

THE ROLE OF SUPPLY CHAIN GOVERNANCE STRUCTURES ON SUPPLY CHAIN  
PERFORMANCE IN EASTERN UGANDA

BY

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## DECLARATION

I hereby declare this as being original, using information from both primary and secondary sources. I believe that this work has never been produced or presented by any one at any academic level of any institution for any award.

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## APPROVAL

This is to certify that this work has been done under my supervision as the university supervisor

Signature.....



Date.....

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## DEDICATION

This piece of work is dedicated to my lovely parents, my father, Rtd Major Abdulwahab Iliyasu Atta and my mother; Pastor Mrs. Rebecca Atta for their love and support you show me throughout my Research.

## ACKNOWLEDGEMENT

I truly thank God for the gift of good health and friends. My sincere heart appreciation goes to my supervisor **Dr. Sarah Bimbona** for the guidance and encouragement up to this stage of submission. My lecturers for academic encouragement and guidance.

Fellow students for moral, academic support and encouragement. To my respondents of this study, please thank you for the cooperation during my interactions with you. Sincere appreciation to all relatives and friends especially **brothers and sisters**.

I also acknowledge Kampala International University for making me to learn and to believe in myself a lot that I can achieve my goals.

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May God bless you all.

## TABLE OF CONTENT

Declaration.....	i
Approve.....	ii
Dedication.....	iii
Acknowledgment.....	iv
Abstract.....	v
Chapter one.....	1
Introduction.....	1
1.1 Background to the Study.....	1
1.2 Statement of the Problem.....	3
1.3 Purpose of the Study.....	4
1.4 Objectives of the Study.....	4
1.5 Research Questions.....	4
1.6 Scope of the Study.....	5
1.6.1 Area Scope .....	5
1.6.2 Subject Scope.....	5
1.7 Significance of the Study.....	5
1.8 Conceptual Framework.....	6
1.10 Organisation of the study.....	6
Chapter Two.....	7
Literature Review.....	7
2.0 Introduction.....	7
2.1 Supply chain Governance Structures and Supply Chain Performance.....	7
2.2 Ethical Behaviour and the Supply Chain Performance.....	8
2.3 Governance Structures, Transaction Costs and Supply Chain Performance...	10
2.4 Summary of the Chapter.....	11

Chapter three..... 12

Methodology..... 12

3.1 Introduction..... 12

3.2 Research Design..... 12

3.3 Study Population..... 12

3.4 Sample Size..... 13

3.5 Sampling Method..... 13

3.6 Data Sources ..... 14

3.6.1 Primary Data..... 14

3.7 Data Collection Instruments..... 14

3.8 Validity and Reliability of Research Instrument ..... 14

3.9 Measurement of variables..... 15

Chapter four..... 17

Results and findings of the survey..... 17

4.1 Introduction..... 17

Chapter five..... 24

Discussions, conclusions and recommendations..... 24

5.1 Introduction..... 24

5.2 Discussion of Findings..... 24

5.3 The relationship between governance structures and supply chain..... 24

performance of essential drugs

5.4 The relationship between ethical behaviour and the supply chain..... 25

performance of essential drugs

5.7 Conclusion..... 26

5.8 Recommendations..... 27

5.9 Areas for Further Research..... 28

5.10 Limitations of the study ..... 28

References..... 29



## ABSTRACT

Supply chain performance of essential drugs has raised public concern in Uganda. The aim of this study was to examine the relationship between governance structures, ethical behaviour and supply chain performance of essential drugs in Uganda. 310 respondents were randomly selected through a quantitative cross-sectional survey. Questionnaires administered and subjected to rigorous data processing and analysis using SPSS 20.

Findings revealed that supply chain governance structures, ethical behaviour and transaction costs predicted up to 29.2% of the variance in supply chain performance. According to the study, all the study variables were significant predictors of supply chain performance of essential drugs. Governance structures were better predictors of supply chain performance of essential drugs compared to ethical behaviour and transaction costs.

The study recommends that a research be carried out comprising other factors which were not part of the model but could predict supply chain performance of essential drugs.

The study further recommended that the key players in the supply chain of essential drugs should ensure adherence set policies, improve work ethics and endeavour to reduce on transaction costs.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Supply chain governance structures commonly referred to as a set of rules that governs transactions between parties in an exchange, are key in ensuring ethical behaviour and supply chain performance (Murray 2003). However, in cases of supply chain governance structures without ethical behaviour, supply chain performance will not be proper. Various names such as vertical coordination, channel types and distribution styles have been used in literature to refer to supply governance structures. Different governance structures are therefore characterized in extent, complexity and duration and may determine the level of vertical coordination. The co-existence of the various forms of governance structures in the supply chains is fuelled by the various governance structure types that vary in relevance according to the type of commodity, and the level of transaction cost (TC) which differs with the type of supply chain governance structure used (Boger, 2001). Moreover, Boger (2001) argued that the purpose of a firm's existence is not only to minimize transaction costs but also production costs for pursuing profit and enhancing the firms' supply chain performance outcomes. By extending Boger's argument, a firm's supply chain performance outcome which integrates various aspects of economic, non-economic and ethical parameters may be considered as an effective way of assessing the efficiency of the supply chain governance structure.

According to the transaction cost theory, the firms' decision to select a supply chain governance structure is made on the basis of comparative institutional efficiency, and ascertains which of the alternatives constitute the transaction cost minimizing condition (Kim, 1998). Whipple et al. (1999) argued that a particular governance structure type may be very

efficient in reducing transaction costs in an exchange but may not be effective to provide services that satisfy customers. The issues of ethical behaviour and governance structures in procurement have become increasingly critical to many organizations, especially with regard to supply chains (Carter 2000). By embracing the intention and spirit of these requirements in all aspects of business, companies will become more effective and better run, fostering greater supplier confidence and leading to a positive impact on the supply chains. In a supply chain that is trying to rid itself of an image of corruption, kickbacks and the lack of ethics, governance structures and transaction costs go a long way towards satisfying stakeholders' needs for transparency.

The issue of governance structures and ethical behaviour seems a challenge as far as public health centres/hospitals are concerned since the centres/hospitals can only source drugs and health supplies from other suppliers like Joint Medical Stores (JMS) only when a certificate of non availability is issued by national Medical Stores (NMS). Requisitions for drugs are submitted through the districts to NMS on a quarterly basis and funding is through the government credit line system. NMS which has a role of transporting drugs to districts and makes quarterly delivery schedules still suffers inefficiencies since some districts still travel all the way to Entebbe to collect their supplies because of delays in NMS transport system. It is also evident that as a result of unscrupulous behaviours of the officers stationed at the different stages of the supply chain, the shortages of drugs have continued to arise in Eastern Uganda (The New Vision, Thursday, January 29, 2009). This has found expression in the form of wrong information sharing so as to hoard the drugs and other supplies in favour of another health centres, influence peddling by district health officials to have their regions be favoured for drugs supply and some of the drugs and supplies finding their way in drug shops and or clinics belonging to health officials. Interruptions in the supply chains results into shortages or

non availability of critical health commodities in many health centres and public health sector programs. Reports on the expiry of drugs at National medical stores and various district health centres/hospitals has attracted a lot of public attention as why drugs should expire when some health centres/Hospitals in the Eastern Uganda are suffering shortages. As reported in The New Vision, Thursday, January 29, 2009 that the procurement of drugs from the National Medical Stores contributes a lot to the expiry of drugs and the health centres/hospitals are attracted to procure drugs with short-shelf life at reduced prices. In the same article Kamabare (2006) revealed that NMS spends UGX. 400m annually to store the expired drugs and UGX. 800m to destroy the rotten drugs. Madraa, (2006) recounts the existence of a very weak supply chain of essential drugs. It is against this background that the study seeks to examine the relationships between governance structures, ethical behavior, transaction costs and supply chain performance of essential drugs in Eastern Uganda.

