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Predictors of Church Financing Innovation in the Catholic Church Archdiocese of Lusaka

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Abstract
Background: Church financing innovation has not been widely studied in faith based organizations. The church has largely been viewed as a spiritual organisation which needs to be managed differently, possibly that there is no need for it to be involved in business undertakings. The purpose of this study was to test the assumptions of the theory of constraints if it holds in accounting for church financing innovation in the Catholic Church Archdiocese of Lusaka.**Methods:** The empirical analysis was based on samples of archdiocese leaders, parish council leaders and priests firms across strata of churches in the Catholic Church Archdiocese of Lusaka. With the stratified random sampling technique, these leaders operating in different congregations were surveyed. Data from the survey questionnaire were analysed by using the SPSS statistical program, version 24 (SPSS Inc,). Descriptive statistics (means, medians, SDs, and ranges) were computed. Normality was assessed by using histograms and linear regression analyses to determine the predictors of intention to innovate from the theory of constraints.**Results:** Generally the sample showed low intention to innovate. Three out of four assumptions of constraints from the theory of influence the observed values of intention to innovate.**Conclusions:** The findings provide initial evidence that the theory of constraints could be used in predicting constraints of innovation in faith based organisation.
Keywords: Archdiocese, Church, innovation, constraints, church financing.
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Introduction

Preserve the essence; change the form. We live in a time when it seems history is moving beneath our feet like a rolling sidewalk; even the status quo is in motion!

This quotation of Bob Buford Author, Halftime and Finishing Well Founder, Leadership Network Dallas, Texas sets the theme of this article. It is about church financing innovation which no one is discussing in the Catholic Church. Most Archdioceses and Catholic Churches in Zambia need to change sources of Church financing because they are showing little or no financial growth (earnings from the existing enterprises) and creating minimal impact in the congregations. Too many congregations and archdioceses are struggling just to meet the needs of the congregants – especially those in need and further, the day to day evangelical operations.

All archdioceses have diversified sources of financing to augment data to day operations. However, for some, they are not seeking new and alternate ways to revitalize their lethargic way of managing the current business undertaking. Yet instead of looking for a breakthrough, business undertakings across the country are slowly dying because the congregants tend to value tradition over expanding what God has given them to own. Church financing innovation or death? Congregations and archdiocese have choose death over church financing innovation.

Background

The Catholic Church is by far the biggest single denomination in Zambia. Catholicism was introduced first by the White Fathers in the Northern and Eastern parts of Zambia and by the Jesuits in the Southern and Central parts of the country in the 1880s and 1900s respectively. During the 1930s two other missionary orders among others came into the country; the Capuchins in Western Province and the Franciscans on the Copperbelt. In relative terms the membership of the Catholic Church has grown faster than the rate of growth of the population of the country. In order to effectively co-ordinate Catholic missionary work, the Episcopal Conference was founded in 1965. In 1959 an ecclesiastical hierarchy had been established after the apostolic prefectures and vicariates were changed into dioceses. Today the Catholic Church in Zambia consists of eleven dioceses.

The focus of this study is the Lusaka Archdiocese. The Roman Catholic Archdiocese of Lusaka (Archidioecesis Lusakensis) is a Latin Rite Metropolitan Archdiocese in Zambia, where it is also considered its national primatial. Its cathedral episcopal is the Cathedral of the Child Jesus, in the national capital Lusaka. It was established in 1959 covering an area of 64,000 km² (24,720 m²). As of 2004, of the 3.3 million citizens in the area, 736,194 are members of the Catholic Church. The archdiocese is subdivided into 70 parishes, 12 deaneries and has 184 priests (Bboloka, 2020).

The church has largely been viewed as a spiritual organisation which needs to be managed differently,

possibly that there is no need for it to be involved in business undertakings. This is believed to be due to the position held that the church is a unique institution in that it is both divine and earthly. Divine because it relates to worship and service of God and will therefore be governed by divine rule; and earthly because churches have assets to manage, employees to pay and members who rightfully demand accountability for their financial contributions (Smith, 2011). Though divine, economic volatility has affected the church in Africa as it has affected other corporate organizations, resulting in churches giving consideration to their viability and sustainability in the long term (Kitawi, 2015) noting that church owned businesses promote sustainability of the church.

Church financing innovation is a multidisciplinary area of expertise. Like any business undertaking, church financing innovation may focus on the creation, acceleration and management of new and sustainable business through innovation (Spruijt et al 2018). To borrow some arguments from Spruijt et al (2018), we believe that church financing innovation is also ambidextrous by nature. The concept of ambidexterity may differentiate church financing innovation from other fields of study in management science (Spruijt et al 2018). Church financing innovation addresses ambidexterity in organizations: 'the ability of an organization to both explore and exploit—to compete in mature markets where efficiency, control, and incremental improvement are prized and to also compete in new markets where flexibility, autonomy, and experimentation are needed' (O'Reilly & Tushman, 2013). This paradoxical behaviour in church financing innovation has not been widely studied in faith based organizations and the subject of church financing innovation is one of the least cited issues in church financing innovation. The purpose of this study was to test the assumptions of the theory of constraints if it holds in accounting for church financing innovation in the Catholic Church Archdiocese of Lusaka.

