THE IMPACT OF GOVERNMENT EXPENDITURE ON PRO POOR SECTORS IN REDUCING POVERTY: THE CASE OF KIBAHA DISTRICT

THE IMPACT OF GOVERNMENT EXPENDITURE ON PRO POOR SECTORS IN REDUCING POVERTY: THE CASE OF KIBAHA DISTRICT

By:

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a Thesis entitled **The Impact of Government Expenditure on Pro poor Sectors in Reducing Poverty: The Case of Kibaha District**, in partial fulfillment of the requirement for Masters of Science in Economics (Msc. Eco) Degree at Mzumbe University.

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With much pleasure, gratitude and honor, I dedicate this thesis to my wife Asia Lumela and my children, Rachel Musiba, Lulu Musiba and Caslim Musiba for their inspirational, unconditional encouragement and patience during my absence.

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ADB	African Development Bank
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
HBS	Household Budget Survey
IFAD	International Fund for Agricultural Development
JISR	Joint Infrastructure Sector Review
LGTP	Local Government Transport programme
LTPP	Long-Term Perspective Plan
MMES	*Mpango wa Maendeleo ya Elimu ya Sekondari, Tanzania*
MMEM	*Mpango wa Maendeleo ya Elimu ya Msingi, Tanzania*
MDG	Millennium Development Goals
MDAs	Ministries, Departments and Agencies.
NBS	National Bureau of Statistic
NSGRP	National Strategy for Growth and Reduction of Poverty, known as MKUKUTA in Swahili
PHDR	Poverty and Human Development Report
PPP	Public Private Participation
PSP	Public Sector Participation
PRS	Poverty Reduction Strategies
PRSP	Poverty Reduction Strategies Paper
TB	Tuberculosis
TSIP	Transport Sector Investment Program
URT	United Republic of Tanzania
WHO	World Health Organization

ABSTRACT

This study examined the impact of government expenditure on pro poor sectors in reducing poverty in Kibaha district for the period of 2000 – 2009. The tool of analysis used is error correction model and pair wise granger causality to examine the impact of government expenditure on pro poor sectors for economic growth and poverty reduction. Tanzania has been characterized by increased public expenditure on pro poor sectors yet, it is experiencing an economic activity and pro poor growth been shrinking. For example, inflation has fallen from 30% in 1995 to 4.4% in 2004 and GDP grew at 5.2% in 2004, up from 2.6% in 1995. Despite these achievements, the decline in poverty has been only 3% during the 1990s (from 39 to 36%). The main objective of this study is to analysis the impact of government expenditure on pro-poor sectors in reducing poverty in Kibaha district. Pro poor sectors mentioned in this study are agriculture, health, education and roads.

This study carried out statistical examinations to ensure the data was valid and reliable. Therefore, data diagnostics (stationery and unusual data) and good-fit model specification test (time series properties, normality test, unit root test, autocorrelation test, and cointegration test) were established. The study indicated that cointegration exist only when Per Capital Income (PCI) act as dependent variable. A long run relationship exists among PCI, road, health, education and agriculture expenditure in Kibaha district. The result for causality shows that government health expenditure granger causes per capital income and the causality runs from health expenditure to per capital income. Moreover, the result shows that on average, government expenditure on education have a positive significant effect on per capita income in Kibaha district. Others, government expenditure on agriculture and roads have positive relationship on per capita income and insignificant. Coefficient of health government expenditure has negative insignificant relationship on per capita income. The results emphasize the importance of government prioritization on its expenditure and spend.

The implications of study are to improve investment to the pro poor sectors. In the course of implementing the development of pro poor sectors and other poverty reduction policies and strategies, people need to be trained for skills necessary to cater for the changing poverty and economic environment. It is recognized that, the success of poverty reduction policy depends on among others, well-developed human resources base.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Since 1985, Tanzania has been implementing a series of economic reform programs to enhance development and improve the well-being of its people. These reforms among others included; macroeconomic stabilization programs, the process of trade liberalization, the privatization of government parastatals and opening market for foreign investment in the form of Foreign Direct Investment (FDI). In line with policies geared towards maintaining sound macroeconomic stability, the government also focused on policies that triggered to improve the performance of social sectors such as education, water, health and social welfare concerns. Despite all these efforts, poverty in Tanzania has remained widespread and pervasive. PHDR, 2007 and HBS, 2007 show that while economic growth has significantly improved over time in Tanzania, the reduction in poverty has not been achieved to the same extent and about 18.7 % of Tanzanians still lived below food poverty line and 35.7% live below basic needs poverty line (PRS, 2001/02).

Rapid and sustained poverty reduction requires pro - poor growth, that is a pace and pattern of growth that enhance the ability of poor to participate in, contribute to and benefit from growth. Public policies and investments need to promote the economic growth to the extent which the poor participate in growth, to interlink the sustained growth and ensure that poor are not marginalized. A better public expenditure with increased access to credit and services to increase productivity, improved transport and investing in social and economic infrastructure helps to kick start growth. Greater expenditure in pro poor sectors, where in this study are classified as education, health, roads and agriculture encourages economic growth (World Bank, 2005b).

This study is concerned with the poverty-related expenditure released by public on four pro-poor sectors of the economy.

The study shows the impact of government expenditure on pro poor sectors in increasing per capita income and poverty reduction. Below is a brief explanation on how pro poor sectors contribute to pro poor growth and poverty reduction:

The link between growth and poverty reduction comes through direct effects of the link between overall economic growth and the speed of poverty reduction and through indirect effect grater taxation revenue that is made possible under high growth. Growth allows government to expand expenditure on pro poor sectors which in turn improves the lives of the poor. Pro poor growth requires a combination of more economic growth, a favourable sectoral and a geographical pattern growth and success in improving access of the poor to productive assets thus enabling them to participate in the growth process.

Therefore, the key aspect of pro poor growth in Kibaha district focuses on the extent to which the poor are participating in the growth process and benefiting from it as well. Pro poor growth indicates that the rural area has poverty reduction, however, the availability of health and education facilities indicate the poor households have success. According to the geographical diversity of poverty done by NBS in 2000, it shows that 16.31% of household in Tanzania live below food poverty line. The statistics also shows that 27.5% of Coast region is deprived in food and 19.2% of unemployment rate. These trends indicate that residents of Coast region are affected by poverty.

There is strong evidence that goods and equitable access to transport infrastructure and its services not only promote pro poor growth but also growth patterns beneficial to poor people. Similarly, the targets of universal education and health care for all would be tough to reach without the provision of transport infrastructure. In short, transport remains a crucial infrastructure that boosts economic development (Phang, 2003). Transport investments are critical for development and poverty reduction. The link and impact lies in the fact that, investing in transportation infrastructure improves access to economic opportunities by reducing transport costs.

It also ensures increased agricultural productivity, opens up room for participation in non-agricultural activities through time saving effects, facilitates the accessibility to markets and social services like education and health; and links the interior sectors to the rest of the world economy.

The construction, rehabilitation and maintenance of transport infrastructure works are also important in income generation aspect. The use of labour based technology for transport infrastructure works generate employment for the poor during the execution of works. This can also be affected through employing small scale labour based local contractors.

There is no country has been able to sustain a rapid transition out of poverty without raising productivity in its agricultural sector (Singapore and Hong Kong are examples). The process involves a successful structural transformation where agriculture, provides food, labour, and even savings to the process of urbanization and industrialization (Timmer, 2005). A dynamic agriculture raises labor productivity in the rural economy, pulls up wages, and gradually eliminates the worst dimensions of poverty. Study done by Irz *et al.,* (2006), shows that there is a strong association between agricultural development and poverty reduction. The study shows that for every 10% increase in farm yields, there has been a 7% reduction in poverty in Africa, more than 5% reduction estimated for Asia. Growth in manufacturing and services has no such effect. This is the reasons for making agricultural development a central strategy for pro-poor growth.

Education is circumscribed by various contexts such as social, economic, political and technological environment. There is no doubt that education is a key input for economic growth, political and cultural growth of nations. Education in Tanzania serves as the main means of providing individuals with the opportunity to achieve their full potential in terms of acquiring the knowledge, skills, values and attitudes needed for various social and economic roles, as well as for their all round personal development (URT, 2000).

It has helped Tanzanian government to promote equitable socio-economic growth and democratic change, whilst guiding essential social cultural attributes that are most valued in the society.

In an era of globalization, education and training, hold the key to; reducing fertility and improving health, increasing productivity of the poor, creating competitive economies, preparing a flexible and adaptable workforce that can cope with the exponential increase in knowledge and information needed in rapidly changing labour force. Others are; enhancing the quality of life in the society, enlightenment and empowerment for individuals and coping with more perennial problems such as poverty and social conflict. Education is clearly identified as one of the strategies for combating poverty due to the personal benefits and the nation's socio-economic development at large (URT, 2000).

Healthier workers are physically and mentally energetic and robust, productive, and earn higher wages. A healthy workforce is important for attracting foreign direct investment. Healthier workers are also less likely to be absent from work due to illness or illness in their family. Illness and disability reduce hourly wages substantially, with the effect in Kibaha district where a higher proportion of the workforce is engaged in manual labour. Ill health may leave persons able to work, but reduce their productivity, shorten their working lives, and increase the numbers of days lost to illness. The study done by Bhargava *et al*., (2001), showed that treatment against hookworms and schistosomiasis in Tanzania improved the haemoglobin concentration of the children which improves the iron status and cognitive development of school children.

Health used to be viewed as an end product of the growth process. Health enhances economic growth, and it seen as a form of human capital and therefore an input into the growth process, as well as an output: countries with educated, healthy populations are in a better position to prosper, especially in a favourable policy environment. Canning (2000), has shown that life expectancy is significantly correlated to subsequent economic growth.

A 10% increase of life expectancy could raise economic growth by 0.4% yearly. Investing in people is essential to achieve development goals like economic growth, structural change and poverty reduction.

The government has its role on economic growth. Gwartney *et al.,* (1998), postulated that, government's activities can improve economic efficiency and thereby improve economic growth. They argued that some government spending will always be desirable in order to promote economic growth and obtain a stable society. However, government activities can also have a negative effect on economic productivity as they grow more and more due to the law of diminishing returns (Gallaway *et al.,* 1998). Further expansion of government activities will have negative impact on the economy. For instance, higher taxes or further borrowing that is required to finance growing government expenditures will negatively affect economic growth. This is because incentives for households to invest take risks and find jobs will decrease as the government takes more and more of their earnings. Gallaway and Vedder they more said that, borrowing can negatively affect private investment since the government crowds out the private sector. This is because the government would have received funds that could have been invested by the private sector. There is also a possibility that these will raise taxes because the government now has higher interest payments.

This thesis examines the impact of government expenditure on pro poor sector in Kibaha district in 2000 - 2009. The study was to observe the impact of government expenditure on pro poor sectors, casual relationships which exist between the selected variables and their correlation in the granger-Causality model adopted.

1.2   Statement of the Problem

Cook, (2005) envisaged that more investments in pro poor sectors will be accompanied by higher output, that is higher expenditure in pro poor sectors will be expected to result in higher contribution of those sector to economic growth and poverty reduction. However, in Kibaha district, increase in the public expenditure on pro poor sectors is not followed with a significant decrease in poverty rate.

Despite increased public expenditures on roads, agriculture, education and health, poverty continue to be the dominant problem in the district and this makes the attainment of the first Millennium Development Goal of reducing poverty difficult.

Tanzania has been characterized by increased expenditure on pro poor sectors (agriculture, health, education and roads) yet, it is experiencing an economic activity and pro poor growth been shrinking. Real GDP is estimated to have contracted in 2007 by more than 6 percent, after declining by about one-third between 1999 and 2006 (World Bank, 2009). Various economic indicators provide evidence of the relative deterioration of the pro poor growth since 2000. For instance, the national poverty headcount fell only 2.1 percentage points, from 35.7 percent in 2000–2001 to 33.6 percent in 2007, with equally modest declines in rural and urban areas (World Bank, 2009). Indeed, the country's poverty–growth elasticity was at most 0.76 during 2001–2007. This relatively weak relationship between expenditure on pro poor sectors and public expenditure raises concerns over a possible decoupling of economic growth and poverty reduction in Tanzania.

With scarce resources it has, the government faces challenges of how can it continue to raise the required resources towards the growth of pro poor sectors investment in line with PSRP initiatives. The question is what sectors are reasonably government spends and invest to increase per capita income and support poverty alleviation? The seriousness of government to increase economic growth and reduce poverty rate is reflected from how well and where the expenditure is allocated in order to support poverty reduction goal. Studies show that no matter what the size of budget is, it is the appropriate allocation that matters. Fan and Rao (2003) explained that allocation of government budget is a key instrument for government to promote economic development and reduce poverty. The other research carried out by Barro (1990) suggests that, it is not a matter of total size of government spending and investing, but the composition of it that would have differential effects on growth and poverty reduction.

Regardless of other important determinant factors on poverty reduction in Kibaha, a kind of sectors invested to and reasonable budget allocation should be considered in order to support the poverty alleviation goal. Since it is possible to compare the kind of pro poor sectors to invest and budgeted amount through budget reclassification process, the government can learn what sector may succeed to reduce poverty rate significantly.

There is an information gap on the contribution of public expenditure on pro poor sectors and poverty reduction in Tanzania. For instance, the study by Fan *et al*., (2005), examined Tanzania has experienced a significant improvement in its economic indicators. For example, inflation has fallen from 30% in 1995 to 4.4% in 2004 and GDP grew at 5.2% in 2004, up from 2.6% in 1995. Despite these achievements, the decline in poverty has been disappointing, particularly in rural areas. Comparison of poverty indicators calculated from the national household budget surveys shows that poverty declined by only 3% during the 1990s (from 39 to 36%). In 2001, Tanzania adopted a medium-term strategy for poverty reduction in the form of a Poverty Reduction Strategy Paper (PRSP) which, among other things, envisages increased public expenditure in strategic sectors that are likely to have greater impact on poverty. The priority sectors are basic education, primary health care, rural roads, water supply, agricultural (including livestock), the judiciary and HIV/AIDS.

The expansion and modernization of pro-poor sectors, is needed in order for the residents to realize their full potential necessary for accelerating pro-poor growth and increasing incomes (NSGRP II, 2010). Yet in Kibaha, the link between public expenditure in pro-poor sectors and poverty reduction in terms of raising agriculture and rural incomes, improving access to health and education, and other social services, is vivid poor. They have high transport cost and access restrictions, due to transport sector inefficiencies, such as an inadequate rural road network and urban congestion do discourage investments.

1.3   Study Objectives

1.3.1   Overall Objective

The general objective of this study is to analysis the impacts of government expenditure on pro-poor sectors on reducing poverty in Kibaha district. Being the sectors identified in PRSP in Tanzania and government invested heavily, one would like to know more about the net benefits to the society of Kibaha, and in particular to the poor. The study uses time series data to achieve the following specific objectives:-

1.3.2 Specific Objectives

i.   To examine the impact of government expenditure on roads, agriculture, education and health towards poverty reduction in Kibaha district;

ii.   To identify the correlation between pro poor sectors (roads, education, health and agriculture) and pro-poor growth in Kibaha; and

iii. To examine the short run and long run relationship between government expenditure on pro-poor sectors and poverty reduction in Kibaha district.

1.4   Hypothesis of the Study

In order to meet the above objectives the following hypothesis was tested:

H_O: Government expenditure on pro poor sectors has no impact on poverty reduction
H_1: Government expenditure on pro poor sectors has impact on poverty reduction

1.5   Conceptual Framework

This section reviews the conceptual framework used in linking public expenditure on pro poor sectors to poverty reduction in the context of income growth. In this study, framework was constructed to help build the capacity for undertaking related public expenditure analysis according to the area context, data availability, and issues analysis. The study concentrated on public expenditure on roads, health, agriculture and education infrastructures and services to support the growth of per capita income which leads to economic growth and poverty reduction. Variables are used to test the significance of the study and interpretation based on findings.

Poverty can be measured in many ways, but this study concentrated on the impact of government expenditure on pro poor sectors, thus roads, agriculture, health and education. The exact dependent and independents variables determined for testing ADF unit roots and cointegration by using VECM through EC1 and derived to use per capita income as dependent variable.

To understand how the government expenditure on pro poor sectors affects rural income and poverty reduction, Figure 1.1 explains a flowchart relationship of those variables.