## **.2 Statement of the Problem**

According to the Ministry of health, Uganda (2014), there is rampant unavailability/shortage of essential drugs, delays in procurement and distribution services, poor storage and weak quality control systems, stock-outs and short shelf life /poor quality of drugs which has affected the delivery of health services in the region. In 2013, Oluka et al., found indicators that hospitals are mainly affected by lack of credible and accessible drug consumption information, poor planning, forecasting and logistics. This could have been attributed to the weak governance structures, unethical behavior and the increasing transactional costs in the supply chain of essential drugs in Eastern Uganda.

### **1.3 Purpose of the Study**

The study seeks to examine the relationship between governance structures, ethical behaviour and supply chain performance of essential drugs in Eastern Uganda.

### **1.4 Objectives of the Study**

- i) To examine the relationship between Supply chain governance structures and supply chain performance of essential drugs.
- ii) To establish the relationship between ethical behaviour and the supply chain performance of essential drugs.
- iii) To establish the relationship between governance structures, transaction costs and the supply chain performance of essential drugs.

### **1.5 Research Questions**

- i) What is the relationship between Supply chain governance structures and supply chain performance of essential drugs?
- ii) What is the relationship between ethical behaviour and the supply chain performance of essential drugs
- iii) What is the relationship between governance structures, transaction costs and the supply chain performance of essential drugs?

## **1.6 Scope of the Study**

### **1.6.1 Area Scope**

The study focused on the government health centres/hospitals in Eastern Uganda because this region has reported several cases of malaria, tuberculosis etc diseases that require essential drugs. Other factors were held constant during this study.

### **1.6.2 Subject Scope**

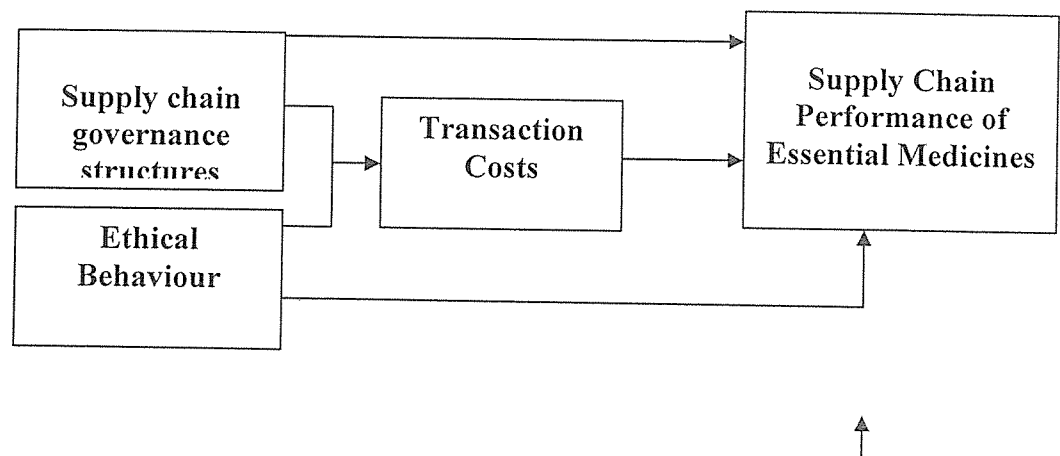
The study focused on the relationships between governance structures, ethical behaviour, transaction costs and supply chain performance of essential medicine in Eastern Uganda.

## **1.7 Significance of the Study**

- i) The results of the study will help the key players in the supply chain of essential drugs in Uganda realize the effect of governance structures, ethical behaviour and transaction costs on the supply chain performance of essential medicine so as to develop the necessary strategies to strengthen supply chain performance of essential drugs in Eastern Uganda.
- ii) From the findings indicated significant relationships between the study variables and supply chain performance of essential drugs. Thus the findings from the study will be used for further reference by other academicians to understand better the relationships between governance structures, ethical behaviour, transaction costs and supply chain performance.
- iii) The policy makers such as the Ministry of Health and National Medical Stores will use the findings and recommendations of the study in the development and strengthening of the existing policies and regulations as regards the supply chain performance of essential drugs in Eastern Uganda and the rest of the country.

1.8 Conceptual Framework

Figure 1.1: Conceptual Framework



Developed from existing literature: (Governance Structures, transaction costs & Supply Chain Performance)-Heide and John, 1992; Noordewier, John and Nevin, 1990; (Governance Structures & Supply Chain Performance)-Ferguson 2004; Lim 1998; Mighell, Jones1963; Barkema, Drabenstott1995; Hobbs 1996; Peterson, Wysocki 1997)

.10 Organisation of the study

Chapter one was the introduction to the study which included; background to the study, statement of the problem, purpose of the study, research objectives, research questions, scope of study, significance of the study, conceptual framework, and organisation of the study. Chapter two was a review of relational literature on the study variables.

Chapter three was the methodology of the study which included research design, survey population, and sampling design, and data collection, measurement of variables, data analysis and limitations of the study. Chapter four was presentation and interpretation of findings. Lastly was chapter five which consisted of the discussions, conclusions of major findings, recommendations and areas for further search.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

An extensive review of the existing literature was done of the study variables (governance structures, ethical behaviour and supply chain performance) and the dependent variable to bring out the literature supporting the relationships in the suggested model for the research.

#### 2.1 Supply chain Governance Structures and Supply Chain Performance

A dominant theory explaining these choices is the transaction cost economics theory, often linked with the work of Williamson (1991). The transaction cost economics claims that actors aim to minimise the cost of the transactions they conduct. These actors opt for a particular governance structure placed on a continuum, ranging from spot market to vertical integration (Denolf et al 2015).

