DETERMINANTS OF INVESTMENT INCOME GROWTH IN THE TANZANIAN SOCIAL SECURITY SCHEMES

A CASE OF SOCIAL SECURITY SCHEMES INDUSTRY

By

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The Research Report Submitted in Partial Fulfillment of the Requirement for the Award of Master Degree of Business Administration in Corporate Management (MBA-CM) at Mzumbe University

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommended for acceptance by the Mzumbe University, a dissertation titled "Determinants of Investment Income Growth in the Tanzanian Social Security Schemes: A case of the Social Security Industry", in partial fulfillment of the requirements for the Award of a Master's Degree in Corporate Management of Mzumbe University.

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I, Sabugo, Noel declare that this thesis report is my own original work and has not been presented and will not be presented to any other University for a similar or any other Degree Award.

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DEDICATION

I dedicate this work to my dear family for their tirelessly support, both moral and material that they had been extending to me from the early stages of my academic life time up to this juncture. I really appreciate their kindness.

LIST OF ABBREVIATIONS

LAPF	-	LAPF Pensions Fund
PSPF	-	Public Service Pensions Fund
GEPF	-	Government Employees Pensions Fund
NSSF	-	National Social Security Fund
PPF	-	Parastatals Pensions Fund
NSSP	-	National Social Security Policy
SSRA	-	Social Security Regulatory Authority
NBS	-	National Bureau of America
USA	-	United State of America
ISSA	-	International Social Security Association
OECD	-	Organization for Economic Co-Operation and Development
SSS	-	Social Security Schemes (Pensions Fund Schemes)
URT	-	United Republic of Tanzania
UN	-	United Nations
UNDHR	-	United Nations Universal Declaration of Human Rights
ILO	-	International Labor Organization
TZS	-	Tanzanian Shillings
WCF	-	Workers Compensation Fund
IIG	-	Investment Income Growth

ABSTRACT

This research study was done in Social Security Schemes in Dodoma, specifically at the regional offices of PSPF and GEPF and LAPF Head Office. The study aimed at assessing the Determinants of Investment Income Growth in the Tanzanian Social Security Schemes.

In this study, relevant literatures were reviewed in order to get more understanding and insights about the theories and empirical issues in order to govern this study. Thereafter, the study used various methodologies to undertake the study for instance, the study used aggregate secondary data from the year 2005/06 to 2016/17. Data were collected through documentary review method and analyzed using regression analysis method.

Based on the empirical evidence from this study, findings show that, Value of Social Security Schemes, Member Contributions and Benefits Payment were statistically significant at 5% significance level and positively affected investment income growth. The coefficients of Value of Social Security Schemes, Member Contributions and Benefits Payment were .001, .022 and .194respectively. Any changes by one unit may result to change of investment income growth by the amount equal to the coefficient of respective independent variable ceteris paribus (in billion TZS and vice versa).

The study concludes that, growth of investment income in Social Security Schemes is positively affected by Member Contributions, Benefits Payment and Value of Social Security Schemes. Furthermore, findings revealed that Benefits Payment contributes more to Investment Income Growth, followed by Member Contributions and finally Value of Social Security Schemes.

The study therefore recommends that, Social Security Schemes should increase coverage into informal sector, increase member registration, improve benefit packages and invest contributions of members into more productive investments to facilitate investment income growth.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

1.0 Introduction

This chapter provided the background information of the study, the statement of the problem, the general and specific research objectives, research questions, hypothesis to be tested, and significance of the study as well as the scope of the study.

1.1 Background Information

Human beings are vulnerable to risks and uncertainties which adversely affect their welfare (Mchomvu et al., 2002). To hedge against these risks, everyone needs guaranteed social security protection (Kyaruzi, 2015). For this reason, Security Schemes (Pension Funds) was developed as one form of economic security in a modern industrialized world. The first Social Security Retirement program was established in Germany with effect from the year 1889 (Impavido, 2002).

Social Security Schemes in particular Pension Funds are formal compulsory contributory schemes financed by both employer and employee during the working life of employees to guarantee social security protection in form of both terminal and short-term benefit payment before and after retirement (NSSP, 2003). Their core function is collection of contributions, investment and payment of benefits (Baruti, 2010).