Figure 1.1: Conceptual Framework
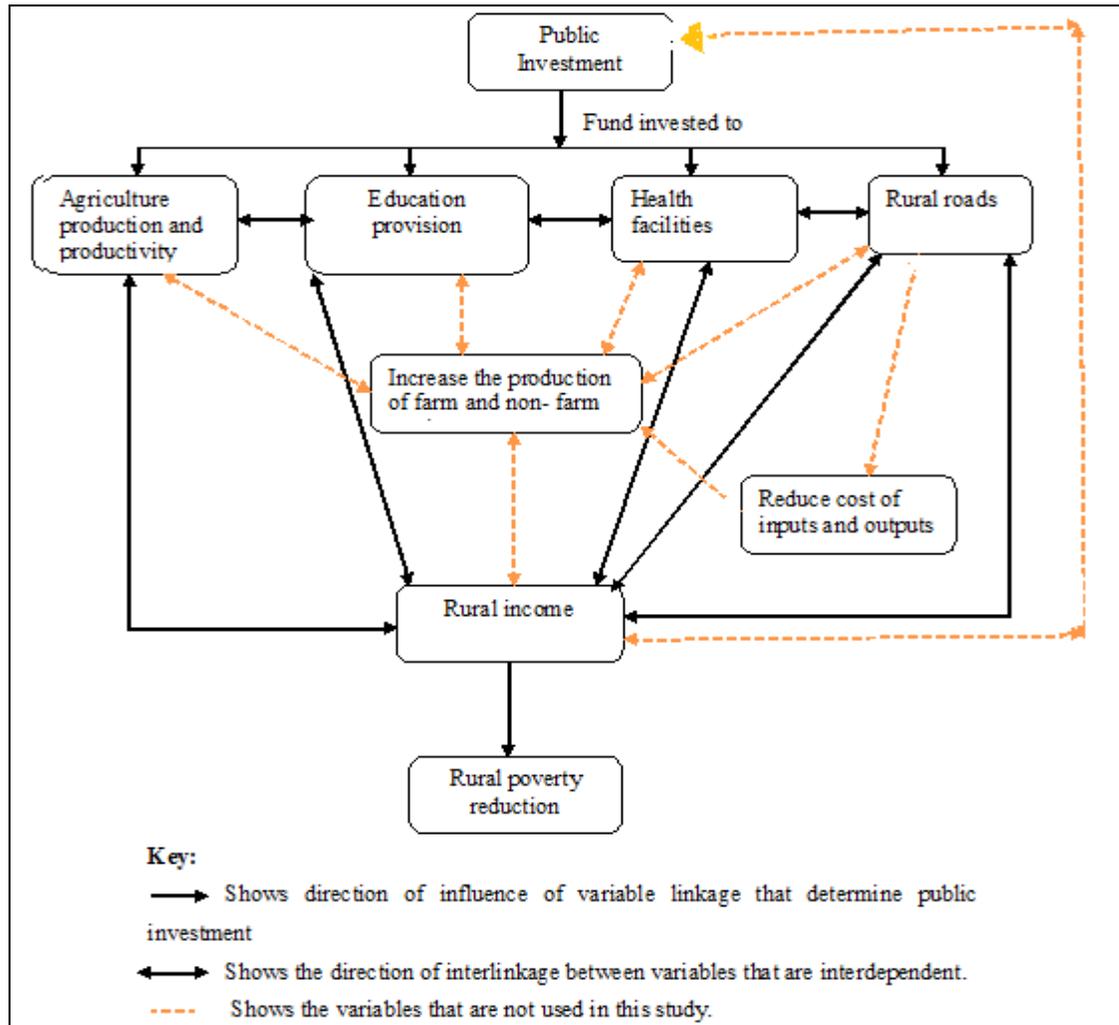
Source: Researcher, 2013

Government spending is driven by the objective to positively affect rural income and poverty reduction as a result of reduced cost of agriculture inputs and outputs and increased production of farms and non farms activities. It clearly shows that government expenditure on pro poor sectors has a direct relationship with poverty reduction. To achieve its effect in poverty reduction, the government spending works to pro poor sectors that result in income growth. Afterward, the income growth could have direct effects in the same directions with poverty reduction (see figure 1.1).

On the other hand, public investment in agriculture production and productivity, education provision, health facilities and roads, directly influences the production of farm and non farms activities. Improved roads reduce transaction cost for both agriculture input and output. Public investment in rural roads directly reduce the cost of inputs and output in all kinds of rural opportunities, thereby directly improving rural income and reducing rural poverty. Another impact pathway arising from reduced transportation and transactions costs, lead to reduced input and food prices and causes real incomes to rise, especially incomes of households that are net buyers of food. Whilst, the investment in health and education improves the quality of human capital by being innovative and able to easily adapt to new technologies or even improve them to be suitable for their environment. Health and education are very important determinants of poverty. Educated and healthy masses have more opportunities for better employment that increases their earnings and helps in raising their living standard. Education is considered to be the most important way to build human capital and eradicate poverty by enhancing productivity.

1.6   Scope of the Study

The study principally focused on the impact of government expenditure on pro poor sectors on reducing poverty in Kibaha district over the period 2000 to 2009, because the government has invested heavily on pro- poor sectors in view of reducing poverty.

Also, the study selects Kibaha district because in year 2000/2001, the number of poor per square Km was 23 and this ranked number three among the six districts in Coast region (NBS, 2005).

The government plays a major role at the national level in the taxation process and spending responsibilities, thus this study limits its study on government expenditure for the aforementioned relationship testing. Furthermore this study was focused on the development expenditure by its infrastructure and services of sectors towards economic growth.

In order to determine the effects of government expenditure on pro poor sectors and poverty reduction, this study employs time series regression analysis to produce the results. In addition, the regression analysis is also expected to show the degree of relationship between per capita income and government expenditure on pro poor sectors. Thus, this study may identify the significance level of pro poor sector. Prior to the time series regression analysis, this study carried out data diagnostics to ensure the data validity and the model reliability.

This study employed government expenditure on pro poor sectors as direct variable which influences poverty reduction. It means to ensure that the amount of sector-based budget allocated have an effect on poverty reduction since the analysis employed was causality analysis.

1.7   Challenges and limitations

The study was limited with the following factors:-

- Lack of up-to-date records and reviews of economic status in Kibaha district due to poor reporting system;
- On the field, it was encountered a problem of bureaucratic procedures and confidentiality in the government institutions which caused to take a long time to get some key information;

- Another issue was that, the recording system in Kibaha district was expected to be good, but some of the information was missing especially those pertaining to released and expenditure fund of some pro poor sectors, this caused the omission of some variables. Similarly those records concerned with economic profile of the district were not properly kept; and

- Despite all the above problems or challenges, one of the strength of this thesis is that it has used statistical software by following and testing different shortfall of using time series data for a more comprehensive picture of the impact of government expenditure on those pro poor variables in reduction of poverty.

1.8   Significance of the study

The study is useful in the following areas:-

- It identifies the impacts of government expenditure on pro poor sectors on poverty reduction. Therefore, adding additional information which form basis for policy formulation so as to reduce poverty and attain MDG1;

- It also provides policy message that need to be worked out by policy makers to reduce pro poor;

- The results of the study and recommendations are expected to contribute to the existing body of knowledge in the academic field, policy and decision makers, development partners, practitioners and stakeholders;

- The study is providing useful theoretical and practical knowledge on factors that constrain the pro poor growth of Kibaha in poverty reduction. On the other hand, the study results are expected to provide useful understanding of the factors that are supportive, influencing and accelerating the economic growth;

- It shows how policies should be formulated so as to increase the per capita income of Kibaha residents; and

- Lastly, the study shades light on what the government can do to maximise pro-poor growth.

1.9 Organization of the study

This thesis consists of five chapters: An introductory chapter, literature review, methodology, discussion of findings and concluding chapters. Chapter one focuses on the introduction of the thesis in the broader context. It also presents the objectives, significance and plan of the study. Chapter two reviews literature on the contribution of government expenditure on pro-poor sectors towards pro-poor growth and poverty reduction. The focus will be on reducing economic poverty through pro-poor growth. This is followed by chapter three, which explain how this study was conducted, the applied methods, techniques in data collection and would also be a discussion on the analytical and statistical techniques used in analysis of data for the study. Chapter four presents the empirical analysis and discussion of findings. The findings derived from the analysis were modeled by statistical and econometric methods in such a way that the objectives of this study can be addressed. The last chapter is assessing the impact of government expenditure on four pro poor sectors in reducing poverty ni Kibaha district. Another aims were to identify the correlation between pro poor sectors and pro-poor growth in Kibaha and to examine the relationship between government expenditure on pro-poor sectors and poverty reduction in Kibaha district.

CHAPTER TWO

LITERATURE REVIEW

2.1   Theories of Public Expenditure

Existing literature on the effects of government expenditure in pro poor sectors on poverty reduction has been addressed from several perspectives. It is generally accepted that the government expenditure policy plays an important role in favour of the poor (Fan *et al.,* 2003) and the study by Mashindano *et al*., (2011) shows that if income increases by 1 percent, poverty for people living in rural areas in Tanzania will decrease by about 2.4 %.

In broad terms, public expenditure is a simple concept: it denotes the dispensation by the state, on non-market criteria, of economic resources that it has acquired from firms and households (David *et al.,* 2002). At first sight, this may reflect a simple concept. However, studies have shown the complexity of theorizing on this concept. This is because across states the level and composition of the concept is subject to an extensive list of influencing factors that differ across countries.

An example to illustrate the complexity of theorizing on public expenditure are the different roles of governments can assume like providing only the basic needs for preventing its citizens from falling under the survival line, to providing goods and services to assure the well being of its citizens and debt servicing and repayment loans only. Some countries are constrained to the level of financial aid to finance development projects. In this study, government expenditures are referred as capital and recurrent expenditure (excluding personal emoluments), which are the government spending and investing to provide infrastructural and services facilities on pro poor sectors mention in this study.

Rostow and Musgrave carried out a research on the growth of public expenditure and concluded that at the early stages of economic development, the rate of growth of public expenditure will be very high, because government provides the basic infrastructural facilities (social overhead). Most of these projects are capital intensive; therefore, the spending of the government will increase steadily. The investment in education, health and roads are necessities that can launch the economy from the traditional stage to the take off stage of economic development making government to spend an increasing amount with time in order to develop an egalitarian society (Ogba, 1999).

2.1.1 Poverty Definitions

The concept of poverty is very diverse, ranging from mere incompetence to meet basic consumption needs and improve the situation, the lack of business opportunities, up to a broader sense that includes social and moral aspects. Poverty is multidimensional and may be defined both by monetary and non-monetary indicators (World Bank, 2005). According to Sen (1999), poverty in its most general sense is the lack of necessities. Examples of necessities are, basic food, income, shelter, education, health, and safety based on shared values of human dignity.

Needs may be relative to what is possible and are based on social definition and past experience (Sen, 1999). Poverty can be shown by the per capita income which exists in the economy. In other words the basic meaning of poverty is relative deprivation. A social definition of poverty allows community flexibility in addressing pressing local issues, while objective definitions allow tracking progress and comparing one area to another.

A broad view of poverty is to take it as multi dimensional deprivation, referring not merely to income and/or consumption levels but also to people's access to public services and to productive assets (including skills and education). Consequently, the most common definition of poverty is the statistical measure established by the government as the annual income needed for a family to survive by the use of the

poverty datum line. The assessment of the poverty line is based on a combination of consumption and income, with income being defined in cash and kind. The poverty line is based on the expenditure necessary to buy a minimum standard of nutrition and other necessities (World Bank, 1990).

Consumption based poverty lines are directed to physical measures of relative well being. The inability to attain minimal standards of consumption to satisfy basic physiological needs is often termed as absolute poverty or deprivation. It is most directly expressed in not having enough to eat (hunger or malnutrition) to which other indicators can be added (World Bank, 2009). By absolute poverty one means that the poverty line has fixed purchasing power. Although it is more common for poverty studies to choose per capita consumption as a measure of individual welfare (Deaton, 1980) there is little difference between income and consumption as such a high fraction of household total income is made up of the consumption of own-produced goods and the consumption of own collected environmental goods, which appear in both income and consumption accounts.

By relative poverty means that the poverty line tends to have higher real value in less poor sub-groups. For example, the poverty line might be set as a constant proportion of mean income. This method can show rising poverty even when the levels of living of the poor have in fact risen. This study will confine attention to absolute poverty and defined it as the statistical measure established by the government expenditure to pro poor sectors.

2.1.2   Measuring Poverty

Poverty can be measured in different ways including different variables and which indicate different types of poverty deprivations. Most commonly per capita income or consumption is used as a monetary measure. Non-monetary measures, for example Human Development Index, include variables of life expectancy, educational attainment and income is also used. Depending on which variables a measure includes, the level of

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poverty will differ and might even give opposing results. For example, in the same time period income level might decrease while availability to schooling and healthcare might increase. Several different indicators are required to identify the multidimensional characteristics of poverty which is essential for a broad based poverty reduction. There are advantages and disadvantages in different ways of measuring poverty since welfare and well-being is a multifaceted concept. Income data is a valid indicator when measuring poverty as long as the poverty line is set in accordance to the actual purchasing possibilities of income. The poverty structure within countries can differ depending on the level of development in different regions.

Ravallion (2001) suggests that, the dimensions of poverty include political, social, cultural and psychological, economic and accesses to assets. Dimensions are interrelated and mutually locking/limiting. Poverty is hunger, having no place to live, and when there is pain, a lack of the funds to have treatment. Poor people generally cannot read because they are not able to attend school, do not have a job, are afraid to face the future, or for loss of children due to illness. Poverty is powerlessness, marginalized and not having a sense of freedom.

Indicators commonly used to measure poverty in empirical studies are as follows (Nanga, 2006):

1. Incidence of poverty

This indicator describes the percentage of population living in families with per capita consumption expenditure below the poverty line. Index is called the poverty headcount index, which is a rough measure of poverty because it only adds up how many poor people exist in the economy and then makes the percentage to the total population. With this measure, every poor person has equal weight, with no differences between the population of the poorest and the richest people among the people poor.

2. Depth of poverty

This indicator illustrates the depth of poverty in an area that is measured by the poverty gap index. This index estimates distance or difference in average incomes of the poor from the poverty line, expressed as a proportion of the poverty line. The weakness of this index is to ignore or not pay attention to the distribution of income among the poor.

3. Severity of poverty

This indicator shows the severity of poverty in a region, which is the average of quadratic poverty gap (squared poverty gaps). This indicator in addition to taking into account the distance separating the poor from the poverty line also looks at the inequality of income among these poor people. This index is also often named as the severity index poverty (poverty severity index).

In evaluating the relative contribution of government expenditures in poverty reduction in terms of growth in economic and per capita income, this study employs comparative and trend analysis using information on government expenditures on pro poor sectors in Kibaha district in changes in the rate of per capita income. Contribution of government expenditure used because government investment and spending is crucial for growth and poverty reduction for two reasons (Fan *et al.,* 2003). First, gains in poverty reduction are fragile. Many developing countries escaped poverty in recent years remain vulnerable to household and community level shocks. Second, it is likely that public spending may decline as a part of macro-economic reforms. Therefore, the government is required to invest and spend more to better achieve more efficiently the twin goals of economic growth and poverty reduction. However, by the use of fiscal and monetary policies, the government intervention in the economy should be granted to prevent the crowding out effect of the private sector.

2.2 Theoretical Literature Review

2.2.1 Overview of Poverty in Tanzania

According to Krueger (2009), economic growth is believed as a main policy to achieve significant reduction in poverty. However, to emphasize growth effect over poverty reduction, it is important that the poor have access to social and economic services that enable them to become more productive. Furthermore, it also entails concentration on policies that will enable most citizens of society to become more productive (pro growth). Pro-growth policies are undertaken with attention to poverty reduction through education, health care, and provision of means for increasing productivity.

Findings from Poverty and Human Development Report (PHDR) and Household Budget Survey (HBS) carried by Tanzania National Bureau of Statistics (NBS) show that while economic growth has significantly improved over time, the reduction in poverty has not been achieved to the same extent. Between 2001 and 2007 the fraction of poor people in Tanzania declined very little. In the 16 year period between 1991 and 2007, poverty fell by about 5%. But most of this change explained by progress in some urban areas. In rural areas, and other urban areas, the decline in poverty was too small to give confidence that poverty has actually fallen. Statistic shows that in other urban the poverty declined from 28.7 in 1991 to 24.2 in 2007, likewise the decline noted in rural areas was 40.8 in 1991 to 37.4 in 2007 (NBS, 2001; 2007).

According to Policy Forum, 2010, Tanzania's people are considered poor when their consumption is less than the national poverty line, The national poverty line was estimated by the NBS in 2001 based on the 2000/01 HBS. It represents the cost of goods (food and other goods) typically consumed by poor households. In 2001 the national poverty line was TZS 7,253 per person per 28 days. As prices increased by 93% between 2000/2001 and 2007, the 2007 poverty line is TZS 13,998 or approximately TZS 500 per person per day.

Social and poverty indicators for Tanzania have not improved substantially over the past decade. Based on the HBS, 2007, some 33% of Tanzanians fell below the basic needs poverty line and 17% fell below the food poverty line. These results are slightly better than those of the 1991 where 39% fell below the basic needs poverty line and 22% fell below the food poverty line, but the decline in overall poverty and the rural poverty rate are not statistically significant. Poverty in Tanzania remains primarily a rural phenomenon where the percentage of the population below basic needs declined from 40.8% in 1991 to 37.6% in 2000/2001.

A number of studies show that the majority of Tanzanians are very poor. For instance IFAD (2010) estimated that the population below the basic needs poverty line reduced only marginally from 35.7% in 2000 to 33.6% in 2007, and the population below the food poverty line from 19% to 17%. The population living below the poverty line has definitely increased in the 1990s making the situation even worse for the rural poor. They concluded that, the increasing access to assets is crucial for economic growth and poverty reduction. IFAD defined assets to take many forms, which are human and social (education, health), technological (farm production, processing and marketing methods), infrastructural (roads, health and education facilities) and financial (crop sales and off–farm revenue, investment and working capital) (IFAD, 2001). Therefore there are strong complementarities among asset categories in poverty reduction process. For example, building social capital by strengthening farmers' groups and improving road networks can enhance the financial asset base. This may then invested in improving health and education.

Tanzania introduced open market policy in 1990's, but still the poverty is high. The inability of Tanzania to transform its economy is one of the factors contributing to the state of growing poverty in the country. The introduction of a market economy and privatization, leads to a process of de-industrialisation and disinvestment which in turn is creating conditions for increase in mass poverty and destitution in Tanzania (Kopoka, 1998). The problem of poverty is affecting the entire segment of society in Tanzania.

At present, poverty continues to be widespread in both rural and urban areas in Tanzania with devastating consequences. The persistence of poverty in Tanzania is to a large extent aided by the decrease in agricultural productivity and declining industry as well as unequal income where the rich are growing richer and the poor are becoming poorer. The study done by Bagachwa (2000), pointed out that poverty and destitution continue to be pervasive in development. Recent surveys have showed that in Tanzania, over 50% of the populations still live in poverty and about one-tenth of the households are severely undernourished. Within the rural areas, poverty is severe in regions with unreliable rainfall, poor development of transport infrastructure and poor access to markets. However, the urban poor though proportionately small are increasing much faster than the rural poor. Many of the young men and women from rural areas are moving in increasing numbers to urban areas with the hope of escaping the ever widening poverty trap that is engulfing rural areas.

PHDR (2005) indicate that a combination of low levels of education and literacy, inadequate improvements in the rural infrastructure (roads, power, communication, water), the limiting factor in implementing health policies and low quality of agricultural produce has significant limiting effects on rural growth and therefore on poverty reduction.

A study done by Samli (2011) shows that economic and social infrastructural development is a necessary condition but not sufficient for economic growth as it leads to expansion of macro markets and creates a better quality of life. It has been described as the foundation upon which all economic activities such as satisfying consumers' needs, setting up a factory, moving goods and services from the point of production among others are laid. Without mincing words, Nurkse (1953) asserted that economies cannot develop without proper infrastructural base.