Literature Review

There are numerous reasons for institutions to venture into innovation. Innovation has been noted to be a vital process that involves turning an idea or invention into goods and services that provide value to a firm (Benko et al., 2022). The application of innovation in an institution tends to improve products and service delivery owing to its transformative power (Mishra and Akbar, 2007; Phung and Mishra (2017). If an institution has to grow its business, it ought to prospectively consider generating knowledge and ideas which would improve goods and services in a firm and enhance growth and business performance Christensen and Montgomery (1981). Institutions that innovate are constantly develop ideas that can be translated into goods and this further enhances the performance and sustainability of institutions (Wheelwright (1987). Organisations that succeed in innovation tend to prioritise consumer demands and satisfy them with creative products and services (Hitt et al. (1997). Innovative activities may introduce new products, create new demand and substitute for old products, thereby enhancing the performance of firms (Chivandi et al., 2020). Therefore, it is important for faith to continually innovate while diversifying to produce goods and services that meet customers' desires, expand their portfolio, improve performance and enhance the sustainability of their business undertakings.

Innovation activities are considered to be the main factor for a stable knowledge-based economy, which has become the basis for competitiveness and dynamic development. It is necessary for the church to recognize that innovations are one of the ways for survival in the dynamic business environment. Innovations have been seen to be the driving force behind the development of enterprises and society as a whole (Chen and Sawhney 2016; Kerr 2016). Janjić and Rađenović 2019). The sections that follow cover the types of innovation.

Product Innovation

The Archdiocese of Lusaka would do well to increase the clientele (Yanadori and Cui, 2013) rather than launching of new products into the market, the Church could embark on size-based products innovation. With the innovation of size-based products, the church could create customer satisfaction with the needs and desires of consumers so that consumers are more interested in buying, it can increase production and sales. Product innovation involves would visibly improve a product's performance (like schools, farms and fueling station) by updating or upgrading its characteristics. Product designers or production managers may consider using product innovation to meet evolving customer requirements or help the church to access an entirely new market. A business may adopt this form of innovation as a pre-emptive measure to become more competitive or reduce costs to help maintain its current market position and profitability. It is assumed that changes in product design can expand the church's target market and increase the selling power of a product. This is in accordance with the opinion by Yanadori, and Cui (2013) which states that design-based innovation involves products, contents, packaging and sizes which are sold the same, but the design or appearance are modified so as to attract consumer interest (Kotler and Keller, 2011).

Service innovation

The church ought to consider integrating service innovation into its structures by increase players. The church ought to confront what is known as the problem of collective action (Olson, 1965), where interdependent

members have not been incented to contribute to the collective, leading to a "tragedy of the commons" (Hardin, 1968). There are solutions to this problem. This relates to process innovation. One is to offer privileges of being a member of the church and to institute incentives to contribute to the collective by sharing their ideas (Olson, 1965) in the communities as well as in the parishes.

Process Innovation

This is the solution to the tragedy of the knowledge commons. This is about members of a community committing to norms for the sharing of ideas (Adler, 2001; Baldwin et al., 2006; Adler et al., 2008). This relates to improving processes or process innovation. It is exacted that the church will have to create or adopt a range of processes that would help transform the current entrepreneurial activities and use different skills sets, equipment or even technology. The Archdiocese, Parishes and community members in their locations or Christian groups ought to tap into experts where professional and craft knowledge resides (see van Maanen and Barley, 1984; Adler and Heckscher, 2006). The church especially the Christian lay groups are governed by informal norms for idea sharing. The application of these approaches have been labelled as an "inverse commons", one in which participation by members of a community does not result in the degradation of community assets, but instead in their regeneration every time these assets are used (Raymond, 1999). One of the distinguishing features of such communities is that the users are the contributors. As a result, these contributors have a keen appreciation of the bottlenecks and the creative opportunities encountered when technological solutions are used (von Hippel, 1994; Franke and Shah, 2003; Shah and Tripsas, 2007).

Marketing innovation

There ae numerous entrepreneurial activities and yet the church has a limited clientele. The church has not considered marketing innovation. Marketing innovation can expose the various products or services to a new market or increase current market share by alerting more customers to what the enterprises within the church offers. It may help a business better connect and engage with new customers by finding new uses for an existing product (schools, houses, farms) or highlighting qualities customers might not be aware of.

Theoretical Framework

This study is grounded Eli Goldratt;s theory of constraints (TOC). This theory provides the constructs for the independent variables in this study. A brief to understand this theory would do. Eli Goldratt was a physicist who became a management guru along the lines of Dr. W. Edwards Deming. The world became aware of TOC and Goldratt when the book, "The Goal", was published in 1984 (Goldratt and Cox 1984). Many early implementations (successful as well as not so successful) revealed the importance of (i) recognising resources as bottleneck and non-bottleneck, (ii) having idle time or protective capacity on non-bottleneck resources (iii) instituting global performance measures as opposed to local efficiency based measures, and (iv) developing focused improvement process.