A number of studies have been conducted on the supply chain governance structure types in the business literature, and these studies have distinguished between Spot Markets, Long-Term Relationships, Marketing Contract, Production Contracts, Contract Farming and Vertical Integration in the supply chain continuum (Peng, 2015). Where Spot Market (SM) is used, goods are exchanged between multiple buyers and sellers at the current time period with price as the main determinant of the final transaction (Hobbs 1996). The other end of the supply chain continuum is the Vertical Integration (VI) which refers to a situation where products move between various stages of production, processing and distribution as a result of within the firm managerial orders rather than at the direction of prices. In between the two polar forms, there are the intermediate types of governance structures like the long-term relationships (L-TR), marketing contracts (MC), production contracts (PC) and contract farming (CF) (Spiller et al. 2005). In the long-term relationships, the exchange partners are dependent of each other and are bonded by the long-term non-contractual relationships. The



marketing contract represents an agreement by a buyer to provide a market for the seller's output. In this arrangement, the seller transfers some risks and decision over when and how the product is to be sold to the buyer. The production contract exists where the buyer supplies and manages all the inputs on the farm and the farmer usually becomes just a supplier of the land and labour (Singh, 2000). Next to the production contract in the supply chain continuum, there is the contract farming which refers to the system of production and supply of products by farmers to the buyers under forward contracts. The essence of such arrangements is the commitment to provide a commodity of a type, at a specify time, price and in specified quantity to a known buyer (Singh 2000). In this case, the contract farming can be looked at as a half way between the independent farm production and the corporate farming.

## **2.2 Ethical Behaviour and the Supply Chain Performance**

Seuring and Müller (2008) defined the term SSCM is defined as “the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements.” Whilst, Mentzer et al. (2001) define supply chain management as a systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole. The approach of supply chain management is derived from the fact that there are dependencies between levels in channels from the point-of-origin to the point-of-consumption (Lambert et al., 1998). Usually in supply chain management, the point-of-origin refers to suppliers or manufacturers (Carter et al., 1995), while the point-of-consumption refers to consumers, customers or end-users in a supply chain (Min and Mentzer, 2000). Bowersox and Closs (1996) define the channel construct as the structure of inter-company units and extra-company agents

and dealers, wholesale and retail, through which a commodity, product, or service is marketed. Dependence refers to there being a link, a tie, or a bond between one echelon in relation to another echelon or echelons in channels (Lambert et al., 1998; Håkansson and Snehota, 1995). Svensson (2002) divides the dependence between levels in channels into three principal categories (i.e. time-dependence, relational-dependence, and functional-dependence) and three sub-categories (unidirectional/bi-directional, direct/indirect and vertical/horizontal). Berenbeim (2000) cites three trends as evidence of the growing importance of ethics in business: the globalization of markets and the need for core values and principles that are universally applicable, the acceptance of these values and principles as part of the corporate governance as illustrated by increased participation of boards in their development and the improved ethical literacy of senior managers as illustrated by the increasing sophistication of the values and principles. There are various facets of business ethics (Svensson and Wood, 2004) – both internal and external. On the one hand, business ethics has an external emphasis. In particular, business ethics considers the gap between the EVP of corporate behavior/business operations and the marketplace's/society's perceptions of the EVP of corporate behavior/business operations. Corporate ethics, on the other hand, has an internal emphasis. In particular, corporate ethics considers the gap between the management's ethical behavior and the employees' perception of the management's ethical behavior in business operations. The role of ethics in supply chain management described in this article is limited to the external approach in the next section. Wood's (2002) partnership model also provides a partial foundation for a conceptual framework of ethics in supply chain management. His model consists of four levels of commitment to EVP, namely: ethical culture, to and from staff and shareholders, ethical organizational artifacts, and ethics in the marketplace. The partnership model stresses the importance of companies' commitment to EVP. This model and a pre-study have been used as inspiration to outline different orientations of supply chain management-ethics. Supply chain management-ethics may be distinguished derived from the relationships of organizations, the industry, the marketplace and the society. They are based upon two

components (i.e. union and connection), all of which applies to both upstream and downstream directions of corporate behavior and business operations. Supply chain management-ethics may be limited to understand the EVP of the supply chain from a short-term perspective and narrow approach. Long-term and broadened supply chain management-ethics requires the understanding of EVP in the marketplace and society (i.e. split-vision). Supply chain management -ethics requires vertical as well as horizontal corporate focus to be successful in the marketplace and society. Maintaining a kind of tunnel-vision of EVP may endanger corporate business performance, while a kind of split-vision of EVP may strengthen its opportunities to be successful in corporate behavior and business operations.

### **2.3 Governance Structures, Transaction Costs and Supply Chain Performance**

Transaction cost analysis (TCA) provides efficiency-based guidelines to determine which governance structure would be appropriate for which type of task, and tries to align a governance structure with transactions required for the performance of the task. Accordingly the governance structure utilized by a firm should be one that minimizes the sum of the cost of performing the task within the boundaries of the firm and the cost of managing the transaction if the task was performed outside of the firm's boundaries. Thus the transaction cost analysis recognizes that while transaction cost economizing is important, such economizing does not proceed regardless of production cost ramifications. It also notes that the analysis of transaction costs should be located within a larger economizing framework, and the resultant trade-offs between transaction and production costs should be considered (Williamson, 1985). Though Williamson recognizes this trade-off, his thesis, nonetheless, retains the primacy of transaction costs – the alignment of governance structure with transactions is done in a mainly transaction-cost-economizing way” (Williamson, 1991).

The consideration of transaction costs is primary when asset specificity is high, as is the case in most of Williamson's applications. Extending the primacy of transaction costs to marketing applications is

problematic, however. There are several problems with the manner in which transaction cost analysis has been applied to guide marketing decisions. First, a number of applications (Heide and John, 1992; Noordewier, John and Nevin, 1990) utilize the firm as the unit of analysis, and conceive governance structures at too high a level of aggregation. While in some cases firms as a whole might be integrated or deintegrated, most governance decisions are made at the functional level (e.g. research and development, distribution, advertising, etc.) because transaction and production costs are incurred at this level. The extent of integration within a firm can vary considerably from one task to another. For instance, the firm could integrate research and development and advertising, and deintegrate distribution. The second, and perhaps the more critical, problem pertains to the nature of asset specificity. When assets are highly specific, transaction costs become extremely high and transaction cost economizing becomes the dominant concern in designing governance structures. Real-world firms, however, need to produce and manage business functions that require assets whose specificity is low to moderate. High asset specificity, with zero salvage value, is an exception. Under moderate to low specificity antecedents other than transaction costs and production costs influence governance decisions. Here strategic concerns override efficiency (minimization of transaction or production costs) concerns in determining functional integration/ deintegration. Most applications of transaction cost analysis to marketing (Heide and John 1990, 1992; Noordewier et al., 1990) uphold the primacy of transaction costs as they speciously assume the extent and importance of asset specificity.

#### **4 Summary of the Chapter**

The chapter has dealt extensively with the review of the related literature on the study variables and their relationships among themselves and the dependent variable; supply chain performance hence providing for the requirement of developing a methodology (chapter three) to establish the samples required to re-present the entire population.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter discussed the practical procedures for carrying out this study. It gave details of the research design to be adopted, nature of sample, sampling procedure, data collection procedures and the final data analysis techniques that were applied. It gave the framework within which data was collected and analyzed.