The data of Coast region Table 2.1 show that, at each 2 km square, Kibaha district is having 1.4% of public health facilities and 23% of poor people. Public health facilities are not easily available; people have to travel long distance to acquire health services. The district is doing well in primary education enrolment indicating that after a certain period there will be a big number of literacy people. In 2002, the district was having 74% of literacy people above 15 years. The Gini coefficient is 0.3 indicating no concentration of richer people in the area, which means income inequality is low,

Table 2.1: Poverty Data of Coast Region

District	Population, 2002	Number of health facilities per km^2	Number of poor, 2000/01, per km^2	Gini coefficient, 2000/01	Per cent of people 15 and older who are literate, 2002	Primary education net enrolment rate, 2004
Kibaha	132,045	0.014	23	30	74	100
Bagamoyo	230,164	0.004	11	30	63	93
Kisarawe	95,614	0.004	10	30	61	100
Mkuranga	187,428	0.009	27	30	47	88
Rufiji	203,102	0.004	5	30	51	86
Mafia	40,801	0.020	29	34	67	99

Source: NBS, 2005.

2.2.2   Poverty Reduction initiatives

Poverty in Tanzania is still widespread, acute and predominantly rural phenomenon where more than 80% of Tanzania's poor live. Rural residents commonly face constraints, including dependence on seasonal rain-fed agriculture and lack of irrigation schemes and absence of transport infrastructure. At the same time, they are confronted by limited access to adequate education and healthcare. Data from the HBS (2007) shows the existence of poverty in rural areas than in urban centres, mainly because of relatively low incomes in the villages (Table 2.2).

Poverty reduction has been a central goal of the Tanzania government and was a driving force behind the economic reforms initiated in 1986. The first comprehensive PRS is the 1997 National Poverty Eradication Strategy (NPES) which provides a framework for

poverty eradication initiatives in the country to reduce absolute poverty by 50 percent by 2010 and eradicate it by 2025. The NPES coincides with MKUKUTA I from 2010 and was created ahead of the MDG targets. The MKUKUTA I targeted improved economic growth and incomes as a basis for poverty eradication. A growth rate of 8-10 percent for the economy was targeted. NPES was the first attempt to translate the National Vision 2025 into medium-term targets. In 2000, the Government crafted the PRSP in the context of the Highly Indebted Poor Countries (HIPC) initiative.

MKUKUTA I was considered to be a better timeframe to allow for a more sustained effort in resource mobilization, implementation and evaluation of the impact on poverty compared to three-year targets. Following the review of MKUKUTA I which found insignificant reduction in poverty in Tanzania, the government has made a resolution to develop another development plan. In June 2011, the government launched a five-year development plan spanning from 2011/2012 to 2015/2016 that aims to boost economic growth from 8 percent to 10 percent annually and expects to raise the per capita income of Tanzanians from the current USD 350 to USD 650 by 2016.

While recent growth performance and future prospects are good, Tanzania remains a very low-income country with a per capita GDP of less than $300 (GoT, 2004). With a relatively equitable distribution of resources, poverty is widespread throughout the country. Life expectancy is 48 years; under five mortality is 160 out of 1,000 live births; infant mortality is 80 per 1,000 live births; maternal mortality is 200 per 200,000; health facility person ratio is 1:7431; 0ne hospital bed to 1,000 people; one physician to 33,000 people; 30% of the people live more than 5 km from the nearest health centre; and 27% of the population walk more than 30 minutes to water sources. Tanzania's strategy for reducing poverty includes the three key elements of broad-based growth, human resource development, and social safety nets (Wangwe, 1997). The vast majority of Tanzania's population, its labour force, and its poor are located in rural areas where livelihoods continue to be primarily linked to small-scale agriculture.

Table 2.2: Incidence of Poverty in Tanzania

	Year	Dar es Salaam	Other Urban areas	Rural areas	Mainland Tanzania
Food	1991/92	13.6	15.0	23.1	21.6
	2000/01	7.5	13.2	20.4	18.7
	2007	7.4	12.9	18.4	16.6
Basic needs	1991/92	28.1	28.7	40.8	38.6
	2000/01	17.6	25.8	38.7	35.7
	2007	16.4	24.1	37.6	33.6

Source: HBS, 2007

Lack of rapid economic growth on a per capita income basis has led to little progress in poverty reduction in Tanzania. Between 1991 and 2007, the poverty rate declined only marginally from 38.6% to 33.6% at the national level when the basic needs poverty line is used (Table 2.2). When the food poverty line is used, it declined from 21.6% to 16.6%. For example, in Dar es Salaam, only 16.4% of population is under the basic needs poverty line while in rural areas the rate is 37.6%. Moreover, the reduction in poverty in rural areas has been much smaller than in urban areas. Between 1991 and 2007, the urban poverty rate was reduced by more than 10% points, but in rural areas it was reduced by only 3% points.

Despite the high government expenditure and investment in rural development, rural incomes have not improved significantly. The question is why rural income at both household and community levels has remained low and rural poverty continues to be a critical economic problem for Tanzania (NBS, 2002; World Bank, 2006). This study found to fill the gap of low income at household and community level because a strong correlation exists between income and poverty, it is necessary to examine impact of government expenditure to rural income to better inform poverty reduction strategies.

2.2.3 Role of Transport in Poverty Reduction

The geography of Tanzania, its size, diversity and dispersion give roads a special position in integration of the national economy. In particular roads serve rural areas

(where the majority of the people live) more effectively than any other mode of transport. National and districts roads networks face lack of sufficient fund for rehabilitation and upgrading due to increased traffic and for routine maintenance, low capacity of the local construction industry and low participation of the private sector.

Roads provide a good indicator for the level of modernization of the country. When a country develops a strong road network, it is generally considered a modern state. Apart from being a development symbolic, transport sector contribute to the growth of the economy. In Tanzania, transport sector and its related activities formed 5.1 percent of GDP and construction share to GDP was 8.0 percent in 2010 (Tanzania Economic Survey, 2010).

Roads transport is the dominant mode of transport in Tanzania and plays a pivotal role in supporting economic and social development programs of the country through efficient and cost effective movement of passenger and freight transport. The effectiveness, appropriateness and adequacy of transport system's (transport infrastructure and services) contribute a great deal to the successful implementation of socio economic activities, the lowering of domestic production costs through timely delivery, lower cost of transportation and the enhancement of the economies of scale in the production process and creating economic opportunities. The economic opportunities include: ease of market access; promotion of trade, tourism and foreign investment contribution to government revenue and generation of a large number of employment opportunities.

Public expenditures in Indonesia on roads, health, agriculture and education showed the rate of decline in poverty was most sensitive to road investments, followed by education and agriculture (ADB, 1999). It is widely acknowledged that transport has a crucial role to play in economic development. It has been recognised that the provision of a high quality transport system is a necessary precondition for the full participation of communities in the benefits of economic development (Curt, 1997).

While the importance of transport in economic growth is readily accepted, its exact role and impact has long been a subject of debate. Much of the debate has centered on the question of whether transport plays a leading role or a complementary role in economic growth. Colin *et al.,* (1997) wrote that, transport plays a leading role when transport investments stimulate economic growth through their market widening effect. Transport plays a complementary role when transport investments are required to serve the growth in demand. Therefore, transport may play a leading role or a complementary role in promoting economic growth, depending on the stage of economic development and the incidence of technological innovations in transport.

Both roles may coexist, but they shift in relative importance with the accumulation of the transport capital stock. Transport may play a leading role at the early stage of economic development when the initial stock of transport capital is small. This role may prevail for an extended period of time, but gradually diminishes with the accumulation of the transport capital stock. When the economy becomes highly industrialized and a large stock of transport capital is in place, the leading role of transport may give way to the complementary role. Even in an advanced stage of economic development, transport may lead growth again if there is major technological innovation that contributes substantially to market extension or the formation of new market. For example, highway development offers an alternative to rail and waterway freight transport, and makes it possible for modern manufacturing industries to relocate.

The direct impact of transport on production is derived from three effects:
- Lowering of production costs;
- Increased producer prices; and
- Encouragement of investment.

2.2.3.1 Transport Role in Lowering Production Costs

The transport sector plays a crucial role in the growth of the Tanzanian economy; it facilitates domestic and international trade, contributes to national integration, and

provides access to jobs, health, education, agriculture activities and other essential facilities (TSIP, 2007). The transport system's effectiveness, appropriateness and adequacy contribute a great deal to the successful implementation of socioeconomic activities, the lowering of domestic production costs through timely delivery, and the enhancement of the economies of scale in the production process and creating economic opportunities.

The poor state of transport infrastructure contributes significantly to the high cost of domestic transport. High transport cost may provide protection to import competing goods and limit export competitiveness. Improvement in the road infrastructure resulted to the decline of cost of real freight rates. According to Kweka, (2010), the study projected that the EAC customs union will increase the average level of protection by 100%, from 20% in 2001 to about 40% in 2005. Decomposing the figures suggests that measures to reduce transport costs can significantly improve export performance for Tanzania. Therefore, one of the most important benefits from the regionalisation process that can bring about "quick wins" for trade performance is improvement in transport infrastructure.

The reduction in costs results from three main factors. Firstly and most obviously, improved transport lowers the delivered costs of inputs to the producer. This can be important for agricultural, non agriculture income generating activities as well as industrial production. Ahmed et al as cited in UN, ESCAP (1997) in their study in Bangladesh, they found that agricultural output was 31 to 42% higher in the group with better transport access, and attributed this difference principally to the lower delivered cost of fertiliser.

A second issue was the reliability of transport services. The absence of regular and reliable transport services operating with adequate frequency will effectively condemn communities to subsistence production in perpetuity. Finally, improved transport can broaden the labour pool to which a production facility has access.

While access to unskilled labour may not be a problem in most areas of developing countries, access to skilled labour can be a problem. This applies to both labour that is required on a temporary basis and to skilled workers required for permanent employment (Beenhakker, 2000).

2.2.3.2 Transport Role in Increasing Producers' Prices

Road improvements done on feeder roads facilitate access to production centres at the village level, and at the same time facilitate access to market centres within villages, wards, districts, regions and even at national level. Consumer goods, mainly from urban centres reach villages/consumers using the same roads.

Most cities and regional markets cannot be reached by a good road throughout the year, which bids up the cost of transport to these areas and creating an additional market barrier the producers in the area need to face if they wish to sell their products to the national market. Recent studies done in Tanzania have shown that investing in transport infrastructure would generate substantial direct savings in terms of lower vehicle operating costs. An economic assessment of regional roads in Coast region concluded that with a discount rate of 12 percent, the evaluated road projects had high Economic Internal Rate of Return (EIRR) varying between 13 to 23 percent (TANROADS, 2003a). This was achieved without exogenous benefits, such as reduction in accidents, increases in agricultural production and other social benefits.

Besides trade facilitation, investing in roads would also have larger economy-wide effects as it would encourage investment, include currently isolated productive areas in the economy and facilitate people's access to social services and networks (Mwingira, 2002). The total magnitude of the loss to the Tanzanian economy due to bad roads is estimated to be nine percent of GDP (Haule, 2002). During the study, it was observed that the investment done in transport infrastructures, particularly in roads increased the number of vehicles operating in Kibaha wards three times. Due to the influx of traders in the area, farm prices of all products have gone-up considerably.

On the study done by Beenhakker, (2000) indicated that, in developing countries, transport costs typically account for between 10% and 30% of final product price. Frequency and reliability of transport also have a very significant impact. Irregular or infrequent transport services require purchasers to hold high levels of stock in order to ensure that they in turn can ensure continuous supply to their customers. These results in an increase in inventory costs, which in turn depresses the prices offered to producers. Added to this is the risk of spoilage of perishable products. This may seriously inhibit the diversification of primary activity into higher value lines such as horticultural production. Alternatively, it will significantly erode the benefits to producers of diversification into higher value but more perishable commodities.

2.2.3.3   Transport Role in Encouraging Investment.

Many governments offer incentives to attract investment that generate positive externalities. The government may use tax, infrastructure (physical and social) and environmentally conducive investment to attract potential investor. The quality of transport infrastructure and services has been identified as a significant determinant in investment decisions. Studies evidenced that, transport improves access to institutional credit and increases the income from agriculture and non-agricultural activities. In Tanzania, road transport is the dominant means of transport, carrying over 90% of the passenger traffic and over 75% of the freight traffic, therefore the road infrastructure is very essential for Socio-economic development. We can refer to roads as the ENGINE of socio-economic growth (TSIP, 2007`).

Transport is one of the key sectors of the economy. It plays the critical role in day-to-day economic development activities. It serves as a catalyst in production, as it facilitates movement of inputs to production points and also serves to evacuate products from production points to storage or to market places. Its role is critical to all aspects of social and economic life of society.

Most modern economic activities are located in urban areas; where transport services are most concentrated and left rural areas with unreliable means of transport (NTP, 2003).

Transport plays a pivotal role in promoting agricultural production and commercialization. Improvements of transport infrastructure reduce the cost of transporting agricultural products to markets and extend the distance to break-even locations, thereby expanding the area of land under cultivation, and expanding the production of exports. Moreover, its improvements reduce production costs by lowering the delivered price of inputs; including capital and information (by facilitating increased speed of know-how and technological diffusion). Consequently, they increase net farm gate prices and raise farmer incomes.

Gannon and Liu (1997) studied the encouragement of investing in transport infrastructure for poverty reduction by the fact that large transport projects are assessed in terms of reducing transport costs, improving efficiency, and promoting economic growth. The contribution of transport operations to poverty alleviation was seen, in general, as indirect and stemming from broadly based economic development. Yet, most direct poverty-targeted interventions (schools, health clinics, nutrition programs, and social services) depend on transport as a complementary input for their effective delivery. Many studies in developing countries show that the potential for transport projects to play a direct proactive role in assisting the poor has received little attention. A key finding of Gannon and Liu's paper is that there was a need to strengthen the direct role of transport interventions in poverty alleviation. This will require building far better knowledge of the transport needs of the poor, and how these needs are best met.

The urban poor in developing countries face enormous challenges in their daily lives. Many live in crowded slums within cities or in more remote peri-urban areas with limited access to jobs and social services. Problems of access can be linked to failures of the economy, lack of equity in the provision of services, and poor or unaffordable transport links to enable mobility. This contributes to low living standards, social fragmentation, and problems of social exclusion (Gannon and Liu, 1997).

2.2.4 Transport Role in Improving the Quality of Life and Social Well Being

Many poor workers take several part-time, low-paid jobs at different locations, simply to maintain the very basic level of household income. Many school children have to help their poor parents after school hours to raise household income. The ability of the poor to obtain employment and education is highly dependent on the costs and availability of public transport. Because residential relocation is often very difficult for the poor due to high moving costs and lack of affordable alternative locations, providing affordable public transport can have an immediate impact on the personal welfare of the people.

Transport project is expected to contribute to poverty reduction through its indirect impacts on economic growth or its direct impact on personal welfare of the poor. The local access roads in poor rural and urban areas make only a modest contribution to national income growth, but they are likely to have a direct and significant impact on the daily life of the poor. On the other hand, inter-city transport modes such as trunk roads, rail, and shipping are of strategic significance to a national economy. They are provided with the objective to stimulate and facilitate national income growth; their impacts on poverty reduction are likely to be indirect (Gannon and Liu, 1997).

The provision of transport services, including the construction and maintenance of transport infrastructure, generates demand for labour (often unskilled labour) and provides income earning opportunities for the poor. If a transport project generates jobs for the poor who are otherwise unemployed or under-employed, it contributes to the reduction of poverty (Gannon and Liu, 1997). The process through which the benefits of transport investments and policies lead to improvements in the standard of living of the low-income groups often involves many links, and the final general equilibrium. In addition to improving accessibility, government expenditure to transport affects employment.

2.2.5 Transport Government Expenditure and Economic Growth

Evidence suggested by Kilima *et al*., (2008), indicated that lowering transaction costs through government investment in rural roads would reduce price volatility in Tanzania and also increase farm gate prices, thereby enhancing returns to farming produce. A study by Fan *et al*., (2004), examined the effects of government expenditures on economic growth and rural poverty in People's Republic of China (PRC). They found that roads significantly reduce poverty incidence through agricultural productivity and nonfarm employment.

Fan *et al*., (2004) found that, government expenditure on roads, education, agriculture and R&D contribute significantly to both economic growth and poverty reduction in China. They also estimated that the rate of return from government investment in low quality roads and high quality roads, suggested that additional investment in the under invested low quality roads and rural roads would contribute more effectively to poverty reduction than additional investment in expressways which have received enormous investment.

Lucia *et al*., (2000), in their report, they established that investment in transport can create economic opportunities for the poor either directly through employment or income earning opportunities in transport service or infrastructure supply or indirectly by improving conditions for marketing goods and services that poor people produce or for unmarketed services (e.g. household services). They continued that, sustained increases in real per capita income are needed to reduce poverty. Investment in transport infrastructure can contribute to economic growth through: growth of the transport sector itself; creation of employment in transport; opening up new opportunities for entrepreneurs in transport and other infrastructure services and making existing businesses more profitable; public works that provide employment as a counter-cyclical measure to stimulate the economy in recession and boom; lowering the costs of inputs used in the production of almost all goods and services; raising productivity through reducing the time and effort needed in production; opening up new domestic and

international markets and enabling economies to respond to changes in the location and composition of demand.

Roads infrastructure that can be used in all weather, facilitate the exchange of commodities, enable regular school attendance and fast access to health facilities (Weiler, 2004). Public investments in transport infrastructure make a direct contribution to poverty reduction, if they give poor people access and increase their mobility, if they lower transport costs and make the goods consumed by poor people more affordable and their products more competitive, or if they create employment and increase incomes (Weiler, 2004). The government transport expenditure is related with growth divergence and that more government investment and spending in transport system in poor areas will contribute to economic growth and poverty reduction (Zhang *et al*., 2007).

The Rural Development Policy of 2003 states that, the insufficiency and poor condition of rural roads impedes the free flow of goods and services and smooth movement of people to and from the rural areas. The Policy considers improved roads transport as a necessity to reduce transport cost and travel time as to achieve objectives on economic growth, access to social and economic services, risks and vulnerability and good governance (JISR, 2010).