Lessons learned from these implementations were discussed in this business novel "The Goal" (Goldratt and Cox 1984). The roots of TOC can be traced to the development of a commercially successful shop floor scheduling software product known as optimised production technology (OPT) in the late 1970s (Jacobs 1983).

In the book, Goldratt when postulating the TOC begins with a question – what is the goal of a company? Every company is built to achieve a purpose. Goldratt argues that when we engage in debate about taking an action in any part of the company, we must talk about that action and its impact on the purpose of the company. This is the only logical way to hold the discussion. So, what is the purpose (or goal) of a company? And who gets to decide on the goal? Only one group can determine the company's purpose –the owners. Constraints are what keep us from reaching the system's goal. Goldratt said systems are like chains or networks of chains. Each event is dependent on the event in front of it. For example, final inspection cannot inspect the product until all the processing steps before it are completed. A bill could not be paid until it is received and approved. All processes have dependency – one step must be done before another. We may consider the chain below (see Figure 2.2). Suppose one pulls on both ends. What will eventually happen if you continue to apply more force?

Figure 1.1 Supply or operational Chain

As you continue to apply more force, the chain will break. In how many places will the chain break? Only one - at its weakest link. This is a key concept in TOC. There is only one weakest link in chain (See Figure 1.2). And it is this constraint (weakest link) that prevents the chain from being any stronger. Suppose we fixed that weakest link -- made it stronger. What happens now? The chain is stronger – but there is still a weakest link

somewhere – something that constrains the strength of the chain.

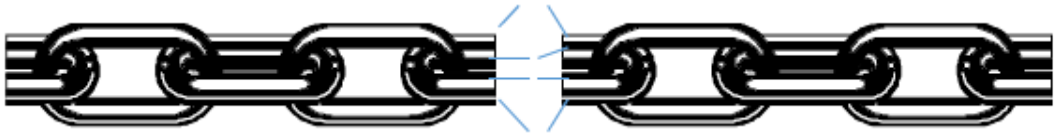

Figure 1.2 Constraint in the Supply or operational Chain

The Lessons learned from the book led to researchers testing constraints that may affect the production chain. In order for our readers to understand how we are operationalising TOC, we want to state the assumptions first. Assuming a firm's goal is to make more money, the TOC proposes a set of global operational measures, throughput, inventory and operating expenses. These operational measures are (a) Financial in nature, i.e. they can be translated to measures such as net profit, return on investment, (b) easy to apply at any level of a firm, and (c) ensure that local decisions are aligned with the profit goal of the firm (Goldratt 1990; Goldratt and Fox, 1986; 1993, Goldratt and Cox, 1992; Noreen et al. 1996). Based on Goldratt's theory, researchers have considered the as probable constraints to make money:

a) A physical constraint such as a machine, or limited capacity or lack of raw material or equipment: The way these are currently used may be limiting the ability of the system to produce more saleable goods/services (Cox et al., 2005).
b) Policy - a written or unwritten policy prevents the system from making more (Mabin and Balderstone, 2003; Maybin et al., 2011; Sadat et al., 2013).
c) Behavioural constraints in form of mental models held by people in the organisation can cause behaviour that becomes a constraint (Mabin and Balderstone, 2003; Maybin et al., 2011; Robbins, 2011).
d) People: Lack of skilled people limits the system. (Robbins, 2011).
e) No value attached to an organisation by people in the organisation (Sadat, 2009; Sadat et al., 2013).
f) No reward coming from an organisation as perceived by people working in the organisation (Robbins, 2011; Chou et al., 2012).
g) No money to execute particular tasks (Cox et al., 2005; Chou et al., 2012).

The main constructs in the study relate to constraints type of innovation and diversification. These can be conceptually reduced as depicted in Figure 1.

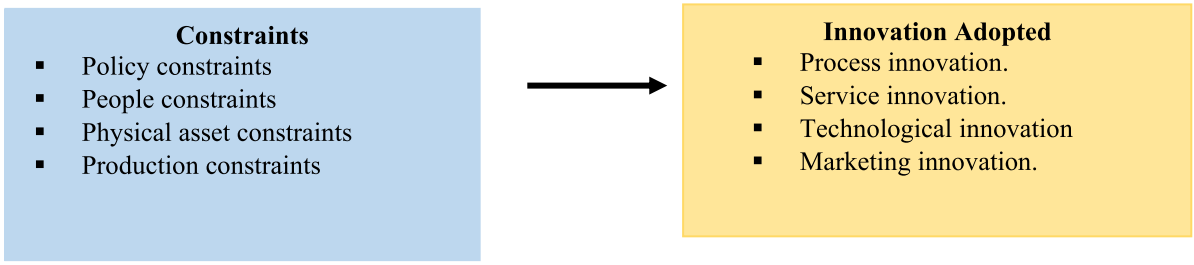

Figure 1: The bottlenecks and type of innovation and diversification

Materials and Methods

This study was a part of a larger cross sectional mixed methods study of innovation and diversification involving the Catholic Church Archdiocese of Lusaka. Approval for the study was obtained from the local institutional review board (HSSREC). We sieve out the quantitative part of this larger study as we investigate the influence of constraints on church financing innovation on as a panacea for change.