The benefits Pension Fund Schemes pay is highly dependent upon the contributions they collected and the investment income they realize from their investment portfolios (Shola, 2013). Poor investments have serious impact to the Funds and their stakeholders in general since it undermines Pension Funds' ability to settle pension liabilities (Semango, 2015). To enhance their sustainability and ability to serve their purpose, investment decisions should be done prudently so as to ensure high income is realized from Pension Funds investment portfolios. Investment of Pension Fund Schemes forms an important part in the financial sustainability of the social security industry (Levišauskait, 2010).

Pensions Fund Schemes invest in such areas as Government securities, Corporate Bonds, Deposits with financial institutions, Equities, Investment property and Loans as guided by Social Security investment policies in their countries (Levišauskait, 2010). Furthermore, the investment of SSS can make a significant impact not only to the financial sustainability of the SSS but also towards nation's development (Hirose, 1999). The overall investment objective is to maximize returns on investments, preserve the real value of Social Security Schemes and generate and maintain solvency to meet pension's liabilities while taking into consideration best practices and standards as set forth by respective countries (Baruti, 2010).

The social security system in the URT comprises of the National Social Security Fund (NSSF), Public Sector Pension Fund (PSPF), PPF Pensions Fund, LAPF Pensions Fund, GEPF Retirement Benefits Fund and the Zanzibar Social Security Fund (ZSSF) (Mchomvu et al., 2002). Pensions Funds' investments in the URT is regulated by the Social Security Regulatory Authority (SSRA) through The Social Security Schemes Investment Guidelines, 2015 (Made under Section 26 (2) of the Social Security Regulatory Authority Act No. 8, 2015) (SSRA, 2015). Every scheme must adhere to the regulations as outlined by the SSRA (SSRA, 2008).

An important element in URTs medium and long term drive to reduce and eliminate poverty and social exclusion under the Tanzania Development Vision 2025 is partly through developing and maintaining modern and most effective social security investments systems through Pension Fund Schemes (NSSP, 2003). The systems should encourage and promote access to employment while protecting or safeguarding and sustaining availability of employment opportunities in all sectors of the national economy (NSSP, 2003).

Despite the existence of the SSS, most of Tanzanians are still vulnerable to social and economic insecurity (Semango, 2015). Thus, unless measures are taken to ensure that they can access some kinds of social protection, they will continue to be vulnerable and mostly affected by poverty especially after retirement (Haule, 2013).

The main challenges facing Tanzanian Social Security Schemes (SSS) include inadequate investment activities leading to poor investment performance, high pension liabilities than the SSS ability to handle, less contributions collection from Members and Employers and limited coverage (Mchonvu et al., 2002). In responding to these challenges, SSS in the URT are actively implementing reforms in an attempt to adapt to changes brought about by the current socio-economic dynamics following the establishment of the SSRA (ILO, 2001). Increasing contributions collection and returns on investment remains to be the core element toward addressing the current SSS challenges (Baruti, 2010).

However, there is still a challenge on the ability of SSS in developing countries such as URT toward securing their people against adversity and deprivation through improvement of SSS operations performance particularly investment (Stern & Burgess, 1991).

1.2 Statement of the Problem

According to the United Nations Universal Declaration of Human Rights (UNDHR) made on the 10th December 1948, every member of the society is entitled to social security right. Every UN member Nations including the URT is obliged to ensure a reasonable standard of welfare to its citizens to enable them cover life contingencies (UN, 2015).

The URT Constitution of 1977 and its amendments done in the year 1984, 1995 and 1998 stipulated the right to social security for all citizens which include the right to social welfare at old age, sickness or invalidity and other cases of incapacity (URT 1999). In attempt to implement this, the government of the URT established seven mandatory Social Security Schemes namely NSSF, PSPF, LAPF, GEPF, ZSSF, WCF and PPF (Mchomvu et al., 2002). According to Vision 2025, the URT aims to extend social security services to majority of the Tanzanians by the 2025 to ensure wellbeing of its citizens and achieve economic development (NSSP, 2003).

Social Security Schemes (Pension Funds) collect member contributions, invest the same in various investment avenues according to the SSRA investment guidelines and finally pays terminal benefits to members and beneficiaries of the Schemes (SSRA, 2012 and NSSP, 2003). Realizing high investments income growth is very crucial for Social Security Schemes to sustainably be able to fulfill their purpose as more funds are made available for beneficiaries (Lefort and Walker, 2002). Due to this significant role, Pension Funds managers' needs to be completely aware of the factors that determine investment performance for better allocation of financial resources to realize adequate investment income (Mogera, 1999).