#### **3.2 Research Design**

The study took the form of a quantitative cross sectional survey design using a correlation approach to establish the strength and direction of relationships between transaction costs, governance structures, ethical behaviour and supply chain performance of essential drugs in Eastern Uganda.

#### **3.3 Study Population**

Eastern Uganda has a total of 22 districts namely; Jinja, Kamuli, Iganga, Mayuge, Lamutumba, Kaliro, Bugiri, Busia, Tororo, Butalegya, Sironko, Kapchorwa, Bukwo, Busia, Mbale, Mubende, Manafwa, Budaka, Pallisa, Kumi, Soroti and Kaberamaido. (Uganda Bureau of statistics report 2008). According to the Ministry of Health Staffing Guidelines (2008), each district is expected to have at least 1 District Secretary for Health, 1 District Health Officer, 1 District Nursing Officer, 1 District Health Educator, 1 District Health Inspector, 1 District Assistant Drug Inspector, 6 Dispensers and 20 nurses. This therefore makes a population of 484 respondents for the health centre/hospital officials for the 22 districts in Eastern Uganda.

For the patients a population size of 5 patients per district thus a total of 110 patients, 5 NMS officers and 5 representatives of the manufacturers of essential drugs were considered appropriate according to Roscoe's rule of thumb.

The study comprised of the patients, health centre IVs/hospital officials, NMS officers and finally representatives of manufacturers of essential drugs from Kampala Pharmaceutical Industries and Quality Chemicals. These respondents were considered important because they are critical as far as the supply chain performance of essential drugs is concerned. The Unit of Analysis for the study was thus an entity.

#### 3.4 Sample Size

The sample size for the health officers was 214 respondents, 86 respondents for the patients and 10 respondents from the manufacturers/NMS officers selected basing on a table for determining sample size by Krejcie & Morgan, (1970).

**Table 3.1: Sample Size**

Category	Population	Sample
Total for health centre/hospital officials	484	214
Patients	110	86
Manufacturers/NMS officers	10	10
<b>Total number of respondents</b>	<b>604</b>	<b>310</b>

Source: Krejcie, Robert V., Morgan, Daryle.

#### 5 Sampling Method

For the health officers stratified proportionate sampling was used to select the respondents from eachatum. For the patients, NMS officers and manufacturers' representatives purposive sampling was used to select respondents who are willing and understand English. Purposive sampling was used in sample selection bearing in mind the objectives of the study which were based on the purpose of the study.

### 3.6 Data Sources

#### 3.6.1 Primary Data:

Primary data was obtained through the use of research-administered questionnaires to respondents following systematic and established academic procedures as suggested by (Churchill, 1979; Garbing and Anderson, 1988; Nunnally and Bernstein, 1994).

### 3.7 Data Collection Instruments

Data from the field was obtained by use of research-administered to the respondents. The questionnaires were validated and pre-tested. The interview method was used to ensure high response rates as well as allowing for clarification of possible ambiguities related to questions asked (Churchill, 1995).

### 3.8 Validity and Reliability of Research Instrument

Validity of the instrument was measured using the Content Validity Index. Reliability of the instrument was tested using the Cronbach Alpha Coefficient. According to Cronbach (1951) a coefficient of 0.5 and above is considered reliable. The Cronbach Alpha Coefficients of the variables were all above 0.5 as shown in the table below:-

Table 3.2 Validity and Reliability

Variable	Anchor	Cronbach Alpha Value (a)
Governance Structures	5 point	.6650
Ethical Behaviour	5 point	.7858
Transaction Cost	5 point	.8299
Supply Chain Performance	5 point	.6243

*Source: Primary Data*

The table above displays the reliability coefficients for all constructs used in the study. All alpha reliabilities ( $\alpha$ ) for all scales were above 0.6, ranging from .6243 to .8299 therefore meeting acceptance standards for research (Nunnally, 1978).

### 3.9 Measurement of variables

Scales from previous studies were used to measure the study variables.

- i. **Supply Chain Performance:** The scales for supply chain performance developed by Croom et. al., (2000) were adopted and used to measure supply chain performance. A 5 point Linkert scales ranging from 5-strongly disagree to 1-strongly agree was used. Measures included fill rate, on-time deliveries and stock outs.
- ii. **Ethical Behaviour:** The scales for ethical behaviour developed by Muncy and Vintell, (1992) was adopted and used to measure ethical behaviour. A 5 point Linkert scales ranging from 5-strongly disagree to 1-strongly agree was used. Measures included business practices, relativism and idealism.
- iii. **Supply chain governance Structures:** The scales for governance structures developed by Murray (2003) were adopted and used to measure governance structures thus legal safeguards and private ordering were used in the study and responses anchored on a 5 point Linkert scale ranging from 5-strongly disagree to 1-strongly agree.

### 3.10 Data Analysis

Data from the field was compiled, sorted, edited and coded to ensure the Statistical Package for Social Sciences (SPSS 20) software for analysis. The data was cleaned and analyzed according to the research questions. Cross tabulations, factor analysis and correlation tests were used to describe the sample characteristics and the objectives of the study. Pearson's Correlation was used to test the nature



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of the relationships between the variables and regression analysis was used to determine the variance in the dependent variable that is explained by the independent variables.

## CHAPTER FOUR

### RESULTS AND FINDINGS OF THE SURVEY

#### 4.1 Introduction

This chapter comprises of a presentation of results and their interpretation. The presentation in this chapter details the results as tested according to the objectives of the study. The beginning section of the chapter starts off with the descriptive statistics which featured mainly item means and clustered pie charts. The descriptives for the items in the instrument were also presented using frequencies for each item to define the relative opinion of the respondents for that particular item. The presentation of this chapter was guided by the following research objectives;-

- i) To examine the relationship between governance structures and supply chain performance of essential drugs.
- ii) To establish the relationship between ethical behaviour and the supply chain performance of essential drugs.
- iii) To establish the relationship between governance structures, transaction costs and the supply chain performance of essential drugs.

#### 4.2 Sample Characteristics

Means were generated to present the results for the sample characteristics. The means were used to indicate variations of respondents based on level of education, period taken to receive essential drugs, number of employees working in organization, customers/Patients attended to daily and period of existence of organisation.

**Table 4.1: Means for Sample Characteristics**

Sample Characteristics	Manufacturers & National Medical Stores	Patients	Health Centres/Hospitals
Level of education	5.38	3.93	4.02
Period taken to receive essential drugs			3.00
Number of employees working in organization	3.17		3.56
Customers/Patients attended to daily	2.73		3.41
Period of existence of organisation	3.00	2.96	2.88

Sample characteristics averages were generated for the sample characteristics that affected the supply chain of essential drugs. According to the level of education, the responses from Manufacturers & National Medical Stores revealed that the average level of education in these organisations was a bachelors degree (Mean=5.38). Results from the health centres/hospitals and patients revealed that the average level of education for staff and patients was at diploma level (Mean=4.02) and (Mean=3.93) respectively.