The population of the study was eligible leaders. We drew our respondents from the population of structural sub organisation groups (Lay groups and small Christian communities). We employed stratified random sampling in order to divide the population into smaller groups or strata to undertake the sampling process into mutually exclusive, non-overlapping groups of sample units. From these, we then selected responders using a simple random technique. The sample size in each cluster was determined by the simplified Yamane (1967) formula below;

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = is the desired cluster sample size,
N = population size which in this case is the number of mobile service customers in Lusaka,
e= the error of sampling or precision/error limit at 95% level of confidence set at

p = 0.5 being the level of precision that is required.

For each respondent, after receipt of informed consent, the Standardized survey questionnaire was administered with the help of Christian lay leaders in the communities. Out of an estimated 224 and eligible registered MSMEs only 177 questionnaires were returned. The response rate (75.3%) for this study was satisfactory and has adequate power to detect small effects. Data was collected over three months from January 2022 to March 2022. Respondents provided written informed consent for study participation. The study protocol was approved by the Institutional Review Board at the University of Zambia prior to the field work.

Instrument Design

The constructs and concepts as well as variables were inductively isolated from the literature. The main constructs covered the following domains as defined in section 3.1.2":

1) Social economic profiling of respondents
2) Current Sources of Archdiocese of Lusaka financing
3) Innovation and
4) Constraints

In order to ensure that the tool was trustworthy, we employed three stages as follows.

Stage I

Following the development of the draft questionnaire, we employed a Delphi technique. A Delphi procedure consisting of anonymous reviews of experts (Altschuld, 2003) in business management at the Zambia Centre for Accountancy Studies (ZCAS) were given the first draft of the questionnaire to validate. The selection of participants for this Delphi was critical because we feared that if it was poorly managed, it would affect the quality of the validation outcome (see Altschuld and Thomas, 1991). This panel of nine experts were willing to review the instrument. The panellists voluntarily based on their ample specialized experience in business management reviewed the initial constructs of the survey questionnaire. We asked the experts to assess semantic, idiomatic, experiential, and conceptual equivalence as proposed by Guillemin et al. (1993) and Beaton et al. (2000). The experts were expected to score on the questionnaire all the items by rating them using a five point scale as "very clearly fitting the constructs", "clearly fitting the constructs; "somewhat fitting the constructs; or "poorly fitting the constructs" and "very poorly fitting" the construct question on innovation and diversification. Only items that met the criterion "very clearly fitting or clearly fitting the constructs;" were appropriate to be included in the final research tool that was to be pilot tested (see Appendix I and II).

Statistical analysis

Content experts had to rate the relevance of each question/item in the questionnaire on a scale of 1 to 5. One proportion agreement method, the Content Validity Index (CVI), was used to estimate quantitatively the content validity (Polit and Beck, 2006; Larsson et al., 2015). Specifically, the item Content Validity Index (I-CVI) was computed as the number of content valid experts giving a rating of either 3 (quite relevant) or 5 (highly relevant), divided by the total number of experts (Polit et al., 2007). Because the I-CVI ought to be 1.00 when four or fewer experts are used to judge the validity of each question (Polit and Beck, 2006), total agreement (the number of items that achieved the I-CVI of 1.00 divided by the total number of items to be validated in the questionnaire) was calculated to represent the proportion of questions that experts deemed highly or extremely relevant. Additionally, a Scale-Content Validity Index (S-CVI/Ave) was computed to summarise the overall content validity of the questionnaire. This was calculated as the average I-CVIs for all the items in the questionnaire. An S-CVI/Ave of greater than 0.90 would qualify the questionnaire to be content valid (Davis, 1992) (see Table 1).

Table 1: Profile of items and fitting and not fitting extant constructions

Variable	Distribution	
Innovation		
Clearly fitting the construct	5	55.6
Somewhat fitting the construct	2	22.2
Not fitting the construct	2	22.2
Total	9	100.0
Constraints		
Not Clearly fitting the theory	3	33.3
Clearly fitting the theory	4	44.4
Somewhat fitting the theory	2	22.2
Total	9	100.0

Stage II

Once the items (Questions) of the questionnaire were appraised, we saw it befitting to conduct a pilot study. We took the pilot study in this study to test the performance characteristics and capabilities of our study techniques (data tool validation, procedures, sampling and recruitment criteria as well as examining operational strategies that were under consideration for use in the subsequent study in Lusaka (Polit et al., 2001; Teijlingen et al. 2001).

We did this following ethical approval**.** The importance of this pilot study rested on the need to confer reliability to assess cost, feasibility, and the methodology as well as the data analysis for the main study. We opted to employ a qualitative validation method as the first step of reliability check because it was possible to establish the stability of the items that would yield a similar measure from t_1 to t_2. t_1 was the initial piloting phase and t_2 was the second phase of the piloting. Validation of a data collection instrument was for us as a necessary step in research. This however, is emphasised in research manuals e.g. Seliger and Shohamy, (1989), Hatch and Lazaraton, (1991) and MacNealy (1999). Kafue District was chosen for the pilot.

