboratory has been underfunded for a long time. Furthermore, the researcher proposes policy changes removing the ineffective one or just making adjustments to the current existing ones. The stakeholders could use this information to advocate for policy changes that address the identified issues to improve overall health outcomes through donor-procurement support. In support of the above point, donor-funded initiatives could be used for programme development and support for health related support.

Limitations

Difficulties in finding secondary data related to the study and the fact that data was not collected directly from the donors themselves, this may limit the generalizability of the study. However, the author made use of donor-funded employees that are funded by the various donors supporting the laboratory services to cover the weaknesses of data collection and then primary data was collected in their various capacities from the scientists to procurement officers. Future researches may engage the donor funding the laboratory services directly but this may take time as the authorising letter for one to conduct research is from the donors’ home country.

Conflict of Interest

There is no conflict of interest.

References


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