For the period taken to receive essential drugs, the results revealed that it took 1-2 months for the health centres/hospitals to receive essential drugs (Mean=3.00). Findings about the number of employees working in the organization, the Manufacturers & National Medical Stores revealed that there were over 50 employees in their organizations (Mean=3.17) whereas for the health centres/hospitals, 31-50 staff were employed at the health centres/hospitals (Mean=3.56). For the patients attended to daily, the health centres/hospitals revealed that 31-50 patients were attended to daily (Mean=3.41) and this was the same for the Manufacturers & National Medical Stores they (Mean=2.73). For the findings about period of existence of organization, the all the respondents in their different categories revealed that their organizations had been in existence for a period of 10-25 years.

**Table 4.2: Means for Health Centres/Hospitals' Responses on Study Variables**

Variable	Min	Max	Mean	Std. Deviation
Governance Structures	1	5	3.71	0.32
Ethical Behaviour	1	5	3.30	0.31
Transaction Costs	1	5	3.11	0.66
Supply Chain Performance	1	5	3.69	0.62

Global means for health centres/hospitals responses on the different variables were generated and for governance structures, the health workers agreed to the existence of governance structures at the health centres/hospitals (Mean=3.71). For ethical behaviour, the health centres/hospitals were uncertain as to whether or not there was ethical conduct at the centres/hospitals (Mean=3.30) and this was the same for transactions costs (Mean=3.11). For supply chain performance, the health centres/hospitals revealed that the supply chain of essential drugs was efficient and effective (Mean=3.69).

**Table 4.3: Means for Manufacturers & National Medical Stores' Responses on Study Variables**

Variable	Min	Max	Mean	Std. Deviation
Governance Structures	1	5	3.15	0.39
Ethical Behaviour	1	5	3.52	0.60
Transaction Costs	1	5	3.56	0.52
Supply Chain Performance	1	5	3.42	0.44

Global means of the manufacturers & National Medical Stores responses on the different variables were generated, for governance structures, the manufacturers & National Medical Stores were not sure as to whether there were proper governance structures in their organisations (Mean=3.15). For ethical behaviour, the manufacturers & National Medical Stores agreed to the fact that there was ethical behaviour in their organizations (Mean=3.52) whereas for transactions costs, they revealed that there was existence of transaction costs in their organization in the supply chain of essential drugs

(Mean=3.56). For supply chain performance, they were unsure as whether the supply chain of essential drugs was efficient and effective (Mean=3.42).

**Table 4.4: Means for Patients' Responses on Supply Chain Performance**

Patients	Min	Max	Mean	Std. Deviation
Supply Chain Performance	1	5	3.24	0.61

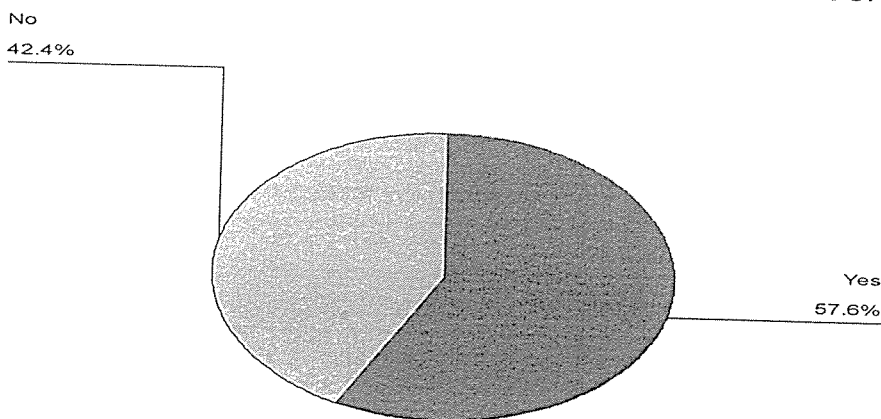
Table 4.4 above shows an average for the item means of patients' responses on supply chain performance which were generated and revealed that the patients were unsure about the performance of the supply chain for essential drugs at the health centres/hospitals (Mean=3.24).

#### 4.2.1 Experience Occurrences of Essential Drugs Stock Outs/expiry

The results in the pie chart below present the distribution of the occurrences of essential drugs stock outs/expiry.

**Fig 4.1: Experience occurrences of essential drugs stock outs/expiry**

Experience occurrences of essential medicines stock out



*Source: Primary Data*

Figure 4.1 shows that 57.6% of the respondents revealed that they experienced occurrences of essential drugs stock outs/expiry whereas 42.4% revealed that they did not.

### 4.3 Pearson's Correlation Coefficients of the Study Variables

#### 4.3.1 Pearson's Correlation Matrix

The Pearson correlation coefficient ( $r$ ) was employed to establish the relationship between governance structures, ethical behaviour, transaction costs and supply chain performance of essential drugs. The results are tabulated in table 4.5 below followed by their interpretation.

**Table 4.5: Pearson Correlation Matrix**

	1	2	3	4
Governance Structures-1	1			
Ethical Behaviour-2	.236**	1		
Transaction Costs-3	-.012	-.107	1	
Supply Chain Performance-4	.309**	.327**	-.404**	1
** Correlation is significant at the 0.01 level (2-tailed).				
* Correlation is significant at the 0.05 level (2-tailed).				

**i) The relationship between supply governance structures and supply chain performance**

From table 4.5 above, correlation results indicated a significant and positive relationship between governance structures and supply chain performance ( $r = .309^{**}$ ,  $p < .01$ ). This means that the more effective and efficient the governance structures are, the greater the level of supply chain performance of essential drugs.

**iv) The relationship between ethical behaviour and the supply chain performance**

From table 4.5 above, correlation results indicated a significant and positive relationship between ethical behaviour and supply chain performance ( $r = .327^{**}$ ,  $p < .01$ ). This means that the higher the level of ethical behaviour the higher the level of supply chain performance of essential drugs.

#### 4.4 Multiple Regression Analysis

Regression analysis was used to determine the extent to which governance structures, ethical behaviour and transaction costs can explain supply chain performance of essential drugs. The stepwise method was used during regression. The results obtained are shown by table 4.11 below:

**Table 4.6: Regression Analysis**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Dependent Variable: Supply Chain Performance	
	B	Std. Error					
(Constant)	2.656	.232		11.427	.000	R Square	.304
Governance Structures	.269	.070	.251	3.847	.000	Adjusted R Square	.292
Ethical Behaviour	.105	.030	.227	3.463	.001		

*Source: Primary Data*

Results show that governance structures, ethical behaviour and transaction costs predict up to 29.2% of the supply chain performance of essential drugs (Adjusted R Square = 0.292,  $p < 0.00$ ). Also, the results revealed that governance structures, ethical behaviour and transaction costs were significant predictors of the supply chain performance of essential drugs ( $\beta = 0.251$ ,  $p < 0.000$ ), ( $\beta = 0.227$ ,  $p < 0.001$ ) and ( $\beta = 0.377$ ,  $p < 0.000$ ) respectively.