Kafue is about 50 kilometres from the City of Lusaka. We considered Kafue District as one of the best simulators in terms of the probable entrepreneurial or diversification activities as well as the worshipping culture of a Zambian urban place since congregants in Kafue live and operate under similar conditions. The pilot study was done with a small sample of 15 congregants (van Teijlingen et al., 2001). The primary objective of the pre-test study were to assess the comprehensibility of the questionnaire and evaluate the feasibility concerns for the main study data collection. We used the maximum amount of time needed to complete the questionnaires by all the participants as a measure of comprehensibility. This was an opportunity for us to appreciate if there was confusion about any items, and whether respondents would have suggestions for possible improvements of the items.

Apart from validating the questionnaire, the pilot experience helped is in assessing the feasibility of a (full-scale) study (Polit et al., 2001; Teijlingen et al. 2001). The pilot helped us in determining that the research project was realistic and workable as it uncovered potential logistical problems which most pilot tests tend to show (van Teijlingen et al. 2001). The procedure for the pre-test involved giving information letters explaining the purpose and the nature of the pre-test study to the respondents first. We augmented the information by clear oral explanations. Thereafter, the questionnaires were self-administered and most of the times in our presence if the respondents wished so. While completing the questionnaires, respondents were strongly encouraged to ask us on the spot or to call us when clarification was necessary. At the end, we requested our participants to comment whether they understood each question in the questionnaire and the response options provided. Any question, response option, word or phrase that was misunderstood by at least one of the respondents was modified or reworded until it was deemed satisfactory by the respective respondent(s).

On average, the respondents took 20±6 minutes to complete the questionnaire which was more than the anticipated 15 ±5 minutes. This was attributable to a number of reasons. This was particularly noticed on questions enquiring about innovation which seemed not be clear as respondents kept on asking us questions. Another significant reason noted for the lengthened time of completing the questionnaires was the frequent demands made by our respondents seeking clarification from us whether the study would change the church tradition of financing. This happened on a number of questions such as questions on church policy and ways of working to raise revenue.

From this exercise, we had an opportunity to perfect the questionnaire with a view to determine whether or not the items (questions) are inappropriate or too complicated (Baker 1994, de Vaus, 2014). During the pilot study, we were in a position to eliminate or refine or re order the questions/items (van Teijlingen et al. 2015).

Stage III

We performed a reliability analysis to determine the internal consistency of items. For this activity, Cronbach's Alpha Coefficient for Internal Consistency and we set at ≥ 0.6 (Nunnally and Bernstein, 1994; Bland and Altman, 1997; Tavakol and Dennick 2011). Two important considerations were taken when using the test–retest method: first, the variables to be measured could be subject to significant change (wording) and second, repeated administering of the same questionnaire may result in the sensitisation of the respondents to the issue being researched. Both concerns are related to the time between t_1 the test and t_2 retest, which implies that the decision about the appropriate length of time to re administer is crucial; however, little information is available on the time factor in the literature. Only respondents who answered both test and retest were included in the analysis of the pilot survey validity process.

The test and retest responses were then subjected to analysis. Differences between the test and retest were analysed using non-parametric Sign-Rank tests since innovation and diversification items did not accomplish normality, and Student's t-tests were applied for confirmation. The test-retest reliability of innovation items (constructs) was discerned through interclass correlation coefficients (ICC) and interpreted according to Rosner's classification. Also, Bland-Altman analyses were used for examining the mean differences and limits of agreement (on innovation and diversification) between test and retest. We applied this method to describe

agreement between two quantitative measurements of t_i and t_2 (Bland and Altman 1999). Bland and Altman established a method to quantify agreement between two quantitative measurements by constructing limits of agreement. We calculated statistical limits using the mean and the standard deviation (s) of the differences between two measurements. To check the assumptions of normality of differences and other characteristics, we used a graphical approach. Based on the quantification of the agreement between two quantitative measurements by studying the mean difference and constructing limits of agreement, we noted that the means of t_i and t_2 for most of the items were the same (Bland and Altman 1999). The details are seen in Table 2.