The study done by Mnenwa and Maliti (2010) showed that, transport cost is the major constraint for improving market efficient in Tanzania. Transport cost share 84% of market cost. Expenditure in transport infrastructure will promote the improved productivity in agriculture. They also found that natural endowment and climatic condition poses challenges and opportunities to farmers, they are not the only factors which are responsible for poverty. Other factors such as the condition of transport infrastructure (especial roads), and access to extension services and capital market play a big role in influencing the incidence of poverty.

Demurger (2001) pointed out that, the inequality of transport infrastructure is one of the main factors leading to growth inequality across different areas. Deichmann *et al*.,

(2002) find out the quality of transport infrastructure makes a difference in growth performance in different areas. Dercon *et al*., (1998), find out that there is complementary relation between physical and human capital accumulation and transport development, which in all can contribute to growth and poverty reduction. Bagachwa (2000) observes that over 59% of the farmers in Tanzania are poor and about 85% of all poor people live in rural villages. Within the rural areas, poverty is severe in regions with unreliable rainfall, poor economic and social infrastructural development and poor access to markets.

Improvements in transportation infrastructure and services can lead to improvements in export performance. Limão *et al*., (2001) show that, transport infrastructure is quantitatively important in determining transport costs. They estimated that poor transport infrastructure accounts for 40% of predicted transport costs for coastal countries and up to 60% for landlocked countries. Inadequate transport infrastructure is a common symptom of the inadequacy of the poor's access to social assets. Difficulty of access by national roads, rail or other national transport networks can limit poor communities' participation in labour and product markets and constrain their economic opportunities. But Hanmer *et al*., (2000) considered a lack of affordable transport services or means of transport can mean that provision of transport infrastructure alone may not alleviate this constraint.

2.2.6 Accessibility

Accessibility is a key problem in rural areas and good rural planning needs to address access to a full range of goods and services required by the rural population. The accessibility process starts with village level work to quantify time and frequency for access to key services like health; education; water supply; access to credit; access to district level governance; problems of agriculture access; employment and access to markets.

Accessibility is facilitated by the availability of transport facilities (infrastructure and equipment) and services. Transport is required to provide physical presence at places offering opportunities. To improve access, one needs to improve the transportation system. The transport system consists of infrastructure and equipment, the management, and the transport modes, and operators. This makes investment in rural transport infrastructure a major development priority for developing countries (Jacoby, 1998). Therefore, transport is crucial for economic development, because without physical access to resources and markets, health, education and other social services the quality of life suffers, growth stagnates and poverty reduction cannot be sustained.

Jehovaness Aikaeli (2010) showed that, lack of adequate expenditure in roads which access to markets was the main constraint holds back the marketing process in Tanzania. The transport infrastructure is the main constraint on the investment climate. In communities were roads are only passable seasonally, they have a little access to outside market and keep prices of rural produce low.

2.2.7 The relationship of Agriculture government expenditure and pro-poor growth.

Agriculture is the most important economic sector in Tanzania, contributing about 50% of total GDP for over the past four decades (1961 – 2001). For the period of 1990-2000, the sector has also grown rapidly more than in most other African countries (Fan *et al*., 2005). Correspondingly, according to Fan *et al*., (2005), agriculture GDP per worker in constant 1995 US$ increased from 177 in 1990 to 191 in 2000. However, the level of real agricultural growth achieved during the past decade has not been sufficient to bring about a significant reduction in the number of rural poor. Rapid population growth of 2.8% per year has meant that per capita agricultural GDP only grew by 0.3% per year. Agriculture as the mainstay of rural livelihoods is important for rural poverty reduction in Tanzania.

Fan *et al.,* (2008) conducted a quantitative research of Thailand government expenditure on agricultural growth and rural poverty reduction. The study showed the public investments reduce poverty and increase agricultural production at the same time.

Agriculture accounts for the bulk of employment in Kibaha district and contributes significantly to income of individual, national level and export earnings. Agriculture remains the backbone of the economy, and employs the majority of the poor people. At the macro level, growth in agriculture has consistently been shown to be more beneficial to the poor than growth in other sectors. In several South Asian countries poverty reduction through growth in agriculture was higher than that through growth in manufacturing (Warr, 2001).

There is much support for the view that government investment in rural areas is an effective poverty reduction tool. For instance, World Bank (2007) highlights that 75–80% of the dramatic drop in national poverty in China during 1980–2001 was the result of poverty reduction in the rural areas and that GDP growth generated in agriculture was at least twice as effective in reducing poverty as growth generated by other sectors. Similarly, Bravo-Ortega *et al*., (2005) finds that in developing countries agricultural labour productivity leading to increases on GDP is on average 2.9 times more effective in raising the incomes of the poorest quintile than an equivalent increase in GDP coming from nonagricultural labor productivity.

Fan and Rao (2003) showed that government spending on agriculture has provided a strong contribution to economic growth in Asia. Diao & Dorosh (2003) show that government spending on rural infrastructure and productivity enhancing investments in agricultural export crops and livestock has the most promise for growth in income and food consumption in Africa. The study by Fan *et al*., (2000) found that government spending contributed to agricultural production growth and poverty reduction. However, the view of investing in agriculture is per se the best tool to reduce poverty is not universal.

Christiaensen *et al*., (2007), find support for the view that the advantage of agriculture in reducing poverty declines as countries get richer. Along similar lines, using cross-country regressions per region, Hasan *et al.,* (2004), find that in East Asia larger poverty-reducing effects of growth originate in other sectors.

The Poverty Reduction Strategies and other strategic documents in Tanzania put much emphasis on raising productivity in agriculture as primary rural development goal. However, the evidence in Tanzania suggests that rural poverty reduction requires a broader starting point than this, and is more to do with facilitating diversity than promoting one sector in particular (Sawe, 2003; Ministry of Agriculture and livestock, 1997). Promoting pro poor sectors will stimulate the pro poor growth and poverty reduction.

The multiplier effects of agriculture on the economy of sub-Saharan Africa are estimated to be in the range of 1.35 to 4.62 (Thirtle *et al*., 2001), with important implications for government's investment decisions in agriculture. Income from agriculture tends to be spent on a range of goods and services at the local or sub-national level, fostering opportunities for local diversification. So, while agriculture remains a primary contributor to economic growth, particularly in the early stages of development, it cannot function in isolation from the wider economy. It requires a supportive environment, including the removal of factors constraining its growth such as roads.

2.2.8   Government expenditure on Education and poverty reduction

Lack of quality education is one of the major impediments to development in Tanzania (National Development Vision, 2025). The level and quality of education that has been attained in Tanzania, has not been adequate to meet the growing development challenges and to enable the search for solutions to the development problems that confront the nation. In particular, education has not adequately and appropriately been geared to integrate the individual into the community. Equally, it also has not been able to innovatively engage Tanzanians in entrepreneurship and self-employment (URT, 2000).

The study conducted in Cameroon by Njong (2010) shows that probability of being poor decreases when education level increases. The inter-relationship between education and poverty can be understood in two ways. Firstly, government investment in education increases the skills and productivity of poor households. It enhances the wage level as well as the overall welfare of the population. Secondly, poverty may constitute a major constraint to educational attainment.

Government expenditure in education has high economic value and hence, a considerable part of the public fund should be invested for the same. Government investment in education leads to the formation of human capital, comparable to physical capital and social capital, and that makes a significant contribution to economic growth (Dickens *et al*., 2006). Narayan, (1997) found that, rural communities tended to see access to farm inputs is more and much more important than education, but adds that an earlier study concluded that increasing household members' education by a year, each yielded higher returns than increasing land holding by one acre per adult.

It has been suggested that many of the returns to education may for a long time have gone unnoticed as they are difficult to quantify or measure. However, they may have an impact both on the development of society and on poverty reduction. It has been found that education can contribute to increased levels of trust (Balatti *et al.,* 2002) and tolerance (Schuller *et al*., 2002). Given the important role attributed to trust and social capital in poverty alleviation in Tanzanian, society education may have more far reaching implications for poverty reduction than are captured by statistical analysis (Narayan, 1997).

At the sectoral level, the government expenditure in education has positive impacts on determining the change in value-added. The results showed that in Tanzania, primary graduates earn almost double the wages of those with no education; however, the increment between those with secondary and those with only primary is much greater, at 732 TSh per hour compared with TZS 201 per hour (Integrated Labour Force Survey,

2000/2001). It was also found that a wage earner with complete primary earned 75% more than one with no schooling, whereas a secondary school graduate earned 163% more than primary graduate (World Bank, 2004). There is also some evidence that entrepreneurs with post-primary education tend to establish more profitable enterprises (Swai *et al*., 1997).

Kibaha district still has a long history of Koran education and quite a number of people are literate in Arabic script. It was compulsory for all children, in particular boys, to attend madras, koranic schools. Because of this behaviour, the government expenditure in the campaign for compulsory secular education did not take off as quickly as it was in other areas. In early years of Universal Primary Education (UPE), there was a marked tendency for parents to withdraw children from schools at the slightest pretext, especially girls, when they reached puberty, their parents would confine them according to custom and marry them off. Many primary schools have been built by government and less has been built by self-help efforts. Also, poor social services to the people including education, water and health facilities contributed a lot to the slow development pace of the district.

The study done by Plan International Tanzania (2007) showed that, the enrolment rate in primary schools in Kibaha district was above 85%. Findings showed that remoteness, lack of school facilities, illness, death, believes and child labours were the major reasons for low enrolment in primary schools. The results imply that the supported schools in school infrastructures, teachings and learning facilities are enrolling many students. The study also expressed that, performance of Std VII national examinations varied from one school to another. Schools with support had the highest pass rate compared to schools without support. The pass rate in studied schools with support in Kibaha District Council was 80%. The overall pass rate in Kibaha District Council was 66%. This suggests that pass rate in Std VII national examination is a function of many variables, in some cases including government expenditure on social and economic infrastructure, family education background, household level of income and the surrounding school

environment, availability of transport infrastructures being among of the factors contributing to pupils' performance in the study areas.

Furthermore, quality education should be a policy of concern for the government spends because market needs skills not just graduates. Many graduates fail to get jobs in the labour market because lack of skills (Mufuruki, 2011). He said many private organizations prefer to recruit many skilled personnel for fear of incurring costs in training the latter, we would like to recruit many local fresh graduates, but sometimes we find that some of them are incompetent hence we are enforced to recruit foreigners (The Guardian, Thursday June 16, 2011). An implication of this is that if the public investment does not emphasizing in quality education at all levels, the rate of return on education will low even for higher learning graduates.

2.2.9 Government expenditure on Health and poverty reduction

Poverty, inequality, market failures and the negative externalities present, mostly in developing countries, necessitate government involvement in major public services provision like health (World Bank, 2005b). Poverty also encompasses low level of health and education, and opportunity to better one's life (World Bank, 2005b). Wilhem and Fiestas (2005) explore in their study that government expenditure is a key instrument for government to promote economic development and reduce absolute poverty. By analyzing pro-poor growth during 1980s and 1990s period, they reveal that government spending as a share of GDP and in per capita terms decline over the analyzed period. In addition trends in sectors are mixed affecting growth and poverty reduction (education, health, infrastructure, and agriculture).

Public investments in rural education, health, and infrastructure not only have indirect effects on wages, nonfarm employment, and migration through increased productivity, but also directly promote rural wage increases, nonfarm employment, and migration, thereby reducing rural poverty (Fan *et al.,* 2009).

In her study of poverty in Norway Ostensen, (2007) explains that the addition of public services in the income definition has a great impact on the result of poverty analysis. In addition she asserts that health care affects substantially to income distribution.

The importance of equitable access to productive assets is highlighted by the fact that without this access the poor have less economic flexibility, and as a consequence they have to accept low paid jobs and therefore tend to suffer from poor health and low levels of education and training. This further consolidates them in the poverty trap, and prevents the community from building the social capacity necessary to implement public participation in economic development (Timmer, 2002).

Justino (2007) on analyzing and comparing studies of many scholars, he delivers a message that prioritizing government expenditure in education and health may signal government's commitment to peace by keeping the population content, this is because there is two-way causality between conflict and poverty. On the one hand, conflict would positively affect poverty and on the other hand poverty is one reason why a conflict exists. Furthermore, increases in equal opportunities in the access of excluded groups to education may decrease social tensions.

Ill health, malnutrition and high fertility are often reasons why households end up in poverty, or sink further into it if they are already poor. By improving the health of their populations, governments can reduce income poverty. But they can also reduce income poverty indirectly, by reducing the impact of ill health on household living standards (Cleason *et al.,* 2001). Furthermore, Wiliamson, *et al.,* (2001), concluded that health along with education is seen as one of the key ultimate goals of development. Indeed, increasingly health is seen as a dimension of poverty in its own right. A study done by Fan, *et al.,* (2000) showed that government expenditure on education and health results in poverty reduction in rural India. This is reflected in the fact that no less than 4 of the 7 Millennium Development Goals relate to health broadly defined.

The role that health promotion can play in combating poverty is based on 3 essential components, namely:-

- Definition and implementation of priority interventions and health services, taking into account the major causes of morbidity and mortality among the poor;

- Reinforcement and extension of health systems to provide better management of poor communities by increasing the public budget of health and using their resources more effectively; and

- Strengthening inter-sectoral collaboration for the benefit of the poor in order to have a positive impact on the key determinants (education, employment, nutrition and participation of the poor in decision-making).

Sahn *et al.,* (2002) have shown statistically that access and quality of services enhance demand for health and education. They found that distance to school, the opportunity cost of enrolling a child to school, an increase in wages, all correlate negatively with school enrollment rate.

2.3   Empirical Literature Review

2.3.1 Poverty reduction through government expenditure on transport infrastructure

2.3.1.1   Macro-Level Impacts

Transport infrastructure investment has long been assumed to contribute indirectly to poverty reduction, channeled through economic growth. Recent empirical studies provide considerable evidence to substantiate the claim that transport infrastructure's impact at the macro level is critical to ensuring sustained growth in output, employment, and income that is a prerequisite for achieving long-term poverty reduction. Kwon's study on the poverty impact of roads in Indonesia finds that road investments improved the performance of provincial economic growth in poverty reduction, such that every one percent growth in provincial GDP led to a decline in poverty incidence by 0.33% in good-road provinces and 0.09% in bad-road provinces.

This implies that as road expenditure is increased, the link between economic growth and poverty reduction becomes stronger. Likewise, a study on roads and poverty in the People's Republic of China (PRC) argues that, roads development contributed significantly to growth and poverty reduction in the PRC (Kwon, 2005b).

Apart from roads' indirect contributions to poverty reduction, there is also increasing evidence to show that transport infrastructure can have a direct contribution to poverty reduction, independent of the growth channel. For instance, the same study by Kwon (2005a) showed that roads expenditure had its own explanatory power for poverty incidence, which was not channeled through economic growth. Provincial roads directly improved the wages and employment of the poor in Indonesia, such that a one percent increases in roads investment led to a 0.3 percent drop in poverty incidence over five years. Meanwhile, Warr (2005), study on roads and rural poverty in Lao PDR shows that, all-weather roads had a positive and highly significant impact on poverty reduction; all-weather roads access lowered poverty incidence by around six percent and about 13 percent of the decline in rural poverty incidence.

Several studies have estimated the effect of public expenditure, including public investment expenditure, on poverty. Using cross-country data, Gomanee *et al.,* (2003), and Mosley *et al*., (2004), have estimated the effects of government expenditure in different pro poor sectors on the US$1 a day poverty headcount, holding the level of GDP per capita constant. Gomanee *et al.*, (2003), and Mosley *et al.,* (2004), found that higher government expenditure on education, agriculture, health, roads, housing and amenities (water, sanitation and social security) all reduced poverty, presumably by shifting the distribution of income in a pro poor direction, since the level of aggregate income is held constant in their regressions.

Fan *et al*., (2005), in their study showed that each kilometre reduction in the distance to a public transportation facility reduces the probability of a household being poor by 0.22 to 0.33 percent in Uganda. This reduction is in the form of investing to transport

infrastructure and services so as improve accessibility. The study also argued that, every million Ugandan shillings invested in transport infrastructure lifts 27 poor Ugandans out of poverty.

The study by Kilima *et al*., (2008), suggests that lowering transaction costs through investing in rural roads would reduce price volatility in Tanzania and also increase farm gate prices, thereby enhancing returns to maize farming.

2.3.1.2   Micro-Level Impacts

The extent to which transport infrastructure can directly contribute to poverty reduction seems to depend on its impact on income and non-income dimensions of poverty at the micro-level. In terms of income poverty, transport infrastructure opens up opportunities for the poor to raise the productivity of their limited resources. In rural areas, where most of the poor reside and where agriculture remains the main source of income, transport infrastructure lowers the costs of inputs and facilitates access to credit, extension services, and most importantly, output markets with better prices. It also facilitates the commercialization of farm and nonfarm activities and often leads to agricultural diversification from low-value food grains to more perishable, high-value agricultural products. An ADB (2005), study provides empirical evidence to support these theoretical linkages. Based on field research in India, Thailand, and the PRC, the study finds that rural transport expenditure decreased costs to the poor for personal travel and goods transport. Rural transport improvements are also revealed to have generated farm income, promoted nonfarm activities, and increased the range of opportunities for wage employment as well as the wage rates of labor in rural areas.

In terms of non-income poverty, transport infrastructure can likewise generate direct impacts by lowering the cost of services needed by the poor, and by serving as a good complement to interventions that seek to improve access to health, education, and other social services. Transport investments may also play an important role in mitigating risks faced by poor households. The same study finds that rural transport investments

increased the availability and accessibility of education and health care services in rural areas, resulting in greater participation in these programs by the poor. Rural roads also facilitated the delivery of emergency relief to the poor in case of natural disasters. For all of these reasons, both the poor and non-poor alike see positive impacts and welcome investments in transport infrastructure (Cook, 2005).