#### 4.5 Summary of the Chapter

Chapter four has presented findings on sample characteristics, relationships between the study variables and regression analysis. This chapter revealed that there were significant correlations between all the study variables. The regression model has shown 29.2% of the variance in supply chain performance. The next chapter discusses the observed findings and provides recommendations.





## CHAPTER FIVE:

### DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction:

In this chapter, a discussion of research findings is presented. Conclusions are drawn and recommendations made. The discussions, conclusions and recommendations were made in accordance with the research objectives. Answers to these objectives were from primary data from the staff and health centres/hospitals patients in Eastern Uganda plus NMS officers and representatives of the manufacturers of essential drugs.

#### 5.2 Discussion of Findings

This section discusses the research findings in relation to the research questions below:

- i. What is the relationship between governance structures and supply chain performance of essential drugs?
- ii. What is the relationship between ethical behaviour and the supply chain performance of essential drugs?
- ii. To establish the relationship between governance structures, transaction costs and the supply chain performance of essential drugs.

#### 3 The relationship between governance structures and supply chain performance of essential drugs

Findings from the study revealed that there was a significant correlation between governance structures and supply chain performance. This revealed that when there is a high level of governance structures towards the distribution of essential drugs there was likely to be efficiency in the supply chain performance. The existing literature indicates that a number of studies have been conducted on supply chain governance structure types in the agribusiness literature, and these studies have

distinguished between spot markets, long-term relationships, marketing contract, production contracts, contract farming and vertical integration in the supply chain continuum. Where spot market (SM) is used, goods are exchanged between multiple buyers and sellers at the current time period with price as the main determinant of the final transaction (Hobbs 1996). The other end of the supply chain continuum is the vertical integration (VI) which refers to a situation where products move between various stages of production, processing and distribution as a result of within the firm managerial orders rather than at the direction of prices. In between the two polar forms, there are the intermediate types of governance structures like the long-term relationships (L-TR), marketing contracts (MC), production contracts (PC) and contract farming (CF) (Spiller et al. 2005). In the long-term relationships, the exchange partners are independent of each other and are bonded by the long-term non-contractual relationships. The marketing contract represents an agreement by a buyer to provide a market for the seller's output. In this arrangement, the seller transfers some risks and decision over when and how the product is to be sold to the buyer. The production contract exists where the buyer supplies and manages all the inputs on the farm and the farmer usually becomes just a supplier of the land and labour (Singh, 2000). Next to the production contract in the supply chain continuum, there is the contract farming which refers to the system of production and supply of products by farmers to the buyers under forward contracts. The essence of such arrangements is the commitment to provide a commodity of a type, at a specify time, price and in specified quantity to a known buyer (Singh 2000). In this case, the CF can be looked at as a half way between the independent farm production and the corporate farming.

#### **4 The relationship between ethical behaviour and the supply chain performance of essential drugs**

The correlation results revealed a significant and positive relationship between ethical behaviour and supply chain performance which implied that a high level of ethical behaviour towards the distribution

of essential drugs would contribute greatly to inefficiencies in the supply chain of essential drugs. This is in agreement with the work of Berenbeim (2000) who cites three trends as evidence of the growing importance of ethics in business: the globalization of markets and the need for core values and principles that are universally applicable, the acceptance of these values and principles as part of the corporate governance as illustrated by increased participation of boards in their development and the improved ethical literacy of senior managers . They emphasize that business ethics considers the gap between the corporate behavior/business operations and the marketplace's/society's perceptions of corporate behavior/business operations. The existence of this relationship is probably because in most cases the fill rate, timely deliveries and stock outs in the supply chain will greatly depend on the ethical behaviour of the stakeholders so as to achieve efficiency. The results on the relationship between ethical behaviour and supply chain performance of essential drugs revealed that, when the drugs are used to benefit particular groups of individuals thus used for personal gain and there was no ethical dealing with co-workers, this would greatly jeopardise the performance of the supply chain for essential drugs in the region. This is emphasised by Wood (2002) who believes that ethics is based on two components (i.e. union and connection), all of which applies to both upstream and downstream directions of corporate behavior and business operations.

## **7 Conclusion**

The study set out to examine the relationship between governance structures, ethical behaviour, and transaction costs and supply chain performance of essential drugs in Eastern Uganda. In particular, the study examined relationships between the study variables; governance structures, ethical behaviour, transaction costs and supply chain performance. All the relationships were significant. The study also examined the effect of the study variables on the dependent variable; all independent variables were found to be significant predictors of supply chain performance. Ethical behaviour and transaction costs

were the most significant predictors. The independent variables accounted for only 29.2% of the variance in supply chain performance.

## 5.8 Recommendations

After considering the results of this study, recommendations are suggested that should provide more information to medical officers and managers on how to improve and maintain the supply chains of essential drugs.

- ) Governance structures, ethical behaviour and transaction costs predicted 29.2% of the variance in supply chain performance of essential drugs in eastern Uganda. The researcher recommends that a study be carried out comprising of other factors which were not part of the model to try and predict supply chain performance as this could increase the variance in the supply chain performance of essential drugs in Uganda.
- ) The supply chain partners and policy makers of essential drugs should put in place systems to enhance ethical behaviours and governance structures while reducing transaction costs since they were found to be significant predictors of supply chain performance of essential drugs. The key players in the supply chain of essential drugs should put more emphasis on ensuring that staff emit desired work ethics, systems that ensure adherence to set policies and procedures and endeavour to eliminate behavioural uncertainty and opportunism.
- i) The health centre/hospital officials, NMS officers and manufacturers of essential drugs should undertake a deliberate policy to always interact with the patients to be able to understand how they perceive the performance of the supply chain of essential drugs as far as refill rate, stock outs and on-time delivery of essential drugs were concerned. This will help identify the gaps in the supply chain of essential drugs and make effort to close the gaps as a means of enhancing effectiveness and efficiency of the supply chain of essential drugs.

## **5.9 Areas for Further Research**

The results of the study point to a number of opportunities for further research into governance structures, ethical behaviour, transaction costs and supply chain performance. These include but not limited to the following:

- i) A critical review of the literature shows an association between trust, retention, image and networking, which were not part of this study. Further studies would benefit from including the above components.
- ii) The model could only explain 29.2% in variance of the supply chain performance of essential drugs in Uganda, the researcher recommends that a study be carried out comprising of other variables such as commitment, trust, relationship quality which were not part of the model to try and predict supply chain performance of essential drugs in Uganda.
- iii) To study the true nature of governance structures, ethical behaviour and transaction costs, a longitudinal study is more appropriate.

## **.10 Limitations of the study**

- i) According to the population, the study required selecting a sample which could have excluded some of the respondents with vital information. Through purposive sampling, the researcher took care of such respondents not to be excluded during data collection.
- ii) The questionnaire design might have limited additional responses. This was mitigated through prompting the respondents to provide additional information.
- ii) The health centre/hospital officials, representatives of manufacturers and NMS officers were fearful in providing confidential information for the organizations they work for. Here the researcher assured the respondents that the information provided was for only academic purposes by presenting the letter from the Graduate and Research Centre. Some of the

respondents remained sceptical to provide the required information which affected the final results of the study.