Table 2: Data of an agreement between two tests

	t_1 (units)	t_2 (units)	Mean $(t_1+t_2)/2$ (units)	$(t_1 - t_2)$ (units)	$(t_1 - t_2)$/ Mean (%)
Grants from foreign missions account for %	1.0	8.0	4.5	-7.0	-155.6%
Business ventures account for %	5.0	16.0	10.5	-11.0	-104.8%
Offerings account for %	10.0	30.0	20.0	-20.0	-100.0%
Church obligations (Ecclesia) accounts for %	20.0	24.0	22.0	-4.0	-18.2%
Lack of qualified people	50.0	39.0	44.5	11.0	24.7%
Lack of adequate numbers of people	85.0	98.0	97.0	-11.0	-33.2%
The current church policy has not recommended new ways of working	99.0	84.0	83.0	20.0	26.2%
The current policy has not described to new members of the Parish Council, “how things are done” .	140.0	177.0	160.2	-32.0	-19.7%
The current church policy has not provided for procedures on how (e.g. existing products and services could be improved) and these act as constraints to raising revenue	40.0	54.0	47.0	-14.0	-29.8%
The current church policy has not recommended new ways of going about raising revenue.	50.0	40.0	45.0	10.0	22.2%
Our congregation has deeply ingrained beliefs - “we must always keep to what we do”.	60.0	68.0	64.0	-8.0	-12.5%
The church has limited output of its services to raise revenue	70.0	72.0	71.0	-2.0	-2.8%
The church has limited clientele to serve and raise revenue	80.0	62.0	71.0	18.0	25.4%
The church has limited finances to invest in production ventures and raise more revenue	90.0	122.0	106.0	-32.0	-30.2%
The church intends to improve the current services it is offering to its clientele by updating or upgrading to raise revenue	100.0	80.0	90.0	20.0	22.2%
The church intends launch the current services to new markets to raise revenue (Service innovation).	150.0	181.0	165.5	-31.0	-18.7%
The church intends to reduce the cost of doing business by being efficient in the process of delivery of services to raise revenue (Technological innovation).	200.0	259.0	229.5	-59.0	-25.7%
The church intends to make known its products or services to new customers to raise revenue current businesses to raise revenue	250.0	275.0	262.5	-25.0	-9.5%
Tick your church orientation	750.0	793.0	771.5	-43.0	-5.6%
Age	800.0	851.0	825.5	-51.0	-6.2%
Gender	850.0	871.0	860.5	-21.0	-2.4%
For how long have you served on the in the leadership position at the Parish Council or Lay Group level (e.g Catechist Leader)	900.0	957.0	928.5	-57.0	-6.1%
Indicate your highest academic qualifications	950.0	1001.0	975.5	-51.0	-5.2%
Area	1000.0	960.0	980.0	40.0	4.1%
mean ($\bar{d}$)				-27.17	-17.40%
standard deviation (s)				34.81	-12.64%

From Table 2 the average of the differences is -27.17 units (bottom line of Table). This mean difference (d) is not zero, and this means that on average the second method measures 27.17 units more than the first one. This bias could be a constant or an average result arising from problems for specific concentrations or values. It is important to evaluate the differences at different magnitudes of the measured variable. If neither of the two methods is a "reference", the differences could be compared with the mean of the two paired values. The average can be seen in column 3.

The pilot exercise also allowed the possibility to test the recording process as well as the transcription.

Data Analysis

We analysed quantitative data using the Statistical Package for the Social Sciences (SPSS), Version 24.0. Descriptive and multivariate statistics were used to determine measures of central tendency and dispersion and to characterise variables. For the quantification of influence of constraints on innovation and diversification, we opted to use linear logistic regression. Assumptions of ordinal regression were checked and confirmed to not be violated using the guidelines by Hair et al. (2006)and Hill and Hill (2009). Models were computed separately for each outcome variable against the battery of predictors. Statistical significance was set at a nominal alpha of 0.05.

General Profile of Respondents

As expected the representation in the sample resembles what the general population would depict (Table 3).

Table 3: Archdiocese Profile

Archdiocese Profile	*Frequency*	
	n	*%*
Archdiocese Orientation		
Parish Priest	36	13.7
Parish Council Leader	78	29.7
Lay Group Leader	57	21.7
Small Christian Community Leader	77	29.3
Archdiocese Leader	9	3.4
Archdiocese Management	6	2.3
Total	263	100.0

There were slightly more females n = 145 (55.1%) in the sample than males n = 118 (44.9%). The distribution in terms of age group was not even though respondents over the Zambian definition of a youth (35 years) was ≥ 35 but less than 50 dominated and accounted for n= 161 (61.2%) (Table 4).

Table 4: Demograic Profile

Demographic variable	*Frequency*	
	N	*%*
Age		
Less than 25	5	1.9
25 to 34	44	16.7
35 to 44	84	31.9
45 to 54	77	29.3
Over 54	53	20.2
Gender		
Male	118	44.9
Female	145	55.1

In the sample, slightly less than half of the respondents n = 126 (47.9%) had been exposed to senior secondary education. One hundred and four (39.5%) had tertiary education exposure. However education seemed to have a bearing on holding a position in the Archdiocese. The higher the qualifications one had the more likely such a one would be an Archdiocese Leader, Parish Council Leader or Priest. However, it did not matter what education exposure one had to be a Lay Group Leader or a Small Christian Community Leader (Table 5).

Table 5: Demograic Profile of Archdiocese orientation and education exposure

	Highest academic qualifications			Total
	Tertiary Education	Senior Secondary	Junior Secondary	
Parish Priest	36	0	0	36
Parish Council Leader	27	43	8	78
Lay Group Leader	11	38	8	57
Small Christian Community Leader	15	45	17	77
Archdiocese Leader	9	0	0	9
Archdiocese Management	6	0	0	6
Total	104	126	33	263

Current state of Archdiocese operational financing

Respondents were asked to rate the sources of financing for the church's operations in numeric terms as percentage. The responses show that the bulk of Archdiocese financing comes from offerings and Archdiocese obligations for ecclesia and the sample means account for 80 and 70% respectively. Grants from foreign missions account for and business ventures, the means account for a paltry 4.7 and 6% respectively (see Table 6).