However, the issue of benefit security is currently in foreground in the economic arena due to unsound financial state of Pensions' Funds Schemes (Stewart and Yermo 2008). Investment income realized by Pension's Funds is not sufficient to cover pension liabilities as they fall due (Kyaruzi, 2015). The same applies in Tanzania, where sustainability of Pensions Fund Schemes is reported to be questionable (World Bank, 2014). For example, during the year 2012/13, total benefits paid to beneficiaries by PSPF was TZS 543.71 billion whereas investment income was TZS 204.7 billion which is 38% of entire benefit payment. The total contributions received were 444.85 billion which is less by 98.86 billion as compared to benefit payments (PSPF, 2013). Delays in benefit payments, long customer waiting lists, long benefits processing time, existence of many pending claims and customer complaints have dominated Tanzanian Pension Fund Schemes (Haule 2013).

Many studies such as the studies done by Oluoch, (2013), Tijjani, (2014) and Şeulean and Moş, (2010) have investigated the determinants ofSocial Security Schemes investment performance in other countries however little is known about Tanzania. In Tanzania, a similar study has been done by Shola (2013) but focusing on only one Pension Schemes therefore the finding cannot be generalized as the sample was very small. The study by Shola (2013) recommended that similar studies should be done including a wider and more representative sample.

This study has therefore assessed the factors that contribute to the growth of investment income in Social Security Schemes in the URT, using a sample of three

Schemes out of six namely PSPF, GEPF and LAPF in order to establish more generalizable conclusions since at present there is still limited information about this field.

1.3 Research Objectives

This research study was geared toward accomplishing the following general and specific objectives;

1.3.1 General Objective

The general objective of the study was to examine the determinants of the growth of investment income of Social Security Schemes in Tanzania.

1.3.2 Specific Objectives

The specific objectives were; -

i) To assess the effect of the Value of Social Security Schemes in the growth of investment income in Social Security Schemes in Tanzania.
ii) To assess the effect of Member Contributions in the growth of investment income in Social Security Schemes in Tanzania.
iii) To assess the effect of Benefits Payment in the growth of investment income in Social Security Schemes in Tanzania.

1.4 Research Hypothesis

The study tested the following hypothesis;

i) H_0 : There is no significant positive relationship between Value of SSS and Investment Income Growth in the study area.
   $H_{1:}$ There is significant positive relationship between Value of SSS and Investment Income Growth in the study area.

ii) H_0 : There is no significant positive relationship between Member Contributions and Investment Income Growth in the study area.
   H_1 : There is significant positive relationship between Member Contributions and Investment Income Growth in the study area.

iii) H_0 : There is no significant negative relationship between Benefits Payment and Investment Income Growth in the study area.

H_1 : There is significant negative relationship between Benefits Payment and Investment Income Growth in the study area.

1.5 Scope of the Study

This study examined the determinants of Investment Income Growth in Pension Fund Schemes in Tanzania. It focused on the three Pensions Fund Schemes operating in Tanzania Mainland namely PSPF, LAPF and GEPF. To do this, data related to Investment Income, Value of Pensions Fund Schemes as measured by the total value of assets owned in respective Schemes' investment portfolios, member contributions and Benefits Payment data from each of the three Schemes were collected and analyzed jointly in order to come to more logical conclusions and give conclusive and satisfactory answers to this study.

1.6 Significance of the Study

This study intended to analyze the determinants of the growth of investment income in Tanzania. Findings from this study are expected to be useful to Social Security Schemes in formulating appropriate investment policies for proper investment decisions that enhances long term survival and sustainability through growth of investment income in Pensions Fund Schemes in the country.

The findings are also expected to be useful at the Government level for creating improvement policies to enhance performance of Pensions Fund Schemes in the Country.

As for the academicians, research institutions and some financial institutions that plays active roles in investment such as insurance companies; the study was expected to be used as reference for further studies and or a source of knowledge on improving utilize and allocate financial resource efficiently.