The study by Phim (2004), done in Cambodia's Border Provinces showed that, out of 69 percent households live further than 1km from a main road, 37 percent of them live below the poverty line. Being near the main road enhances chance for households to engage with business activities and also facilitates households to access to social services including electricity, irrigation, school, and health center. Therefore, a relatively small percentage of households who live near the main road are found to be poor. Economic consequences caused by lack of mobility can be estimated. These include unemployment costs, reduced tax revenue and welfare costs. More generally, mobility benefits are defined as "benefits from transit trips that would not be made without the availability of transit". To quantify the value of access to a job, the value of missing an employment or business trip may be estimated in terms of the added cost to affected households and businesses.

In a study of government expenditure and economic growth in the United States, Liu *et al*., (2008) examined the causal relationship between GDP and public expenditure for the period 1947-2002. The causality results revealed that while total government expenditure causes growth of GDP, the latter does not cause expansion of government expenditure. The study concluded that since public expenditure grows the US economy, based on the causality test, Keynesian hypothesis exerts more influence than the Wagner's law in US.

2.3.2   Agriculture government expenditure and poverty reduction

A study done for 14 countries in Africa confirms that agricultural growth, with its strong links to nonagricultural growth, can do to reduce poverty.

The study showed that most of the reduction in poverty was among households primarily engaged in agriculture. This was true even though non-agricultural growth was generally faster and even though agriculture contributed only 10%-30% of GDP. Agricultural growth had its greatest impact when it was driven by the crops that poor farmers cultivated most (World Bank, 2005a).

Evidence for Tanzania suggests that government investing in agriculture research and extension services has large, positive impacts on agricultural growth and household incomes. Econometric estimates suggest that every TZS 1 million spent on agricultural research (in 1999 prices) increases household incomes by TZS 12.5 million and lifts 40 people above the poverty line. Moreover, the returns to agricultural research are found to have higher impacts than similar investments in education and rural roads, both of which also have positive return (Fan *et al.,* 2005).

Government investment in the rural projects and farming do not only stimulate income growth, but also significantly reduce poverty compared to urban areas and other activities. Mashindano *et al.,* (2011) found that the elasticity of total poverty with respect to income growth is very high for the farming activity in Tanzania. They further said that if income increases by 1 percent, poverty for people who are engaged in farming will decrease by about 2 percent. Agricultural investment should therefore be a priority if economic growth in Tanzania has to match poverty reduction.

2.3.3 Poverty reduction in education government expenditure

Returns to education in terms of increasing agricultural productivity would imply a potential for education to have a great effect on poverty reduction. Some literatures indicated that returns to education in agriculture makes very little difference to farm productivity in "non-modernising" environments of Tanzania. A review done by Appleton and Balihuta (1996), gives two Tanzania based studies. The first, from 1986, found that completed primary education was correlated with a 27% increase in crop production but insignificant results for livestock rearing.

A second study from 1995 carried out in the Kilimanjaro region found that four or more years of education has a positive and significant effect on farmer productivity. When parents in Kilimanjaro were asked about the value of primary education it was found that there was a general belief that it would enable them to become better farmers and to make sensible changes to crop production (Maarifa ni Ufunguo, 2002: 20).

The study done in India to investigate the causes of the decline in rural poverty, agreed that, Government spending on education has the third largest impact on rural poverty reduction others are roads and agriculture. The study showed that an additional million rupees spent on education would raise 31.7 poor people above the poverty line. Most of this effect arises from greater non-farm employment opportunities and increased wages (Fan *et al.,* 1998).

Donald and Shuanglin (1993) investigated the differential effects of various categories of expenditures on economic growth for a sample of 58 countries. Their findings suggested that government expenditures on education have positive impact on per capita income. While some studies have found a negative relationship between government expenditure and economic growth (Barro, 1990), others have found a positive relationship (Ram, 1986).

2.3.4   Impact of Public expenditure on health in poverty reduction

However, some literature view that social economic growth alone is not sufficient to reduce poverty. In most developing countries, economists have continued to question as to whether the distributional effects of public spending have actually been achieved by current practices. This is because despite the significant increases in public expenditure on health, education and other social services, majority of the people continue to live below the minimum poverty line of $1 (in purchasing power parity terms) a day (World Bank, 2000).

Using annual time series data from 1960 to 2003, the study done in Pakistan by Abbas and Peck (2007) estimated that during 1990s, 18% of the growth in Pakistan economy is attributed to human capital which is more than physical capital growth. It is also estimated that human capital contribution to productivity increased from 17% in 1960 to 40% in 1990s. Therefore, human capital formation through government investment in health care is essential for growth in the economy. Granger causality test applied by Mayer (2001) on annual time series data from 18 Latin America countries concluded that there is an existence of conditional Granger causality from health government expenditure to per capita income.

A panel data study for Indian States done by Fan, *et al.*, (2000) showed that government expenditure on education and health results in poverty reduction in rural India. They assessed the likely link among poverty, health and economic growth. They concluded that, despite the fact that economic growth reduces poverty but health improvement is also essential for poverty alleviation. The major proposition is that better health results in increased economic growth, at the same time economic growth causes in improved health status of people. For high living standards and accelerated economic growth increased investment in growth promoting areas like industry, education and health is required.

Studies revealed that a healthy person not only works efficiently but also able to devote more time to economic activities that increase productivity. It is estimated that health improvements accounts for one third increase in GDP growth (Bloom and Sevilla, 2004). An increase of health spending by one 33 percent causes 0.5 percent increase in per capita per annum. Hence, improved health causes economic growth. The impact of improved health status augments country's human capital. Direct contribution of health in economy is through increased labor productivity; hence, there is growing evidence on investing in health not only for economic growth and for improving human capital but to prevent slippage into poverty by avoiding income or consumption shocks.

For example, in Colombia, the public and private investments in health are related to future earnings of individual as one more day of disability decreased male (rural) earnings by 33% and 13% for female (Ribero and Nunez, 1999). Ill health may mean that people who are able to work have reduced productivity, shortened working lives, and increased numbers of days lost to illness.

2.3.5   Relationship of economic growth and poverty reduction

It is reasonable to expect economic growth to have a strong relationship with poverty reduction if for no other reason that, economic growth determines the total size of the income pie. There is widespread support for the view that economic growth can lead to poverty reduction. Huang *et al.,* (2008) examined the driving forces of poverty reduction in China using time series and cross-sectional provincial data find that economic growth is a necessary condition for nationwide poverty reduction. Similarly, Goh *et al*., (2009), examining the growth performance and income inequality in during the period of 1989–2004 find that poverty incidence has fallen as economy grew. Likewise, Appleton *et al.,* (2010), relying on the Chinese Household Income surveys noted that poverty has fallen almost entirely due to overall economic growth rather than redistribution.

However, some literature view that economic growth alone is not sufficient to reduce poverty. Zhang and Rozelle, (2008) note that while economic growth played a dominant role in reducing poverty in China through the mid-1990s, its impact has diminished since then. They continue argued that successful policy responses to chronic poverty may still leave considerable transient poverty because some of the factors determining transient poverty do not matter to chronic poverty. Industrial growth in China accelerated the difference between urban and rural, mean incomes increased by 150 per cent between 1980 and 2002. The industrial growth caused some less poor people in 2002 than in 1980, this indicate incomes of the poorest fell and contributing to a rise in inequality (Ravallion, 2007). Further, the World Bank (2005), note that high levels of inequality may hinder growth and poverty reduction.

2.3.6 The effects of public expenditure in poverty reduction

Public expenditure affects rural poverty through many channels, For example, public investment in agricultural research, rural education, and transport infrastructure increases agricultural productivity, which directly increases farmers'incomes and in turn reduces rural poverty (Fan *et al.,* 2008). Moreover, indirect impacts come from higher agricultural wages and improved nonfarm employment opportunities induced by growth in agricultural productivity. Increased agricultural output from rural investment often leads to lower food prices, again helping the poor indirectly because they are often net buyers of food grains.

Furthermore, public expenditure in rural education, health, and roads infrastructure not only have indirect effects on wages, nonfarm employment, and migration through increased productivity, but also directly promote rural wage increases, nonfarm employment, and migration, thereby reducing rural poverty (Fan *et al.,* 2009). For example, improved roads infrastructure access will help farmers set up small rural nonfarm businesses such as food-processing and marketing enterprises, transportation and trade, and restaurants.

Fan *et al*., (2008), argued that understanding these different effects provides useful policy insights for improving the effectiveness of national poverty reduction strategies. In particular, an understanding of these effects shows how public expenditure can be used to strengthen weak links between poverty reduction channels and thus to target public resources more efficiently. More efficient targeting has become increasingly crucial as many developing countries have committed to achieving poverty reduction goals using the MDG framework with limited public resources (Fan *et al.,* 2008).

Study by Jiranyakul and Brahmasrene (2007) investigated the relationship between government expenditures and economic growth in Thailand for the period 1993 to 2006. The results showed causality from government to economic growth and confirmed the strong positive impact of government expenditure on economic growth during the period

of investigation. Public spending plays a critical role in anti-poverty interventions in terms of influencing the resource allocation by providing physical and social infrastructure which would help to accelerate growth and to direct the benefits of growth to the poor (Datt and Ravallion, 2002).

On the other hand, there are some studies which support the idea that public expenditure has a negative impact on economic growth. Taban (2010) examined government spending and economic growth for the period 1987 to 2006 and applied granger causality test. The author found that government spending and investment are negative impacts on economic growth in the long run. Similarly, Ighodaro and Okiakhi (2010) used time series data and applied cointegration test and Granger causality test, their results revealed negative impact of government expenditure on economic growth.

2.3.7 General Overview of Kibaha district

According to the Coast region profile (2007), the per capita income of the Coast region in 2001 was Tshs 180,579 ranked it number 16 out of 20 regions and in 2003 was Tshs 245,496 that puts the Coast region as number 14 out of 21 Tanzania mainland regions. In that case, the position of Coast region was projected to be reduced in coming years, if it relies on the strategic plans to reduce poverty in the region. Coast region is one of the poorest regions in Tanzania Mainland. Yet, with a GDP per capita income of TZS 268,944 (approximately US$ 234 by 2007 prices) Pwani is one of the poorest regions in Tanzania Mainland. It compares unfavourably with regions like Dar es Salaam (US$ 609), Iringa (US$ 397) and Ruvuma (US$ 389) (URT, 2007a).

Coast region profile (2007) shows that, 68% of Kibaha residents are engaging in agriculture while the cultivated area per district is 63,034 (12.6%). Main food crops of Kibaha district are cassava, paddy/rice, millet, legumes, maize and sweet potatoes and the most dominant domestic animals are cattle and goats. Other animals kept are sheep, chicken and pigs. Others income generating activities of Kibaha districts are business 19%, sales of livestock and their products 1%, remittance 7% and salary is 4%.

Cash crops planted in the district are cashew nuts, coconuts and fruits. Coconut is mainly produce their farm income at 39% while cashew nuts generate their income to 31 percent of cash crop planted in the district.

2.3.8   Conclusion

Quite a number of researchers have come to different conclusions on how government expenditure on pro poor sectors or how pro poor growth contribute to GDP growth. Other scholars have taken the view that government expenditure on pro poor sectors is positively related to economic growth (Fan *et al.,* 2000), while others have shown a negative relationship exists (Landau, 1983). Some also argue that without growth in the non agricultural sector, overall gains to economic growth will be limited. Timmer, (2002), contend that expenditure in pro poor sectors and the accompanying creation of transport infrastructure and institutions in other sectors is a prerequisite for national economic growth and poverty reduction. The researcher noted that pro poor growth could be a catalyst for national output growth through its effect on rural incomes and provision of resources for transformation into pro poor growth.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Area

The study was carried out in Kibaha district which is one of the 6 districts forming Coast region. Kibaha district has two councils which are Kibaha Town Council (KTC) and Kibaha District Council (KDC). The district is located at latitudes 6° 53' 11" south of equator and longitudes 38° 38' 31" east of Greenwich Meridian. Kibaha district shares common borders with Bagamoyo district in the North, Bagamoyo district again and Morogoro rural district in the west and Kisarawe district in the south.

Kibaha district covers an area of about 1,812 total Sq. kms. The district has 3 Division, 13 Wards, 53 hamlets and 25 Villages. According to 2012, Tanzania national census, Kibaha district is having a total number of 131,242 populations. An annual average rainfall is between 100 - 600 millimetres. There are two rainy seasons, the long rain start from March - May and the short rain from October - December. 80% of majority of residents living in the district and who are above the age of 15 are engaging in agriculture. The other 20% are engaging in small-scale trading and casual labour, professional people and few Maasai pastoral activities particularly in Magindu and Kwala wards.

3.2 Data used and Methods applied for analysis

The study was carried out using secondary data. All the data was drawn from Coast region and Kibaha district authorities, Ministry of Work, Ministry of Transport of Tanzania. In this study, the quarterly time series data covering the period between year 2000 and 2009 were collected and analysis was done by using GRETL statistical software. The variables under consideration are government expenditures on roads, health, education, agriculture and per capita income. All variables were expressed in monetary terms. The Per Capita Income (PCI) is a dependent variable, whereas, others are explanatory variables.

Initially, transformation of the data into logarithmic form was carried out to establish the normality and stationarity of the variables. Then, observation of the correlation between dependent variables and independent variable was carried out, correlation matrix of the variables was performed whereby value in the range of 1 indicates two series move tightly together and correlation value in the range of -1 indicates two series move in opposite directions. Lastly, the relationship and effects between variables was performed by using error correction term (EC1) and Granger causality. The coefficient lies between 0 and 1 suggesting the adjustment of variables and in confirming the existing relationship, causality used.

3.3   Study Design

Study design is the arrangement of conditions for collection and analysis of data in a manner that aim to combine relevance to the study purpose with economy in procedure (Kothari, 2001). In study design data is collected, measured and analyzed in order to achieve certain study objectives. Chandran (2004) stated that the study design is a way to accomplish the study objectives through empirical evidence that is obtained economically.

This study is retrospective cohort to investigate changes of well being across generation. To understand the present, there was a need to look not only at early public expenditure in some selected pro poor sectors but also at the experience of their previous trend. Assessing the importance of these changes in turn requires quantification of the government expenditure on roads, education, agriculture and health.

3.4   Data Processing Procedure

3.4.1   Estimation of Econometric Model

In analyzing on the impact of government expenditure on pro poor sectors for poverty reduction, data were transformed to natural logarithms, and then examined the possible existence of unit roots in the data to ensure that the model constructed later is stationary

in terms of the variables used. The stationarity of each time series variable was investigated by employing Augmented Dickey-Fuller unit root test. The tests consist of regress each series on its lagged value and lagged difference terms. The number of lagged differences included in this study was determined by the Schwarz Information Criterion (SIC).

A stochastic process is said to be stationary, if its mean and variance are constant over time and covariance between the two time period and not actually the time at which the covariance is computed. If a time series is stationary, its mean, variance and auto variance at various lags remain the same no matter at what point was measured. This study used the unit root test to establish the stationarity of the time series in question. A stochastic process can be written as;

$Y_t = p\ Y_{t-1} + u_t$; where $-1 < P < 1$. Subtracting Y_{t-1} from both sides ……….3.1

$Y_t - Y_{t-1} = (p-1)\ Y_{t-1} + u_t$ ………………………………………………….3.2

$\Delta Y_t = \partial\ Y_{t-1} + u_t$ where $\partial = p-1$ we therefore estimate the last equation and test the null hypothesis that $\partial = 0$, that is $p = 1$. If this is the case, then a unit root is present and the series is non stationary. If ∂ is negative, then we have stationary time series. Finally, the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) are applied to the data to either support or refute indications provided by the foregoing procedures. To correct stationarity, data in the model are transformed by taking the first differences (Gujarati, 1995). Although there are numerous unit root tests, such as the Phillips-Perron test and the Schmidt-Phillips test, the most notable and commonly used is the ADF test. This study applied Augmented Dickey-Fuller (ADF) in order to know the characteristic of observed data whether the data is stationer or not.

According to Gujarati (2003), the Dickey-Fuller test, as with other unit root tests, has its own weaknesses. Even if the test seems to give a precise answer about stationarity or non stationarity, this is not the case.

The test is weak in its inability to detect a false null hypothesis. Brooks (2002) and Gujarati (2003) show that unit root tests have low power if the process is stationary but with a root close to the non stationary boundary. This lack of power means that the Dickey-Fuller test fails to detect stationarity when the series follows a stationary process (Thomas, 1997). This could occur either because the null hypothesis was correct or because there is insufficient information in the sample to enable rejection. There are several ways of solving this problem, including the use of cointegration, which also applied in this study.

Further, the error correction model was used to test for cointegration. Error correction model used to analyze the short run and long run relationship between per capita income and pro poor sectors in reducing poverty. VAR lag order selection criteria was used in this study to choose the best lag length for the VAR time series model to examine the pair wise granger causality test. Granger causality test used to examine the correlation of per capita income and government expenditure on roads, agriculture, education and health. All these tests were performed as a way of overcoming the inherent instability in economic time series and to ascertain the level of stationarity, fitness of the model and the order of integration of the variables used.

3.4.2   Cointegration Analysis

Economic theory often suggests that certain subset of variables should be linked by a long-run equilibrium relationship. Although the variables under consideration may drift away from equilibrium for a while, economic forces or government actions may be expected to restore equilibrium. For example in agriculture, consider the market for groundnuts in two parts of Kibaha district, the north and the south with prices P_X and P_Y respectively. If these prices are equal, the market will be in equilibrium. If the prices are unequal it will be possible to make a profit by buying groundnuts in one part and selling them in the other. When the concept of equilibrium is applied to I(1) variables, cointegration occurs; that is, cointegration is defined as a certain stationary linear combination of multiple I(1) variables.

Co integration analysis is inherently multivariate, as a single time series cannot be co integrated. Therefore, through co integration, a long run relationship between government expenditures on pro- poor sector towards reducing poverty can be established.

In this study, the coefficient on error correction term (EC1) used to test for co integration. The error correction term tells us the speed with which variables returns to equilibrium following an exogenous shock. It should be negatively signed, indicating a move back towards equilibrium; a positive sign indicates movement away from equilibrium. The coefficient should lie between 0 and 1, 0 suggesting no adjustment one time period later, 1 indicates full adjustment. Furthermore, the error correction term can be either the difference between the dependent and explanatory variable.