Table 6: Sources of Archdiocese Financing

	Grants from foreign missions account for %	Business ventures account for %	Offerings account for %	Archdiocese obligations (Ecclesia) accounts for %
Mean	4.78	6.07	80.76	78.03
Median	5.00	.00	81.00	80.00
Mode	5	0	80	80
Std. Deviation	3.78	6.62	5.78	8.83
Minimum	0	0	70	60
Maximum	20	30	89	89

Intention to Innovate

Intention to innovate was assessed using five questions which were framed on a five point agreement ordinal score as follows 1 for strongly disagree, 2 for disagree, 3 for somewhat agree, 4 for agree and 5 for strongly agree. Looking at the first dependent variable which is intention to innovate, using the rule of summation to determine which side of the ordinal scale weighs more than the other in order to decide, the median (SWA) is used to create two polar points of type of agreements when dealing with Likert items. The data shows that the church's intention to innovate is towards agreement and disagreement in all variables (Table 7).

Table 7: Descriptive Profile of Intention

	Frequency				
Intention Variable	***1***	***2***	***3***	***4***	***5***
The church intends to improve the current services it is offering to its clientele by updating or upgrading to raise revenue (Process innovation).	68	119	23	33	20
The church intends launch the current services to new markets to raise revenue (Service innovation).	73	127	43	10	10
The church intends to reduce the cost of doing business by being efficient in the process of delivery of services to raise revenue (Technological innovation).	63	129	44	12	15
The church intends to make known its products or services to new customers to raise revenue current businesses to raise revenue (marketing innovation).	94	100	28	26	15
The church intends to change how its current business functions to make money (Business model innovation)	11	104	26	7	15

While the descriptive data above shows a general picture, the analysis below shows the distribution of intention to innovate following analysis of the composite scores of the four variables. The sample mean score as indicated in Table 8 being 10 (± 4.08 SD), is lower than the expected reference value of ≥16 as ststed in the

decision thresholds (See Table 8).

Table 8: Descriprtives of Intention to Innovate

Mean	10.59
Median	10.00
Mode	10
Std. Deviation	4.08
Minimum	5
Maximum	25

Further, in order to appreciate the distribution in terms of categorisation of influence of production factors on church financing innovation to raise revenue, majority of the respondents affirm that the four church financing innovation factors fall in the low category of intention to innovate and raise revenue whose range is 12 to 18 (see the decision thresholds in Table 9). This further is supported by the sample mean score of 10.59 that also falls within the decision thresholds.

Table 9: Level of Intention to Innovate

Level of Intention to Innovate	*Frequency*	*Percent*
Low intention to innovate and raise revenue	178	67.7
Moderate intention to innovate and raise revenue	69	26.2
High intention to innovate and raise revenue	16	6.1
Total	263	100.0

Linear regression was performed to determine the impact of constraints on church financing innovation intention. The key information from the table below is the R^2 value of 0.073. This indicates that 7.3% of the variation in the thirteen predictors can be explained by the model containing intention to innovate. This is quite low so predictions from the regression equation are not fairly reliable. It also means that 92.7% of the variation is still unexplained so adding other independent variables could not improve the fit of the model. The Durbin Watson (DW) statistic was employed to test for autocorrelation in the residuals. The Durbin-Watson statistic will always have a value ranging between 0 and 4. There was a positive autocorrelation as the value was less than 2 and this is perfectly normal (Table 10).

Table 1.10: Model Summary for Church financing innovation intention

R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.073	.025	4.035	1.146

a. Predictors: (Constant), The church has limited finances to invest in production ventures and raise more revenue, Material shortages as tangible items have been a constraint to raise revenue in our enterprises, Our congregation has deeply ingrained beliefs - the belief that “we must always keep to what we do”., Lack of qualified people, been a barrier to raise revenue, The church has limited clientele to serve and raise revenue, The current church policy has not recommended new ways of working has been a barrier to raise revenue, Lack of adequate numbers of people has been a barrier to raise revenue, The church has limited output of its services to raise revenue, The current overall Catholic liturgical regulations act as barriers to raising revenue, The current church policy has recommended new ways of going about raising revenue., The current policy has described to new members of the Parish Council, as “how things are done here” and this is not a barrier to raising revenue., Equipment as tangible items, such as material shortages have been a constraint to raise revenue in our enterprises, The current church policy has not provided for procedures on how (e.g. existing products and services could be improved) and these are barriers to raising revenue

b. Dependent Variable: Intention to innovate

This model summary is satisfactory to proceed with the next step – performing ANOVA. The ANOVA table (Table 11) below reports how the regression equation predicts the data fit (i.e., predicts the dependent variable in this case intention to innovate. An examination of the "Regression" row indicates the statistical significance of the regression model that was run. Here, p is 0.02, which is less than 0.05, and indicates that, overall, the regression model predicts the outcome variable (i.e., it is not a good fit for the data).