- iv) The scales in the questionnaire were adopted from other studies conducted in different environments from that of Uganda, which caused bias among the respondents. The researcher engaged experts in the fields of transaction costs, governance structures, ethical behaviour and supply chain performance to moderate the scales adapted to fit the Ugandan setting.

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#### SECTION I: GENERAL INFORMATION

Please tick the appropriate response for the questions below:

## Demographic Characteristics

1. What is the name of your Health Centre/Hospital (optional):  
.....

2. How long does it take your Health Centre/Hospital to receive essential drugs from National Medical Stores

Code	1	2	3	4
Duration	Less than a week	1-4 weeks	1-2 months	Over 3 months
Tick				

3. Do you experience occurrences of essential drugs stock outs/expiry?

Code	1	2
Level	Yes	No
Tick		

1. Level of Education

Code	1	2	3	4	5	6	7
Level	No Education	Primary	Secondary	Diploma	Bachelors degree	Masters	PhD
Tick							

For how long has the Health Centre/Hospital been in existence?

Code	1	2	3	4
Duration	0-5yrs	5-10 yrs	10-25 yrs	Over 25 yrs
Tick				

How many employees are working in your Health Centre/Hospital?

Code	1	2	3	4	5
No.	Less than 10	11-30	31-50	Over 50	Not sure
Tick					

How many patients does your Health Centre/Hospital attend to daily?

Code	1	2	3	4	5
No.	Less than 10	11-30	31-50	Over 50	Not sure
Tick					

Please indicate by ticking in the appropriate box to the extent to which you agree with the statement below:

## SECTION II: SUPPLY CHAIN GOVERNANCE STRUCTURES

Legal safeguards	Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
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1	The contract forms the core of our relationship with patients	1	2	3	4	5
2	It is not so important in our relationships with patients and NMS to have a good contract	1	2	3	4	5
3	The risk in the relationships with our patients is sufficiently covered by contractual and non-contractual means	1	2	3	4	5
4	Actually, we cannot afford a break with our patients	1	2	3	4	5
5	The contract with the patients is as complete as possible	1	2	3	4	5
6	Because we have been doing business so long with our patients, all kinds of procedures have become self-evident	1	2	3	4	5
7	Because we have been doing business so long with our patients, we can understand each other well and quickly	1	2	3	4	5
3	Our patients can not afford a break with us	1	2	3	4	5
1	If the relationship with our centre/hospital is broken, the patients will have trouble finding a comparable centre/hospital	1	2	3	4	5
0	We know much more about the patients than they know about us	1	2	3	4	5
1	Our patients are more dependant on us than we are on them	1	2	3	4	5
2	In our relationships with our patients, it is assumed that contracts will in general be renewed	1	2	3	4	5
3	For the foreseeable future we do not expect a break with our patients	1	2	3	4	5
4	If the relationship with our patients break, it will take us much effort to fill the gap in turnover	1	2	3	4	5
	<b>Private ordering</b>					
	The patient shares in the payment for the investments in specific tools and/or measurement apparatus that we must make for the production of the essential drugs	1	2	3	4	5
	The centre/hospital is given guarantees for supply for an agreed period of time	1	2	3	4	5
	The location of our centre/hospital plays an important role in the relation with our patients	1	2	3	4	5
	There is restriction of room for opportunism alter in our centre/hospital	1	2	3	4	5
	We provide an important source of information on essential drugs for our patients	1	2	3	4	5
	The relationship between our centre/hospital and our patients has continuously improved in the course of time	1	2	3	4	5
	Our service to our patients has improved strongly in the course of time	1	2	3	4	5
	The patient shares in the payment for specific machines and apparatus that we must use for the supply of the essential drugs	1	2	3	4	5
	If our patients do not behave fairly, they could seriously damage their reputation in the market	1	2	3	4	5

### CTION III: ETHICAL BEHAVIOUR

Business Practices	Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
I call in sick in order to take a day off	1	2	3	4	5
I report a co-worker's violation of the organisations' policies and guidelines	1	2	3	4	5
I do not divulge confidential information to parties external to the organisation	1	2	3	4	5
I take the necessary time to do a job	1	2	3	4	5
I do not take extra personal time during lunch hour, break and early departures	1	2	3	4	5
Falsifying time/quality/quantity reports	1	2	3	4	5
I do not authorize subordinates to violate the organisation's policies and guidelines	1	2	3	4	5
I do not falsify internal time/quality/quantity reports for the organisation	1	2	3	4	5
I do not pass blame for errors to an innocent co-worker	1	2	3	4	5
I do not claim credit for peers' work	1	2	3	4	5
I give gifts/favors in exchange for preferential treatment	1	2	3	4	5

12	I accept gifts/favors in exchange for preferential treatment	1	2	3	4	5
13	I overstate expense accounts by more than 10% of the correct amount	1	2	3	4	5
14	I use the organisational services for personal use	1	2	3	4	5
15	I remove the organisations' supplies for personal use	1	2	3	4	5
16	I use the organisation time for personal business	1	2	3	4	5
	<b>Relativism</b>	<b>Strongly Disagree(1)</b>	<b>Disagree(2)</b>	<b>Not Sure (3)</b>	<b>Agree(4)</b>	<b>Strongly Agree(5)</b>
1	There are no ethical principles that are so important that they should be part of any code of ethics.	1	2	3	4	5
2	What is ethical varies from one situation and organisation to another.	1	2	3	4	5
3	Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.	1	2	3	4	5
4	Different types of moralities cannot be compared as to "rightness".	1	2	3	4	5
5	What is ethical for everyone can never be resolved since what is moral or immoral is up to the individual.	1	2	3	4	5
6	Moral standards are simply personal rules which indicate how a person should behave, and are not to be applied in making judgments of others.	1	2	3	4	5
7	Ethical considerations in interpersonal relations are so complex that individuals should be allowed to formulate their own individual codes.	1	2	3	4	5
8	Rigidly codifying an ethical position that prevents certain types of actions stand in the way of better human relations and adjustment.	1	2	3	4	5
9	No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.	1	2	3	4	5
10	Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.	1	2	3	4	5
	<b>Idealism</b>	<b>Strongly Disagree(1)</b>	<b>Disagree(2)</b>	<b>Not Sure (3)</b>	<b>Agree(4)</b>	<b>Strongly Agree(5)</b>
	An organisation should make certain that its actions never intentionally harm another even to a small degree.	1	2	3	4	5
	Risks to another should never be tolerated, irrespective of how small the risks might be.	1	2	3	4	5
	The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.	1	2	3	4	5
	One should never psychologically or physically harm another person.	1	2	3	4	5
	One should not perform an action which might in any way threaten the dignity and welfare of another individual.	1	2	3	4	5
	If an action could harm an innocent other, then it should not be done.	1	2	3	4	5
	Deciding whether or not to perform an act by balancing the positive consequences of the act against the negative consequences of the act is immoral.	1	2	3	4	5
	The dignity and welfare of people should be the most important concern in any organisation.	1	2	3	4	5
	It is never necessary to sacrifice the welfare of others.	1	2	3	4	5
	Moral actions are those which closely match ideals of the most "perfect" action.	1	2	3	4	5