3.4.3   Granger Causality Test

Granger causality is a technique for determining whether one time series is useful in forecasting another. Ordinarily, regressions reflect "mere" correlations. By applying Granger causality technique, this study observes the correlation which exists between the five variables of the study. Granger causality tests are conducted to determine whether the current and lagged values of one variable in the model (agriculture, roads, health, education and per capital income) affect one another. A time series X is said to Granger cause Y if it can be shown that those X values provide statistically significant information about future values of Y.

According to Granger (1987), if a pair of I(1) series are cointegrated, then there must a unidirectional causality running in either way. Although cointegration implies the presence of Granger causality, it does not necessarily identify the direction of causality. Thus, for example, the existence of a cointegrating relationship between agriculture and per capital income and between education and per capital income suggests that there must be Granger causality in at least one direction, but it does not indicate the direction of temporal causality between the variables.

However, this temporal Granger causality can be captured through the VEC model derived from the long-run cointegrating vectors (Granger, 1986 and 1988). Therefore, on the one hand, if the Granger causality is found from road expenditure to per capital income, then it can be concluded that road expenditure has a significant impact on per capital income. The test is only valid if the variables are stationary.

In this study, pair wise granger causality tests was used to find the correlation between the two variables (and subsequently for a series of other pair of variables) and EC1 was used to test the causality between cointegrated variables, this is because the regressing on the first difference cointegrated variables could lead to misspecification error. It should be noted that Granger-causality really represents only a correlation between the current value of one variable and the previous values of others. It doesn't mean that movements of one variable cause movements of another (Brooks, 2002). Moreover, although causality in VAR examines whether the current value of variable X can be explained by the past values of variable Y, it still does not explain the sign of the relationship or how long these effects last.

3.5   Ethical Consideration

Respondents were assured of the confidentiality of the information they provided and that the information was for academic purposes only. Respondents were free to withdraw from the study at any time. An administrative unit like Kibaha Town Council, Kibaha District Council and MDAs through their Chief Executive Officers was consulted to ask for permission and corporation to undertake this study in their area of jurisdiction particularly at senior's levels.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1   Time Series Properties of the Data

Before estimating the impact of government expenditure on pro poor sectors towards poverty reduction, transformation of the data into logarithmic form was carried out to establish the normality and stationarity of the variables. Descriptive statistics for the data were taken for variables if residual (ε) follows normality.

Table 4.1:   Descriptive Statistics for Variables in levels

	AGR	EDUC	HEALTH	ROAD	PCI
Mean	18.76688	19.80736	19.12708	19.66339	10.68310
Median	18.61760	19.81356	18.96066	19.48399	10.70196
Maximum	19.80314	20.34383	19.80322	20.44448	11.31461
Minimum	18.16061	19.11652	18.42209	19.24437	10.10785
Std. Dev.	0.433384	0.414534	0.451063	0.378106	0.351434
Skewness	0.578910	-0.198905	0.148029	0.864912	0.0574330
Kurtosis	2.085743	1.675582	1.500734	2.313725	2.360839
Jarque-Bera	3.627354	3.187226	3.892416	0.806947	5.668024
Probability	0.163053	0.203190	0.142815	0.667996	0.058777
Observations	40	40	40	40	40

Source: computed from the data in appendix 1

*__Note.__ PCI = per capita income; EDU= government expenditure on Education; HEALTH = government expenditure on Health; AGRI = government expenditure on Agriculture, ROAD = government expenditure on roads

From the Table 4.1, positive kurtosis indicates heavy tails and peaked relative to the normal distribution. A zero skewness value indicates that the values are relatively evenly distributed on both sides of the mean, typically (but not necessarily) implying a symmetric distribution. Since the distribution is symmetric then the mean is equal to the median and the distribution has close to zero skewness. According to data available in table 4.1, the data variables follow normal distribution, since the normal distribution has a skewness of zero.

4.2   Correlation of variables

It is well known that a correlation value in the range of 1 indicates two series that move tightly together; a correlation value in the range of -1 indicates that the two series move in opposite directions. If the two variables are independent (thus, there is no causal relationship between them), their correlation coefficient is zero. If the two variables are simply proportional, their correlation coefficient is 1.

Table 4.2:   Correlation Matrix of the variables

	AGR	EDUC	HEALTH	ROADS	PCI
AGR	1.0000	0.5907	0.6865	0.7290	0.6124
EDUC	0.5907	1.0000	0.9611	0.8684	0.9467
HEALTH	0.6865	0.9611	1.0000	0.9142	0.9154
ROAD	0.7290	0.8684	0.9142	1.0000	0.9090
PCI	0.6124	0.9467	0.9154	0.9090	1.0000

Source: computed from the data in appendix 1

From table 4.2, the results show that, the government expenditures on education and health are strongly correlated, similarly for government expenditures on road and per capital income have correlation. In general, all variables show positive strong correlation to each other. This indicate that, government expenditure on roads, education, health, agriculture and per capita income have positive correlation. For government expenditure to have a positive impact on reducing poverty has to spend and invest to pro poor sectors as mentioned in table 4.2. This also shows that public intervention is required in efforts of increasing the per capita income of its residents. The government has to spend and invest to poor people so as to increase their income.

4.3   Tests for Unit Root

It is important to determine if the time series is stationary because time series data usually follow a particular trend and therefore needs to de-trend it otherwise spurious results will be obtained (Gujarati, 1995). Non-stationarity of time series data means that predictions based on them have little stability over time and therefore of little predictive

value. If the series are non-stationary, standard econometric techniques can lead to misleading results.

In testing the stationarity of the time series data by using the Augmented Dickey-Fuller Test (ADF), if the absolute value of the ADF test statistic is less than the absolute critical value, the test accepts the null hypothesis that the variable is not stationary. If the calculated ADF test statistic is greater than critical t-values, reject the null hypothesis. The Unit Root tests were conducted on all five variables as shown on table 4.3.

According to test done as shown in table 4.3, the test statistics over the entire range at levels were less than the critical values for the ADF (t test) at 99% level of confidence except government expenditure on agricultural, which is stationary at level. This confirms that, public expenditure on pro poor variables is non-stationary. It is therefore possible to accept the null hypothesis of non-stationary of pro poor data. As is well known, the non-stationary data series are poor candidates for reliable regression statistical properties of variables since they yield spurious results that are useless for predictive purposes, it was therefore necessary to correct them for stationary. The results obtained in table 4.3 when variable ADF tested at level, leads to test unit root at first differences as summarized in tables 4.3. Then it revealed that, all the variables are stationary at first difference at 99% confidence interval, that is, integrated of order one I(1).

Table 4.3: Results of Unit Root Test

Variable	test statistic (ADF)		Phillips - Perron Test	
	At level	At first difference	At level	At first difference
Agr	-5.312111*	-8.674408*	-5.393335*	-14.01350*
edu	-3.615298	-6.009558*	-3.547571	-8.440939*
health	-2.637460	-4.705688*	-2.659688	-7.624163*
road	-1.806074	-4.931173*	-1.687674	-6.786722*
pci	-2.943891	-5.536530*	-2.886755	-7.606709*

Source: Researcher's own computation.

The asterisk *   indicate MacKinnon critical values for rejection of hypothesis of a unit root.   The critical value is -4.2165 at 1% significant level.

The result at table 4.3 shows that, in the first step at level, the ADF and the Phillips-Perron test were conducted at level; with the variables found to be nonstationary except government expenditure on agriculture. At next step of first difference, all variables of government expenditures on pro poor sectors become stationary by using both ADF and Phillips Perron Tests. When all variables in the model are stationary, it implies that there is no problem of spurious regression. Therefore, the data are valid for further analysis to determine fitness of the model and avoiding spurious regression.

4.4   Lag length selection in Vector Auto-regression (VAR) model

Vector Auto-Regression (VAR) in an econometric model has been used primarily in macroeconomics to capture the relationship and independencies between important economic variables. They do not rely heavily on economic theory except for selecting variables to be included in the VARs. The VAR can be considered as a means of conducting causality tests, or more specifically Granger causality tests.

Before running the cointegration test, the selection of lag length should be done first. In determination of lag-length for VAR model, a critical element in the specification of VAR models is used. Various lag length selection criteria are defined by different authors like, final prediction error (FPE), Akaike Information Criterion (AIC) suggested by Akaike (1974), Schwartz Criterion (SC) (1978) and Hannan-Quinn Information Criterion (HQC) (1979). These criteria mainly indicate the goodness of fit of models.

Table 4.4: VAR lag length Selection of Variables

lags	AIC	BIC	HQC
1	9.301028	7.761496*	8.763690*
2	-8.917642	-6.278444	-7.996491
3	8.643511	4.904647	7.338547
4	-9.394134*	4.555604	7.705358

Source: Own Computation

Note: The asterisks* indicate lag order selected by the criterion (that is, minimized) values of the respective information criteria, AIC = Akaike Criterion, BIC = Schwartz Bayesian Criterion and HQC = Hannan-Quinn Criterion

From the results of VAR lag order selection criteria in table 4.4, the lag length of 4 for the granger causality test was used. This is due to the fact that Akaike Information Criterion chose 4 lag but Schwartz Bayesian Criterion and Hannan-Quinn Criterion choose one lags. The use the VAR lag length was chosen from the best maximum lag length selection of variables by the criterion, which minimized the values of the respective information criteria. Therefore, lag order 4 chosen by The Akaike information criterion selects was used in this study. After selection of lag length of the variables, cointegration test was conducted by the coefficient of lagged error correction model (EC1) through vector error correction model to determine the long run relationship of the variables.

4.5   Testing for Cointegration

Cointegration is a process which involves determining the presence of any cointegrating relationships among the variables in the model. This is particularly important to confirm or refute a long-term relationship among the variables. It test the existence of a long run equilibrium relationship among time series variables, thus if two or more variables are moving together through time, and despite following their own individual trends will not drift too far apart since they are linked together in some sense. Testing for cointegration implies testing for the existence of such a long-run relationship between pro poor variables in the economy.

Brooks (2002), explained that all the series of interest should be integrated of the same order, preferably $I(1)$. The reason for this is that if the series display level stationary, or are $I(0)$, standard regression and statistical inference could be carried out, since there would be no problem of spurious regressions.

In other words, cointegration means that despite being individually non stationary, a linear combination of two or more time series data can be stationary. Brooks (2002), further shows that a cointegrating relationship may also be seen as a long term or equilibrium phenomenon, since it is possible that cointegrating variables may deviate from the relationship in the short run, but their association would return in the long-run. This concept is particularly important in this study where we seek to identify the impact of pro poor variables that have a long term relationship with the per capita income.

There are several ways of testing for cointegration. The tests can be categorised into two broad categories: those that are residual based, such as the Engle-Granger approach and those that are based on maximum likelihood estimation on a VAR system, such as the VECM. Cointegration[1] analyses are designed to find linear combinations of variables that also remove unit roots. The VECM approach test used to deal with problems of cointegration (variables have a long-term or equilibrium relationship between them).

In this study, the coefficient on the error correction term (EC1) used to test for cointegration. The error correction term tells us the speed with which variables returns to I_t should be negatively signed, indicating a move back towards equilibrium and a positive sign indicates movement away from equilibrium. The coefficient should lie between 0 and 1, 0 suggesting no adjustment one time period later, 1 indicates full adjustment. Furthermore, the error correction term can be either the difference between the dependent or explanatory variable.

Then, cointegration test is performed by the coefficient of lagged error correction model (EC1) through Vector error correction model to determine the long run relationship of the variables. The error correction mechanism measures the distance of the system away from equilibrium.

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[1] There is the difference between tests for unit roots and tests for cointegration. As David A. et el observed, "Tests for unit roots are performed on univariate [i.e. single] time series. In contrast, cointegration deals with the relationship among a group of variables, where (unconditionally) each has a unit root."

The coefficient of ECM_{t-1} should be negative in sign in order for the system to converge to equilibrium. All variables regressed by choosing each variable as a dependent variable. After this regression, the results showed that cointegration exist only when per capital income (PCI) stands as dependent variable, because EC1 is negative and significant at 5%. The detailed results obtained from the regression are shown on Appendix **B**.

The regression result shows that, a long run relationship exists among per capital income and government expenditure on roads, health, education and agriculture in Kibaha district. There is no cointegration relationship found when road, health, agriculture and education expenditures individually stood as dependent variables (See appendix B). Since cointegration occurs between per capital income and government expenditure on pro poor sectors, there must be granger causality among the variables at least running from one direction, although it does not tell what kind of causality exist. The negative sign and significant coefficient associated with lagged error correction term (EC1) is also a more efficient way of establishing cointegration. It implies that, in Kibaha, the government expenditure on pro poor sectors is cointegrated when per capita income serves as dependent variable. The positive and significant effect of government expenditure on pro poor growth and poverty reduction is supported by long run dynamic models.

The results from table 4.5 show that, the coefficient of error correction term (EC1) through VECM is significant and has negative sign when per capita income stood as dependent variable. This is because the coefficient of lagged error correction term (EC1) is negative and significant at 5%. This suggests that there exists a long-run relationship between per capita income and government expenditures on the pro poor in kibaha district.

Table 4.5:   **Cointegration Test for d_PCI as dependent variable**

Variable	Coefficient	Std. Error	t-statistic	p-value
Const	4.60143	1.98416	2.3191	0.03169**
d_PCI_1	-1.02505	0.432039	-2.3726	0.02837**
d_PCI_2	-0.830385	0.427683	-1.9416	0.06716*
d_PCI_3	-0.701614	0.357091	-1.9648	0.06423*
d_AGRIC_1	0.146328	0.101796	1.4375	0.16685
d_AGRIC_2	0.0890865	0.0875208	1.0179	0.32152
d_AGRIC_3	-0.0072073	0.0574611	-0.1254	0.90150
d_EDUC_1	0.566771	0.39764	1.4253	0.07028**
d_EDUC_2	0.28303	0.327086	0.8653	0.09767**
d_EDUC_3	0.116365	0.225339	0.5164	0.01153*
d_HEALTH_1	-0.601376	0.372612	-1.6139	0.12302
d_HEALTH_2	-0.544604	0.325129	-1.6750	0.11031
d_HEALTH_3	-0.308725	0.220514	-1.4000	0.17762
d_ROAD_1	0.393631	0.248306	1.5853	0.12941
d_ROAD_2	0.340435	0.242941	1.4013	0.17725
d_ROAD_3	0.157673	0.229644	0.6866	0.50063
EC1	-0.175963	0.0771532	2.2807	0.03428**

Source: Own Computation
**Significant at 5% level,   *Significant at 10% level,

From table 4.5, the coefficient of lagged error term EC1 enters with significant small correct sign and negative at 5% level of significance, that is, tends to -1, indicating that the speed of adjustment to equilibrium is high. In other words, it tells how long it would take for equilibrium to be attained in the short-run; given there is a long-run relationship. Therefore, based on the EC1 value of -0.175963, it can be said that, it would take the government to invest and spend for about 17 quarters of the year to be restored to the state of equilibrium in the short-run. Therefore ceteris paribus, there is an impact existing between per capita income and government expenditures on pro poor sectors.

The results from table 4.5 also indicate that, government agriculture and roads expenditures have positive relationship on per capital income but insignificantly, mainly may due to inefficiency in its targeting and misuse of the funds. Public expenditure on education has positive relationship on per capital income and statistically significant at 5%.

The government health expenditure has a negative relationship on per capita income, and insignificant at the short run. In general, the pro-poor growth needs to target the poor and therefore, respective government interventions and investment must target pro poor sectors.

As to the question of which area does government investments yield the highest return in terms of per capita income in Kibaha district, the results shows that investments in education appear to be significant to public expenditure that positively contribute to growth of per capita income in the district. Although the government has realized the seriousness of the problem, more efforts are needed to better target the funds to the poor and use the government investments to improve rural education, agriculture, health and roads, which promote growth and thereby offer a solution to poverty reduction.

The intercept of variables under the equation, thus, government expenditure on agriculture, education, health and roads is positive. It shows by how much the dependent variable in each pro poor sector responds to changes in the explanatory variables at their zero levels. It also donating that by taking ceteris paribus on other variables, if the government will not spend and invest at all, the per capita income of Kibaha residents will increase at 4.6%.

The insignificant of agriculture government expenditure on the growth of per capita income as shown in table 4,5 could be due to the failure of various policies to revamp the sector. This result could be true because most of Kibahas' people are getting very low wage from private small farms that is not adequate to fulfill their basic needs and increase their per capita income. Further, their wage earnings also depend upon changes in natural climate as well as price and demand fluctuation of agriculture products. Most of the people highly depend on agriculture like fruits, cashew nuts and coconut for their livelihood income and most of them are wage labourers. Besides, wages is determined by the employer.

The agriculture sector has been unable to regain its lost glory despite several efforts on the part of the government to raise the level of productivity of this sector. Such failure could be due to problems inherent in the sector itself, misappropriation of funds, and misconception of government programmes, lack of monitoring and evaluation, poor funding, wrong perception of the sector by the younger generation, inability to reach the target population, poor administration, inadequate modern technology, and lack of continuity of government policies among others. The results like these have been confirmed with the findings of Abu and Abdullahi (2010). Other reason could be underdevelopment of rural roads which by multiplier effects, reduce the agriculture production, and hinder other non agriculture income generating activities to grow and this reduce the income of Kibaha residents. Temu *et al.,* (2005) in their report showed that, low density and seasonal states of roads raise constraints to agricultural rural producers. Many farmers in Tanzania live and produce far from major roads, markets and other social economic services centres, and consequently small agriculture producers must face higher transaction cost, high transport cost which raises the price of inputs.

The results from table 4.5 show that a unit government expenditure on roads will increase per capita income of Kibaha residents by 0.394 units. Government road expenditure may help the poor get connected to core economic activities, thus allowing them to access additional productive opportunities, promotes economic growth and create new jobs. Though the coefficient is not statistical significant. The insignificant of government expenditure on roads could be due to misappropriation and diversion of public funds.