Table 11: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	321.50	13	24.73	1.519	.02
	Residual	4053.96	249	16.28		
	Total	4375.46	262			

a. Dependent Variable: Intention to innovate

b. Predictors: (Constant), The church has limited finances to invest in production ventures and raise more revenue, Material shortages as tangible items have been a constraint to raise revenue in our enterprises, Our

congregation has deeply ingrained beliefs - the belief that "we must always keep to what we do"., Lack of qualified people, been a barrier to raise revenue, The church has limited clientele to serve and raise revenue, The current church policy has not recommended new ways of working has been a barrier to raise revenue, Lack of adequate numbers of people has been a barrier to raise revenue, The church has limited output of its services to raise revenue, The current overall Catholic liturgical regulations act as barriers to raising revenue, The current church policy has recommended new ways of going about raising revenue., The current policy has described to new members of the Parish Council, as "how things are done here" and this is not a barrier to raising revenue., Equipment as tangible items, such as material shortages have been a constraint to raise revenue in our enterprises, The current church policy has not provided for procedures on how (e.g. existing products and services could be improved) and these are barriers to raising revenue.

It should be ststed that the Coefficients table is the most important table in regression analysis in that it contains the coefficients for the regression equation and tests of significance. Correlation and multiple regression analyses were conducted to examine the relationship between intention to innovate and the four predictors. From Table 12 above, three predictors have impacts on intention to innovate. From the regression coefficient table Sig. or p values are < 0.05 only for the following variables:

1) Material shortages as tangible items have been a constraint to raise revenue in our enterprises
2) The current church policy has not recommended new ways of working has been a barrier to raise revenue and
3) The church has limited finances to invest in production ventures and raise more revenue.

Table 12: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.889	3.119		3.171	.002
	Equipment as tangible items, such as material shortages have been a constraint to raise revenue in our enterprises	.923	.442	.185	2.087	.038*
	Material shortages as tangible items have been a constraint to raise revenue in our enterprises	-1.262	.513	-.218	-2.46	.015*
	Lack of qualified people, been a barrier to raise revenue	-.400	.394	-.068	-1.01	.311
	Lack of adequate numbers of people has been a barrier to raise revenue	.160	.452	.024	.354	.724
	The current church policy has not recommended new ways of working has been a barrier to raise revenue	.992	.328	.230	3.023	.003*
	The current policy has described to new members of the Parish Council, as "how things are done here" and this is not a barrier to raising revenue.	-.470	.390	-.095	-1.20	.229
	The current church policy has not provided for procedures on how (e.g. existing products and services could be improved) and these are barriers to raising revenue	.095	1.050	.022	.090	.928
	The current church policy has recommended new ways of going about raising revenue.	.028	.273	.008	.103	.918
	The current overall Catholic liturgical regulations act as barriers to raising revenue	-.279	1.028	-.065	-.272	.786
	Our congregation has deeply ingrained beliefs - the belief that "we must always keep to what we do".	-.084	.275	-.020	-.308	.759
	The church has limited output of its services to raise revenue	-.017	.525	-.002	-.032	.974
	The church has limited clientele to serve and raise revenue	-.096	.211	-.034	-.453	.651
	The church has limited finances to invest in production ventures and raise more revenue	.412	.197	.131	2.086	.038*

Dependent Variable: : Intention to innovate

Discussion

The results of the study further showed the importance of TOC in innovation studies in a faith based organisation as a moderating factor for church finance innovation. This study has identified significant positive effects with three predictors of constraints affecting church finance innovation with a view to raise more revenue and these are (a) equipment, material shortages (b) the current church policy has not recommended new ways of working and the church has limited finances to invest in the current production ventures. The theory of innovation is the most important system theory. In the absence of previous research, we are unable to contextualise our findings. This finding emphasizes the effects of constraints influence the impact of innovation on the existing products or services. In terms of the role of constraints, it can be seen that the link between constraints and intention to innovate are strong. It will be beneficial to congregations to consider and take the constraints into account before considering investing in innovative projects, products or even adopting innovation to improve the current entrepreneurial activities and products and services.

Practical implications

This paper has practical implications regarding the Archdiocese to consider increasing its current sources of financing by way of innovation. The present study covers a research gap in that it empirically validates the link between TOC church financing innovations in faith based institutions. This paper provides evidence that (1) material shortages as tangible items, the current church policy has not recommended new ways of working and limited finances to invest in production ventures and raise more revenue are constraints which are at the centre of non-increase in church revenue from the existing entrepreneurial activities. There may be need to consider shaping the direction of revenue innovation by looking into these three constraints. This would require joint inputs from several fronts (Senge et al., 2007) and including increasing free will offering. These communities confront what is known as the problem of collective action (Olson, 1965).

Conclusion

The level of intention in this study was low. The findings provide initial evidence that the Catholic Archdiocese of Lusaka ought to strive to remain competitive, and raise more income and sustain itself. To this end, proper innovation of church financing and addressing the three constraints becomes imperative. The culture of doing business has changed globally – and even the church ought to change by way it deals with innovation constraints.

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Conflicts of Interest

The authors declare that the main study that forms part of this paper was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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