1.7 Limitations of the Study

i) Data used for this study covered a period of 12 years only. This being the case, the results may not be applicable for all years since the data may vary from time to time depending on changes in Social Security policies and practices.

ii) This study focused on Tanzanian Social Security Schemes alone. The results of the study may not be generalized to other countries since there is variation in Social Security Policies in different countries.

iii) The study also included only three predictor variables into the model (member contributions, Benefits Payment and Value of Schemes). Other variables such as government regulations, demographic and good governance may have impact on investment income growth but they were not included in the model.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter started with a theoretical review of literatures related to Social Security Schemes investment income growth, secondly followed by empirical literature review and finally presents and describes the conceptual framework of the study.

2.1 Theoretical Review of Literature

This section provided theoretical reviews of literatures related to Social Security Schemes investment income growth in terms the major concepts. Specifically, the section described key concepts of Social Security background, and Social Security operating principles, the key role of social security, and the key factors that determine performance of Pension Funds.

2.1.1 Historical development of Pension Funds Schemes

Formal Social Security Schemes in East Africa were originally introduced by colonial Governments between the Second World War (Mchonvu, 2002). However, many schemes were started after the Second World War (Mchonvu, 2002). Schemes introduced by then were employer liability schemes named workmen's compensation and civil servants Pension Schemes (Msalangi, 1998). After independency, most new African Governments opted to maintain the Social Security Schemes which were introduced before independency by colonial Governments (Haule, 2013). However, the Schemes were slightly modified considering the demands of new free African societies (ILO, 2001). Further modification and establishment of more Pensions Schemes continues afterwards mainly facilitated by the International Labor Organization (ILO) and the United National Development Program (UNDP) to the current Pension Fund Schemes (Mchonvu, 2002 and Msalangi, 1998).

In Tanzania, formal social security can be traced back to the period of colonial penetration, first, by the Germans (1885-1918) and then by the British (1918-1961), when a new political system was established alongside the introduction of plantations and the imposition of a hut tax which forced the African people either to migrate into

various economic enterprises or to participate in cash crop production (Mchonvu et al., 2002). Policy statements were made and Acts passed in regard to protection of the citizens against contingencies like injury, loss of employment and old age (Shola, 2013). These include the Master and Native Ordinance Cap 78 as amended by Cap. 371, Provident Fund (Government Employees) Ordinance Cap 51, Provident Fund (Local Authorities) Ordinance Cap. 53 and the Workmen's Compensation Ordinance Cap 262 (Mchonvu et al., 2002).

2.1.2 The Operations and Nature of Social Security Schemes

Pensions Fund Schemes are form of institutional Investors which performs the functions of collecting, pooling and Investing Funds contributed by both beneficiaries and their sponsors in order to provide financial benefits entitlement to beneficiaries in the future (Davis, 2000).According to Yemo (2007), Members of Pension Fund Schemes have both legal and contractual rights on the claim on the assets of the Pension Fund Schemes they belong and he further argued that Pension Funds are therefore trustees that has legal capacity to invest and manage funds collected from beneficiaries and their sponsors with high level of diligence and stewardship.

2.1.3 Motives for Social Security Schemes Investment

According to both NSSP (2003) and the SSRA (2008), Pension Funds must invest in order to the value of its safeguard the value of beneficiary's contributions against economic uncertainties such as inflation and depression. Investment functions are inseparable from Pensions Funds Schemes as their sustainability and improvement of benefits to beneficiaries depend solely upon income realized from the investments they make.

Oliver (2005) in attempt to explain the essence of Pension Funds' investments in Africa, examined the same and the study found that investment returns of Pension Fund Schemes in Africa have been realizing negative returns on investments for the previous three decades and that the losses so earned have lastly been transferred to beneficiaries in form of poor terminal benefits. Baruti (2010) argues that the functions of Pension Funds are to mobilize funds from both beneficiaries and their sponsors as member's contributions and investment income. The mobilized funds are invested in

safe and high yielding investment options to safeguard beneficiary's interests through payment of satisfactory benefits and provision of high quality customer services.

Scholars in Ghana (Boating and Nyarko, 2006) have also argue about Pension Funds that Investment income so generated from investment portfolio helps in financing benefits expenditures which are essentially the major part of pension Funds expenditure. However, the investment activities are always associated with risks which may lead to negative returns if investment is not made prudently enough. Their arguments regarding investment income of pension funds are much more similar to that of Baruti (2009), Oliver (2005), (Davis, 2000) and Yermo (2002) who also among other considerations they insisted about inseparability of investment function with Pension Fund Schemes and the necessity of carrying out investment prudently to enhance sustainability and ability to meet pension liabilities.