However, another ground for insignificant of roads government expenditure is inadequacy of allocation of public resources to develop roads infrastructure in Kibaha. The inadequate roads and access to market is impediment for the generation of employment, low level cost of living and average health. The findings done by Temu *et al.,* (2005), shows that, Tanzania would benefit greatly from investment in rural

transport infrastructure and services, but with scarce resources, the government faces challenges of how can government continue to raise the required resources towards agriculture and pro poor sectors investment in line with PSRP initiatives, and what policy would provide incentives to attract private sector investment towards providing, and hence sharing the responsibility of extending rural services. Therefore, poverty is transmitted from one generation to another and it is persistent in Kibaha district.

The coefficient of government spending on education is positive large and significant. Result indicates that on average, a unit increase of government expenditure in education in Kibaha district leads to 0.567 unit increases of per capita income. Its p-value of 0.07 indicates the significance of education government expenditure. This can be explained by the fact that education is an important pro poor sector in determining the labour productivity which in turn significantly affects the ability of the poor to benefit from enhanced opportunities. Therefore, there is a need to increase government spending and investment on education since the objective of government policy is to reduce poverty in the country. This may have occurred as a result of initiations of MMEM and MMES programs. The results is consistent with past studies done in Tanzania which show that, in order for farmers to achieve maximum productivity they need an education because it is a factor in productivity (Msambichaka, 2011).

The result of the government expenditure on health indicates surprising result. It shows that government expenditure have a negative relationship with per capita income and insignificant. The insignificant coefficient suggests that government spending on health does not have any statistical significant impact on per capita income. The coefficient of -0.601376 means that for every one unit increase in government expenditure on health, per capita income of Kibaha residents is lowered by 0.601 unit on average. The negative relationship between health government expenditure and per capita income may also occurred as a result of cost sharing on medical care for buying medicines and other medical services hence reducing per capital income. The negative relationship could also be due to misappropriation and diversion of public funds from planned activity to

unplanned expenditure, which have left behind the popular slogan of "out of stock" in most public hospitals and health centres. The implication of this is that, if policy measures are not taken, growing public spending on health is capable of slowing down the per capita income in the district.

Good health is expected to enhance efficiency and productivity. The public health sector is not efficient and almost fails to deliver health care to a large share of population that give rise to private health facilities. Rural areas lacking public hospitals, dispensaries and other necessary medical services (if present at distance places) while lack of transportation and infrastructure facilities in rural areas pose threat to their health and health care services utilization. That is why private sector is prevailing side by side with public health sector and that private sector mainly motivated for profit. Government is less willing to intervene because of lack of competition with the private providers coupled with inefficiency of government's health entities, political factors and corruption.

With continuation of analysis, the pair-wise granger causality analysis for pro poor variables in the model (Table. 4.6) was performed by using the selected lag length 4. This was done to find the exact direction of causality and correlation between the two variables (and subsequently for a series of other pair of variables).

Table 4.6: Results of Pair wise Granger Causality Test

Null hypothesis	Observation	Probability
D(PCI) does not Granger Cause AGRIC	35	0.71123
AGRIC does not Granger Cause D(PCI)		0.21325
D(PCI) does not Granger Cause D(EDUC)	35	0.56632
D(EDUC) does not Granger Cause D(PCI)		0.16542
D(PCI) does not Granger Cause D(HEALTH)	35	0.80355
D(HEALTH) does not Granger Cause D(PCI)		0.00137*
D(ROAD) does not Granger Cause D(PCI)	35	0.97015
D(PCI) does not Granger Cause D(ROAD)		0.55428

Source: Author's computation

Asterisk * indicate significance at 1%

The granger causality results in table 4.6 show the direction of causality between the per capita income and government expenditure on pro poor sectors. It tells how the behaviour of a variable in the current period, can actually forecast the impacts of another in the long-run. This study makes use of the 0.01 level of significance in deciding the direction of causality.

According to the results of table 4.6, the P-value (0.00137) of health government expenditure is significant and rejected the null hypothesis. It can be concluded that, government expenditure on health granger causes per capital income and the causality runs from health expenditure to per capital income. This means that, government health care expenditure has significant impact in reducing poverty at 1% significance level. This is because a good health is considered as an input of the macroeconomic production function, stimulating per capital income and hence raising per capita income and reducing poverty. This also it confirming that, investing in health is a viable option for Kibaha district that triggers economic growth which is voiced in WHO report (2001) that investing in health is justified on the grounds of human development that will guide the path to economic growth.

The result proves the need for more health government expenditure and its strategies for poverty reduction and to meet the needs of the poor. Also, this result supports the earlier submission arrived at from the result of correlation of variables, that all variables in the model have positive correlation. Kibaha district have to prioritize health investments as part of their overall development strategy. Based on this evidence, they need to increase expenditure and improvement on health infrastructure and services to reduce poverty. Furthermore, Kibaha district need to extend health services to grass root level and make them more efficient and responsive towards reducing poverty.

According to Table 4.6, the P-value (0.71123) for agriculture government expenditure is insignificant and cannot reject the null hypothesis. It can be concluded that, agriculture does not granger cause per capita income.

The P-value (0.97015) for roads is also insignificant and cannot reject the null hypothesis. It is concluded that, the roads does not granger cause per capita income. The P-value (0.16542) for education government expenditure is insignificant and accepts the null hypothesis. This indicates, education does not granger causes per capita income in short run relationship. The insignificance of government expenditure on agriculture on the per capita income could be due to the failure of various policies to revamp the sector. The sector has been unable to regain its lost glory despite several efforts on the part of the government to raise the level of productivity of this sector. Such failure could be due to problems inherent in the sector itself, misappropriation of funds, and misconception of government programmes, inadequate monitoring and evaluation, poor funding, wrong perception of the sector by the younger generation, inability to reach the target population, poor administration, inadequate modern technology, and lack of continuity of government policies among others. Insignificance for roads is due to misappropriation of funds, inadequate monitoring and evaluation, poor funding, corruption, absence of good governance and huge backlog of roads maintenance.

4.6   Conclusion

This chapter presented descriptive and empirical results. It also examined the statistical properties of the variables included in the model. However, since the study made use of pro poor sectors in all cases, the data has sufficient stability to permit some tentative interpretation which can be a basis for evaluating the subsequent regressions and error correction. From the results, it was clear that long run relationships existed between the per capita income and the set of explanatory variables included in the model. An important result is that, the per capita income had a significant relationship and positive impact with the functions of government expenditure on agricultural, health, education and roads in the long run reflecting the importance of these variables in respect to their contribution to the pro poor growth and the increase of income. However, it was observed that the contribution of private sector in the pro poor growth of Kibaha residents is significant.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Number of efforts to improve the per capita income and reducing poverty are underway in the country but results are yet to be seen. In case of Kibaha district, despite of the increase of government spends and investment to pro poor sectors, the per capita income and poverty indicators presents a dismal picture and only small area is under cultivation. Nevertheless, Kibaha still has one of the lowest per capita income and higher poverty rate compared with the other districts in Tanzania.

This study investigated the impact of government expenditure on pro poor sectors in reducing poverty in Kibaha district. The main objective of this study is to analysis the impacts of government expenditure on pro-poor sectors on reducing poverty in Kibaha district. The data was tested for stationarity, autocorrelation and for cointegration. Problems of non stationarity of data were corrected by integrating the trending series. The unit root test, VAR lag order selection criteria, error correction model and pair-wise Granger-Causality test to establish the relationship, correlation and existing impact between the four pro poor sectors and per capita income in the study was performed. According to the results of this study, it shows from the unit root test (Augmented Dickey-Fuller) on logarithmic series that variables have a unit root which means all the series do not show stationarity. After taking first difference of the series, the results of unit root test show stationarity at 1%, levels of significance.

The study utilized secondary data collected from various reliable sources. The body of evidence accumulated in various literatures shows the existence of an impact of government expenditure on poverty reduction and the relationship between public investment and spending in pro poor sectors selected in the model.

Both time series properties of data and estimation of variables regression techniques have been applied to identify the impact of pro poor sectors to the poverty reduction.

Results from the study indicated that cointegration exist only when Per Capital Income acts as dependent variable. A long run relationship exists among PCI, road, health, education and agriculture expenditure in Kibaha district. No cointegration relationship found when road, health, agriculture and education expenditure stands as dependent variables. The results for causality show that government health expenditure granger causes per capital income and the causality runs from government health expenditure to per capital income. Moreover, the result shows that the government expenditure on agriculture, roads and education are insignificant and accepted the null hypothesis. It can be concluded that, those pro poor sectors do not granger cause per capita income in short run relationship.

On the other hand, government expenditure on education has a positive significant impact on per capita income in Kibaha district. The government health expenditure has a negative impact on per capita income, and insignificant at the short run. Investments in agriculture and roads appear have positive impact and insignificant in the period considered. The results emphasize the importance of policymakers' choice of which area government can spends and invests.

The study has implications for improving investment to the pro poor sectors. In the course of implementing the development of pro poor sectors and other poverty reduction policies and strategies, people need to be trained for skills necessary to cater for the changing poverty and economic environment. It is recognized that, the success of poverty reduction policy depends on among others, well-developed human resources base. However, the findings from the empirical analysis suggest that all pro poor sectors have been identified as the most important sectors, which mean the rate of poverty reduction will increase with the increase of public expenditure on those pro poor sectors.

Based on the results of this study, it can be concluded that government expenditure on pro poor sectors affect economic growth positively, though differently. Pro poor growth requires attention on productive sectors such as agriculture, education, health and roads.

Furthermore, the study show that, intercept of variables under the equation, thus, the intercept of government expenditure on agriculture, education, health and roads is statistically significant positive. This intercept shows by how much the dependent variable in each pro poor sector responds to changes in the explanatory variables at their zero levels. The intercept is also indicating that by taking ceteris paribus on other variables, if the government will not spend at all, there will be an increase of 4.6 units of per capita income. This does mean that, Kibaha people get income somewhere else than depending only from government spends and investment on pro poor sectors. These people may generate their income from business, sales of livestock and their products, remittance and salaries.

The results from pairwise granger causality tests shows health government expenditure is significant and rejected the null hypothesis at 1% significance level. The government expenditure on health granger causes per capital income and the causality runs from health expenditure to per capital income. While the analysis also shows that, government expenditure on agriculture, roads and education are insignificant and accepted the null hypothesis. In addition, no causal relationship was observed between government expenditure on agriculture, roads and education and per capita income.

To increase the growth rate of the economy, the government should device control measures on its expenditures on pro poor sectors. This will go a long away to reduce the spate of fraud, fund diversion and mismanagement. Moreover, monitoring and evaluation of government spending should be emphasized to ensure that the targets of government expenditures on pro poor sectors are reached.

Generally, the development of the education should be given top priority at all levels of nation; district and local government levels. For any meaningful growth of the economy, there must be a good and solid foundation laid in the pro poor sectors and pro poor growth.

5.2   Conclusion

This study focused on analysis the impacts of government expenditure on pro-poor sectors on reducing poverty in Kibaha district from 2000 to 2009, using the Error Correction Model and Granger Causality approach. The study did an empirical testing with government expenditure on pro poor sectors and per capita income of Kibaha residents. However, the potential contribution of government expenditure on pro poor sectors to economic growth and poverty reduction has been a subject of much challenge on combine growth-promoting policies with the right policies to assure that the poor can participate fully in the opportunities unleashed, and so contribute to that growth. While some contend that government expenditure on pro poor sectors results in poverty reduction in rural areas, others strongly disagree and argue for a different path. Despite much debate and quantitative analysis of the impact of government expenditure to economic growth and poverty reduction, there is lack of consensus on this issue.

Results from the empirical analysis of this study provide strong evidence indicating that government expenditure on pro poor sectors has impact to the economic growth and poverty reduction. Based on the results of this study, it can be concluded that government expenditure on pro poor sectors affect economic growth positively. Further, the study demonstrated that, investing in education has positive relationship and strong impact on per capita income, rising about 0.6 unitof per capita income per 1 unit of government spending. This indicates that continued education government expenditure in Kibaha district will contribute greatly to the economic growth and poverty reduction. Moreover, the results indicate that, government expenditure on agriculture and roads have positive impact on per capital income and statistically insignificant.

Health government expenditure has negative relationship with per capita income and insignificant in Kibaha district.

The causal effect of per capita income growth on health government expenditure is significant when compared with other pro poor sectors. This means that, government health care expenditure has significant impact in reducing poverty and therefore, there is a need for more health government expenditure and its strategies for poverty reduction and to meet the needs of the poor when compared with government expenditure on agriculture, roads and education.

According to error correction model findings of this study, one may conclude that there is a need to increase government education spending and investment. Therefore, increased government spends and investments in education should be a priority. Again, there is a need and opportunity to use public investments funds more efficiently to achieve economic growth and poverty reduction goals because government expenditure on agriculture and roads have positive relationship with per capita income. However, causality results show that government expenditure on health has positive repercussions on per capital income of Kibaha residents. Based on literature reviews, public expenditure on agriculture, health, education and roads in rural areas is one of the most important government instruments for promoting overall economic growth and reducing mass poverty, therefore cost-effective poverty reduction interventions is required among the poor living in Kibaha.

5.3   Policy Implications

Based on findings from the analysis, the study has important implications for public expenditure policy towards improving investment to the pro poor sectors, and more broadly promoting per capita income and poverty reduction in Tanzania:

Greater government expenditure on education improves the capacity of the labour force, and to equip young people with the knowledge and skills to secure good livelihoods and

break the cycle of poverty. This type of expenditure not only has a large impact on poverty reduction, but they also produce greatest growth in human productivity. The implication of this is that as more people get good education and acquire more skills, they will increase their productivity at work. It is important, however, to ensure that the investment in education is sustained; this will drastically increase per capita income and economic growth.

Education provision is an important aspect on the growth of the per capita income. On the one hand the growth of per capita income guarantees mobilisation of resources for funding education expenditures, which raise the demand for education from the perspective of individuals and households. Tanzania thus needs to guarantee high government expenditure on education in both the medium and long term.

In order to achieve growth in per capita income, government expenditure needs to be better promoted and invested to pro poor sectors. Public expenditure on pro poor sectors improves the capacity of the poor to break the cycle of poverty. The success of poverty reduction policy depends on among others, well-developed human resources base. Thus, in the course of implementing the development of pro poor sectors and other poverty reduction policies and strategies, people need to be trained for skills necessary to cater for the changing poverty and economic environment.

Tanzania has committed herself to the Millennium Development Goals, the first of which is the reduction of poverty. To achieve this goal, policy should be directed at the underlying pro poor sectors for increasing per capita income. The Tanzanian government is aware of the importance of pro poor sectors in poverty reduction as a result in 2005 NSGRP was launched. Therefore, the findings of this study intend to inform policy in this direction.

The reduction in government expenditure on pro poor sectors would have a negative repercussion on economic growth and poverty reduction in Kibaha district. Continued government investment is critical for Kibaha's growth; therefore implementation of sound macroeconomic policies currently in place should continue to be maintained.

The government has to improve key aspects of good governance and conducive policy environment for private sector investment. Private investment and increased role of the private sector in promoting the growth of pro poor sectors should be promoted further since it has contributed largely to increase per capita income attainment in Kibaha.

The findings of this study do not mean that the potential distributional effects of growth, or the policies that support economic growth, can or should be ignored. The government expenditure on pro poor sectors should relate the changes across countries and over time in income share to average incomes, or to a variety of proxies for policies and institutions that matter for pro poor growth and poverty reduction.

5.4   Recommendations

Based on findings from the analysis, the study proffers the following recommendations, From the study, education, agriculture, health and roads sectors are important determinants for change of per capita income and poverty reduction. The government expenditure on pro poor sectors should be improved to achieve the goal of reducing poverty as Tanzania has committed herself to the Millennium Development Goals. The Tanzanian government is aware of the importance of pro poor sectors in poverty reduction as a result in 2005 National Strategy for Growth and Reduction of Poverty (NSGRP) was launched. Therefore, the findings of this study intend to inform policy in this direction.

The Kibaha district, the government should consider investment in education sector as a persistent effort to reduce poverty since it had a stable positive significant relationship with per capita income.

The government can employ both education quality improvement and infrastructure development. Furthermore, the government should consider investment in agriculture and roads since they have a stable positive relationship with per capita income.

Government expenditure on pro poor sectors has positive impact on per capita income except health, but government expenditure on health granger causes per capital income and the causality runs from health expenditure to per capital income. Various types of government spending have differential impacts on economic growth, implying greater potential to improve efficiency of government spending by re-allocation among sectors. Therefore, it is recommended that government should increase spending and investment in education, agriculture, health and roads.

There is a close link between pro poor sectors and pro poor growth. Government expenditure on pro poor sectors causes the growth of income, per capita income and poverty reduction. Although many cost-effective poverty reduction interventions are being implemented in Tanzania, their coverage is still low, particularly among the poor and the majority living in rural areas. Renewed efforts are therefore required to address the pro poor sectors that contribute to pro poor growth and poverty reduction in Tanzania and Kibaha district in particular. Based on the results of this study, attention should be given to government expenditure on education, agriculture, roads and health.

The long term commitment of the government of Tanzania in poverty reduction is worthwhile. The government policy of universal education, prioritisation of resources to education, roads, agriculture and health sectors are therefore worthwhile endeavours. Expenditure done on projects of pro poor sectors are statistical significant on both government and the public at large. The public will enjoy the service delivery while the government will enjoy having a source of revenue because it will be invested to open up income generating sectors.

There shall be effective channeling of public funds to productive activities, which will have a significant impact on economic growth.

Government expenditures and the design of pro poor growth strategy for growth of per capita income and poverty reduction should be directed mainly to education, health, agriculture and roads. This will stimulate activities in the economic sectors and, perhaps, reverse the negative effect of on economic growth because it takes into consideration the needs of the poor themselves.

The existence of a relationship between government expenditure on pro poor sectors and per capita income necessitates the continued use of the design and implementation strategies that improve greatly a consultative process involving various ministries, departments and agencies within the government. This will attract pro poor growth and poverty reduction by sensitive government spend and investment on roads, agriculture and education sectors.

The government expenditure on better health improves life of the people and enables them to carry out their daily activities properly, in other words reduces illness cost and also improves individual productivity hence adds to per capita income growth. This does not only helps in avoiding the disease burden and therefore better human capital formation but also assists in contributing to economy positively as active and healthy workers are more productive. Government on priority basis has to review its policy of cost sharing and increase its investment and spends on health services. Health sector expenditures must be allocated in a way that increases the provision of necessary infrastructure, services and easy access to health care services.