#### SECTION IV: TRANSACTION COSTS

Opportunism		Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
1	Our Health Centre/Hospital has to sometimes alter the facts about supplies slightly in order to get what it needs.	1	2	3	4	5
2	Sometimes our Health Centre/Hospital presents facts about essential drugs to the patients in such a way that they look good.	1	2	3	4	5
3	I think that complete honesty does not pay when dealing with patients and suppliers	1	2	3	4	5
4	Our Health Centre/Hospital sometimes has to exaggerate users' needs to benefit from it	1	2	3	4	5
5	The management of my Health Centre/Hospital will do anything within its means to further the interests of the Health Centre/Hospital	1	2	3	4	5
6	The government distorts information about certain things in order to protect their interests	1	2	3	4	5
7	Our Health Centre/Hospital always provides a truthful picture of its entire operations	1	2	3	4	5
8	Sometimes the our Health Centre/Hospital slightly alters facts in order to get what it needs	1	2	3	4	5
9	The management of my Health Centre/Hospital has on several occasions promised to do things and does not do them	1	2	3	4	5
10	Sometimes the management of my Health Centre/Hospital presents facts in such away that they look good	1	2	3	4	5
11	On several occasions, the management of my Health Centre/Hospital has lied about certain things in order to protect their interests	1	2	3	4	5
12	Sometimes the management of my Health Centre/Hospital has to exaggerate their offer in order to get what they really need from government	1	2	3	4	5
Asset Specificity		Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
	My Health Centre/Hospital has the needed specialized facilities for effective handling of essential drugs					
	My Health Centre/Hospital has the needed specialized facilities for effective storage of essential drugs	1	2	3	4	5
	Certain fees must be paid by the Health Centre/Hospital before the supply of essential drugs	1	2	3	4	5
	The current facilities for the Health Centre/Hospital are dedicated to handling of supplies of essential drugs	1	2	3	4	5
Behavioral Uncertainty		Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
	Its difficult to be assured that services of National Medical Stores are reliable	1	2	3	4	5
	its difficult to be assured that National Medical Stores will perform well in the supply of essential drugs to the Health Centre/Hospital	1	2	3	4	5
	After my Health Centre/Hospital has issued the goods receipt note, its difficult to return	1	2	3	4	5

	the drugs to NMS					
4	After my Health Centre/Hospital has issued the goods receipt note, its difficult to exchange the defective drugs	1	2	3	4	5
5	It is difficult for my Health Centre/Hospital to be assured that the supplier (NMS) delivery date is reliable	1	2	3	4	5
7	It is difficult for my Health Centre/Hospital to be assured that the transactions with NMS will not involve other costs	1	2	3	4	5
8	Is difficult for my Health Centre/Hospital to predict how much inventory to stock	1	2	3	4	5

#### SECTION V: SUPPLY CHAIN PERFORMANCE

	Strongly Disagree(1)	Disagree(2)	Not Sure (3)	Agree(4)	Strongly Agree(5)
National Medical Stores (NMS) establishes more frequent contact with my Health Centre/Hospital	1	2	3	4	5
NMS creates a compatible combination and information system	1	2	3	4	5
Our Health Centre/Hospital extends its supply chain beyond its patients/supplier	1	2	3	4	5
Our Health Centre/Hospital participates in the marketing effort of the Ministry of Health	1	2	3	4	5
Proximity to our Health Centre/Hospital is an important consideration for our Health Centre/Hospital	1	2	3	4	5
Our Health Centre/Hospital's supplies assortment of essential drugs selection criteria are well defined	1	2	3	4	5
NMS's capacities are sufficient to handle any possible needs of our patients	1	2	3	4	5
Distribution channels in our supply chain can sufficiently supply the current patients	1	2	3	4	5
Logistical activities in our supply chain are coordinated to minimize the problems in distribution/service	1	2	3	4	5
We have a high-level of responsiveness in our Health Centre/Hospital to meet patients' needs	1	2	3	4	5
We have an integrated system across functional areas under Health Centre/Hospital control	1	2	3	4	5
Within our Health Centre/Hospital we emphasize on communication and information flow among order, inventory management and distribution processes	1	2	3	4	5
As a result of essential drugs supply chain practices in our Health Centre/Hospital, on-time delivery of our' orders is significantly increased	1	2	3	4	5
As a result of essential drugs supply chain practices in our Health Centre/Hospital, the level of patient service is increased.	1	2	3	4	5
As a result of essential drugs supply chain practices in our Health Centre/Hospital, our overall competitiveness is significantly increased.	1	2	3	4	5



### APPENDIX III PATIENTS QUESTIONNAIRE

#### SECTION I: GENERAL INFORMATION

Please tick the appropriate response for the questions below:

##### Demographic Characteristics

What is the name of your Health Centre/Hospital (optional):

.....

How long does it take your Health Centre/Hospital to receive essential drugs from National Medical Stores

Code	1	2	3	4
Duration	Less than a week	1-4 weeks	1-2 months	Over 3 months
Tick				

Do you experience occurrences of essential drugs stock outs/expiry?

Code	1	2
	Yes	No
Tick		

##### Level of Education

Code	1	2	3	4	5	6	7

Level	No Education	Primary	Secondary	Diploma	Bachelors degree	Masters	PhD
Tick							

5. For how long has the Health Centre/Hospital been in existence?

Code	1	2	3	4
Duration	0-5yrs	5-10 yrs	10-25 yrs	Over 25 yrs
Tick				

## SECTION II SUPPLY CHAIN PERFORMANCE

	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
The time spent to receive medicine from health centre/hospital is short	1	2	3	4	5
Essential medicine needs are usually administered in a timely manner	1	2	3	4	5
There is a high-level of responsiveness at our Health Centre/Hospital to meet patients' needs	1	2	3	4	5
The time between examination and receiving of medicine from the health centre/hospital is short	1	2	3	4	5
There are usually many patients waiting to receive essential drugs	1	2	3	4	5
We work together with the health/hospital officials	1	2	3	4	5
The health centre/hospital officials are always flexible while giving out essential drugs	1	2	3	4	5
Our delivery schedules for essential drugs are always on time	1	2	3	4	5
Our health centre/hospital often experiences stock outs of essential drugs	1	2	3	4	5
Proximity to our Health Centre/Hospital is an important consideration for our Health Centre/Hospital	1	2	3	4	5
Our Health Centre/Hospital's supplies of essential drugs selection is clear	1	2	3	4	5
Communication on the unavailability of essential drugs at my health centre/hospital is done in time	1	2	3	4	5