It is recommended that, the basic way forward for attaining pro poor growth is to integrate pro poor sectors in the plans of the Central and Local Government. The MDAs have to be instructed to prepare action plans to implement tasks under their jurisdiction concerned with the pro poor growth; this form fundamental starting point to implement the government expenditure on pro poor sectors. The joint collaboration of the government, development partners, private sector and other stakeholders is an important foundation to promote pro poor growth and poverty reduction.

There should be joint partnership between the government and the private sector in providing essential infrastructure and services that will promote economic growth and poverty reduction. Investment and spending from private sector should be encouraged in promoting the growth of pro poor sectors. Furthermore, the private sector should be ready to invest to the development and growth of pro poor sectors.

The study has established the existence an impact of government expenditure on pro poor sectors in relation to the per capita income growth and poverty reduction at Kibaha district. Therefore, any policy intervention in terms of government expenditure to the poor in order to alleviate, should aim at sectors that have per capita income increasing effects; in this case, pro poor sectors activities.

The Kibaha authority is advised to identify other economical sources of revenue which are not seasonal; the ascertained sources should be used specifically for promotion of pro poor sectors. Kitchen (2004) stated that capital investment can be obtained by setting aside sources of revenues for construction and repair of development projects.

Government expenditure cuts and neglecting pro poor sectors needs might have a deleterious effect on per capita income growth and poverty reduction. Evidence for Kibaha suggests that investing in pro poor sectors has positive impacts on pro poor growth and poverty reduction. An econometric estimates, for instance suggest that, a unit amount of government revenue spends on education will increase per capita income of Kibaha residents by 0.57 units. Moreover, the returns to education found to have higher impacts than similar investments in agriculture, health and rural roads.

The central concern for per capita income growth and poverty reduction should attention to increasing public expenditure in pro poor sectors, stimulating private investing and creating a favourable environment for income generation in micro and small enterprises. The growth analysis should be viewed not just from a macroeconomic perspective, but also at sectoral level for pro poor growth and poverty reduction.

Sectoral programs should provide special financial incentives, in favour of policies to promote pro poor sectors throughout the economy.

Although the study advocacy for impact of government expenditure on pro poor sectors, the government should target specific rates and standard to ensure that public monetary expenditure on pro poor sectors produces high quality and yield that matches such expenditure (value for money).

5.5   Future Research Needs

Based on the appropriate selected research approach identified under this study, only one district was discussed. This limits the generalization of the findings of the study to other districts in Tanzania. Therefore, in order to be able to form a general opinion on this, more districts need to be included in the study to provide adequate data for this purpose.

Private health care expenditures are an important part of the total health spending (reducing per capita income at household level). Therefore, there is need for conducting a study to see how the inefficiency of government expenditure to public health affects the per capita income of household.

It is hoped that this study will be followed with further investigations to overcome research limitations. For example, research can be performed by panel data analysis rather than time series analysis by utilizing wide area of the country. However, this study may be improved by increasing the length of the times series.

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APPENDICES

DATA USED IN REGRESSION

Data collected to examine the contribution of government investment in poverty reduction. These data have been put in logarithm

Obs	l_agr	l_edu	l_heath	l_road	l_pery
2000:1	18.35280	19.27407	18.42209	19.24437	10.10785
2000:2	18.39329	19.35454	18.43320	19.24526	10.10785
2000:3	18.31590	19.11652	18.50805	19.35973	10.10785
2000:4	18.38088	19.15271	18.50410	19.31825	10.10785
2001:1	18.79185	19.26702	18.67969	19.37444	10.22897
2001:2	19.43028	19.17699	18.66242	19.35739	10.22897
2001:3	18.16061	19.12180	18.68581	19.37872	10.22897
2001:4	18.61566	19.30238	18.74644	19.35987	10.22897
2002:1	18.61423	19.37621	18.73074	19.38888	10.46409
2002:2	18.79185	19.39927	18.72758	19.38796	10.46409
2002:3	18.91739	19.38119	18.71804	19.39424	10.46409
2002:4	18.32675	19.42257	18.75832	19.39901	10.46409
2003:1	18.36133	19.68554	18.88755	19.32297	10.58330
2003:2	18.40484	19.68021	18.88151	19.37079	10.58330
2003:3	18.33958	19.70596	18.80833	19.36187	10.58330
2003:4	18.35130	19.68268	18.93804	19.34571	10.58330
2004:1	18.36599	19.81853	18.92197	19.44189	10.69759
2004:2	18.40506	19.68396	18.95618	19.43268	10.69759
2004:3	18.38011	19.80830	18.96515	19.48139	10.69759
2004:4	18.37206	19.82172	18.94381	19.46017	10.69759
2005:1	18.72817	19.88523	18.99870	19.49786	10.70633

2005:2	18.79912	19.71412	18.94742	19.48658	10.70633
2005:3	18.47672	19.80860	19.00373	19.49148	10.70633
2005:4	18.43407	19.82886	19.01135	19.53261	10.70633
2006:1	19.15305	20.11483	19.50668	19.71055	10.71773
2006:2	18.89691	20.07712	19.50364	19.71721	10.71773
2006:3	19.20001	20.05520	19.51008	19.70665	10.71773
2006:4	18.46700	20.13014	19.51415	19.71630	10.71773
2007:1	19.30031	20.21244	19.60069	20.10349	10.98581
2007:2	19.34494	20.22239	19.59955	20.10349	10.98581
2007:3	18.49692	20.23555	19.65688	20.10360	10.98581
2007:4	19.04126	20.25074	19.65080	20.10338	10.98581
2008:1	19.44672	20.29747	19.70022	20.05685	11.02475
2008:2	18.61953	20.28207	19.69865	19.98830	11.02475
2008:3	19.27510	20.29641	19.66615	20.00904	11.02475
2008:4	19.49226	20.29745	19.80322	20.03679	11.02475
2009:1	19.18935	20.32613	19.67201	20.43115	11.31461
2009:2	19.26526	20.34208	19.66584	20.43916	11.31461
2009:3	19.17341	20.34160	19.71940	20.43115	11.31461
2009:4	19.80314	20.34383	19.77517	20.44448	11.31461

COINTEGRATION TEST

Table I: Cointegration Test for d_PCI as dependent variable

Variable	Coefficient	Std. Error	t-statistic	p-value
const	4.60143	1.98416	2.3191	0.03169**
d_PCI_1	-1.02505	0.432039	-2.3726	0.02837**
d_PCI_2	-0.830385	0.427683	-1.9416	0.06716*
d_PCI_3	-0.701614	0.357091	-1.9648	0.06423*
d_AGRIC_1	0.146328	0.101796	1.4375	0.16685
d_AGRIC_2	0.0890865	0.0875208	1.0179	0.32152
d_AGRIC_3	-0.0072073	0.0574611	-0.1254	0.90150
d_EDUC_1	0.566771	0.39764	1.4253	0.07028**
d_EDUC_2	0.28303	0.327086	0.8653	0.39767**
d_EDUC_3	0.116365	0.225339	0.5164	0.61153*
d_HEALTH_1	-0.601376	0.372612	-1.6139	0.02302
d_HEALTH_2	-0.544604	0.325129	-1.6750	0.11031
d_HEALTH_3	-0.308725	0.220514	-1.4000	0.17762
d_ROAD_1	0.393631	0.248306	1.5853	0.12941
d_ROAD_2	0.340435	0.242941	1.4013	0.17725
d_ROAD_3	0.157673	0.229644	0.6866	0.50063
EC1	-0.175963	0.0771532	2.2807	0.03428**

Table 2: Cointegration Test for d_AGRIC as dependent variable

Variable	Coefficient	Std. Error	t-statistic	p-value
const	0.623401	10.3928	0.0600	0.95279
d_PCI_1	-0.873169	2.26298	-0.3858	0.70389
d_PCI_2	-0.232357	2.24016	-0.1037	0.91848
d_PCI_3	-0.804539	1.87041	-0.4301	0.67193
d_AGRIC_1	-0.807265	0.5332	-1.5140	0.14648
d_AGRIC_2	-0.646253	0.458426	-1.4097	0.17478
d_AGRIC_3	-0.238412	0.300976	-0.7921	0.43806
d_EDUC_1	-0.143498	2.0828	-0.0689	0.94579
d_EDUC_2	-0.0230603	1.71325	-0.0135	0.98940
d_EDUC_3	-1.09181	1.1803	-0.9250	0.36655
d_HEALTH_1	0.127001	1.95171	0.0651	0.94880
d_HEALTH_2	0.394821	1.70299	0.2318	0.81914
d_HEALTH_3	-0.461664	1.15503	-0.3997	0.69384
d_ROAD_1	0.959243	1.3006	0.7375	0.46981
d_ROAD_2	-0.574129	1.2725	-0.4512	0.65697
d_ROAD_3	1.07728	1.20286	0.8956	0.38167
EC1	0.0191277	0.404121	0.0473	0.96274

Table 3: Cointegration Test for d_EDUC as dependent variable

Variable	Coefficient	Std. Error	t-statistic	p-value
const	2.11482	2.07918	1.0171	0.32187
d_PCI_1	-0.433135	0.452731	-0.9567	0.35073
d_PCI_2	-0.41477	0.448166	-0.9255	0.36632
d_PCI_3	-0.191399	0.374193	-0.5115	0.61490
d_AGRIC_1	-0.0808607	0.106672	-0.7580	0.45773
d_AGRIC_2	-0.102587	0.0917124	-1.1186	0.27727
d_AGRIC_3	-0.0654699	0.0602131	-1.0873	0.29050
d_EDUC_1	-0.42815	0.416684	-1.0275	0.31708
d_EDUC_2	0.0157983	0.342752	0.0461	0.96372
d_EDUC_3	-0.0737285	0.236131	-0.3122	0.75826
d_HEALTH_1	0.0248489	0.390457	0.0636	0.94992
d_HEALTH_2	-0.145654	0.3407	-0.4275	0.67381
d_HEALTH_3	0.051938	0.231075	0.2248	0.82456
d_ROAD_1	0.282597	0.260198	1.0861	0.29103
d_ROAD_2	0.241611	0.254576	0.9491	0.35450
d_ROAD_3	-0.141812	0.240643	-0.5893	0.56260
EC1	0.0795961	0.0808483	0.9845	0.33724

**Table 4: Cointegration Test for d_HEALTH as dependent variable**

Variable	Coefficient	Std. Error	t-statistic	p-value
const	-2.7357	2.91835	-0.9374	0.36031
d_PCI_1	-0.138316	0.635455	-0.2177	0.83001
d_PCI_2	0.132269	0.629048	0.2103	0.83570
d_PCI_3	0.510951	0.52522	0.9728	0.34286
d_AGRIC_1	-0.175315	0.149725	-1.1709	0.25611
d_AGRIC_2	-0.170522	0.128728	-1.3247	0.20099
d_AGRIC_3	-0.0781377	0.0845154	-0.9245	0.36680
d_EDUC_1	-0.435608	0.58486	-0.7448	0.46550
d_EDUC_2	-0.473677	0.481088	-0.9846	0.33720
d_EDUC_3	-0.480555	0.331435	-1.4499	0.16339
d_HEALTH_1	0.13069	0.548048	0.2385	0.81407
d_HEALTH_2	0.421417	0.478208	0.8812	0.38920
d_HEALTH_3	0.256389	0.324337	0.7905	0.43899
d_ROAD_1	0.109609	0.365214	0.3001	0.76734
d_ROAD_2	0.0764172	0.357324	0.2139	0.83293
d_ROAD_3	-0.357481	0.337767	-1.0584	0.30316
EC1	**-0.108955**	0.113479	-0.9601	0.34905

Table 5: Cointegration Test for d_ROAD as dependent variable

Variable	Coefficient	Std. Error	t-statistic	p-value
const	-1.87909	2.99171	-0.6281	0.53742
d_PCI_1	-0.341569	0.651428	-0.5243	0.60611
d_PCI_2	0.0865932	0.64486	0.1343	0.89459
d_PCI_3	0.00241414	0.538422	0.0045	0.99647
d_AGRIC_1	-0.139037	0.153488	-0.9059	0.37636
d_AGRIC_2	-0.0557605	0.131964	-0.4225	0.67737
d_AGRIC_3	-0.0867978	0.0866398	-1.0018	0.32902
d_EDUC_1	-0.275911	0.599562	-0.4602	0.65060
d_EDUC_2	-0.306633	0.493181	-0.6217	0.54150
d_EDUC_3	-0.39744	0.339766	-1.1697	0.25657
d_HEALTH_1	0.227199	0.561824	0.4044	0.69044
d_HEALTH_2	0.0622822	0.490229	0.1270	0.90024
d_HEALTH_3	0.13375	0.33249	0.4023	0.69198
d_ROAD_1	0.241784	0.374395	0.6458	0.52613
d_ROAD_2	-0.154375	0.366306	-0.4214	0.67817
d_ROAD_3	-0.190374	0.346257	-0.5498	0.58886
EC1	-0.0760996	0.116331	-0.6542	0.52085

MAP OF KIBAHA DISTRICT

KIBAHA DISTRICT
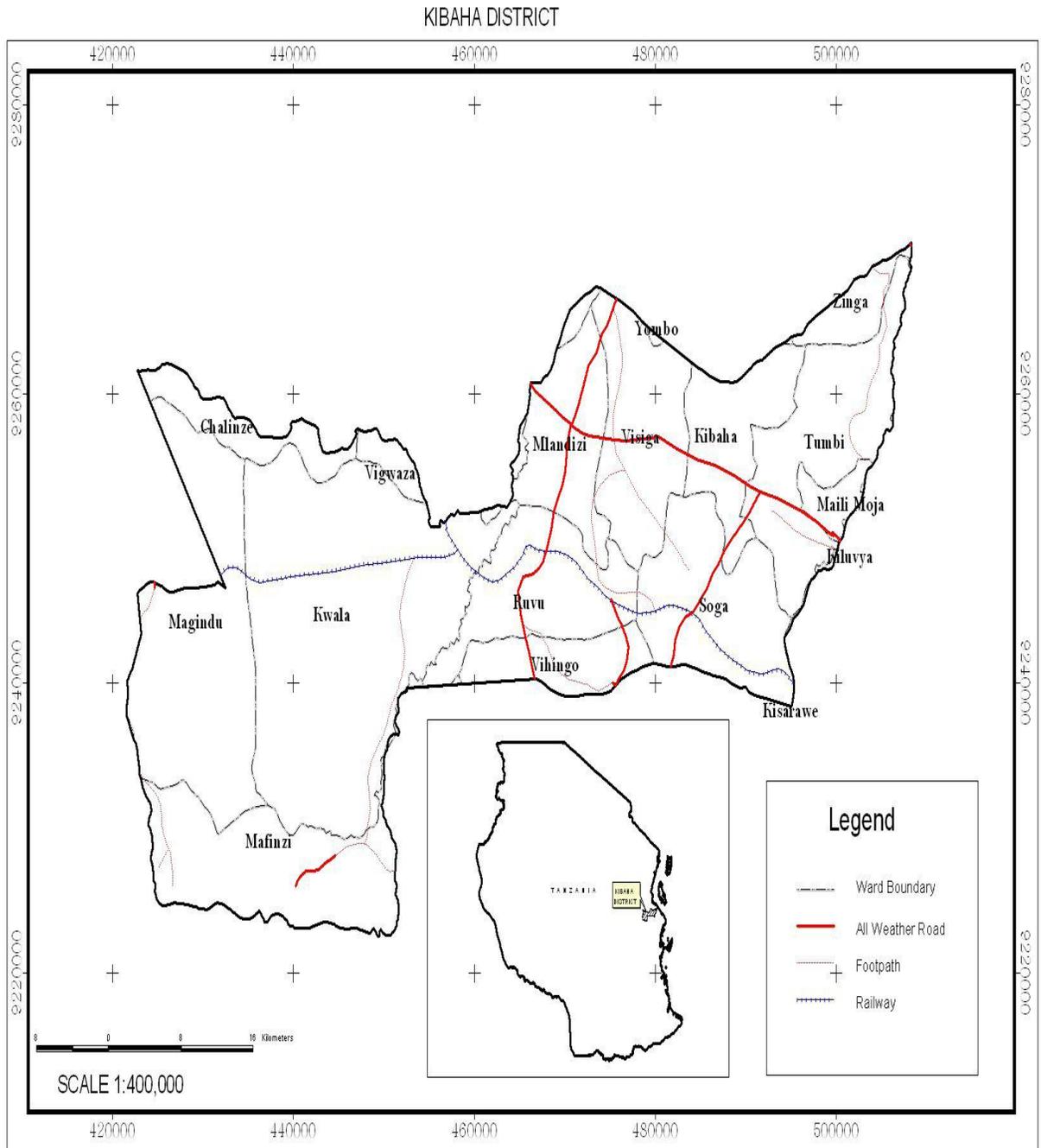
Source: Tanzania National Website.

CURRICULUM VITAE

CRISPIN MUSIBA

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986 816
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Summary of Qualifications

- Economic Policy and Planning

Professional experience

- To formulate sectoral Policies, and their implementation strategies;
- Preparations of budget speech, Economic survey and Government commitment to the Parliament;
- To participate on the program of exploiting Tanzania strategic geographical location to facilitate transit traffic of neighbouring countries;.
- To coordinate preparation of cabinet papers;
- To participate in the formulation of policies of other sectors; and
- Preparation of department annual budget.

Education

- Master of Science in Economic from
  Mzumbe University
  2013

- Advanced Diploma in Economic Planning
  from IDM (Now days Mzumbe University)
       1997– 2000

- Advanced Secondary School at Mazengo High
  School – Dodoma.
  1990–1992

- Secondary Education at Ifakara Secondary
  School – Ifakara Morogoro
  1986–1989

Working History

- Economist at Ministry of Transport   2010 to date
- Economist at Ministry of Infrastructure Development   2005 – 2010
- Senior Credit Officer- Small Enterprises Development Agency (SEDA) 2001–2005
- Administrator -Kimamba Fibres in Kilosa District   1993 – 1997