The first factor Pensions Funds should consider when undertaking investment is the real purpose for which investment is being made, which is basically increasing the funds available to meet pension obligations for beneficiaries at their due dates (Tamongo, 2001).

2.1.4 Pensions Funds' Performance

Basing on the major functions of Pension Fund Schemes, there are major three components that determine financial soundness of any of the contributory Pension Funds namely contributions, investments (assets allocation) and benefit payments. The important issue is that these three major components must be consistent with one another for the Pension Fund Scheme to prosper otherwise it will eventually collapse (Baruti, 2010).

Baruti (2010) argues that a decision regarding increasing benefit payments will necessitate increasing contributions collections from beneficiaries and increase investment expenditures to realize enough funds to pay increased benefit obligations otherwise there will be a big gap between funds available and benefits and make the system unstable. If the returns from investment are not adequate, then benefits

payments may not be possible. Stability is therefore possible upon balancing these three crucial elements.

As argued by both Fortune (2005) and Rono (2009), Pension Funds are entrusted with several duties and responsibilities. Among them is to generate enough income from investment options they pursue prudently through appealing investment policies. Njuguna (2010) explains further that administration costs have negative impact on investment, the higher the costs the lower the return on investment and vice versa. According to Njuguna (2010), an efficient Pension Fund Scheme ensures investment return that is sufficient to pay benefits of its beneficiaries after retirement.

2.1.5 Increasing Pension Funds Return on Investment

Barros and Garcia (2006), Grable and Asebedo (2004) and O'Neill (2007) have argued that investment performance of Pension Funds is measured by the return generated from investments they undertake within a specified time period. According to them the higher the return on investment the higher the investment performance of Pensions Fund Schemes and vice versa. Barros and Garcia (2006), further depict that one of the best determinant of pensions Funds efficiency is the rate of return they realize from investment. According to them Pension Funds should strive to reduce administration costs as these reduce investment returns. As it has been further elaborated by O'Neill (2007), the returns on investment are very important as they improve and enhance long term sustainability of Pension Funds.

2.2 The Theories Underpinning Investment Income Growth

There are many theories about Pension Funds investment performance provided from different literatures however in this research report four theories have been discussed because they are widely used and explains investment performance of Pension Funds (Bailliu et al., 1997, Njuguna, 2010, Bogan et al., 2007and Whelan, 2004). These theories are the Life Cycle Saving Theory, Pooling Theory, The System Theory, Accounting Profitability theory.

2.2.1 Pooling Theory

This theory explains the relationship between the Value of SSS as determined by the total value of assets owned by SSS and Investment Income Growth which enhance Schemes' sustainability.

Pensions Funds pools financial resources from the beneficiaries and employers and diversify investment of the same through assets in different areas and thereby increasing the size of the Pension Fund Schemes (Mathieson et al., 2004). Pooling and diversifications are the main characteristics of Pension Funds as considering their size and the economies of scale they enjoy. The higher they pool and diversify the stronger they become. Under the situation where diversification is not sufficient, the risk incurred is not compensated by high return thus sustainability of the SSS will be affected (Mathiesonet al., 2004).

The fundamental idea of the theory is that the cost of learning about a company is fixed whereas that of holding the company active in the market and enhancing its dynamism and ability to cope with change is variable which discourages individuals for holding enough shares for diversification. It is also true that to individuals the cost of risk management is unbearable (Mathieson et al., 2004).

Basing on proportional ownership, Pensions Funds offers a much lower diversification costs due to economies of scale and fixed cost involved (Bridgen and Meyer, 2008). They are capable undertaking investment in large quantities and structures such as properties which cannot be afforded by small investors and their power to negotiate favorable transaction costs and fees is also high. Bridgen and Meyer (2008) argue that individuals prefer more Pensions Funds rather than direct investments through direct holding of securities and other assets.

According to Whelan (2004), Pensions Fund Schemes provide compensation for increased risk. They do this when they pool funds at low cost across the assets that have returns which are improperly correlated. This imply that, they ensure supply of long term funds in the capital markets as they pool funds for investment in them and

on the other hand they reduce deposits in banks since the money that is pooled is drawn away from beneficiary's hands.

2.2.2 The System Theory

This theory explains the relationship between Member Contributions as input resources to the Social Security Schemes (Systems), Investment Income generations through investment activities (process) and Schemes' sustainability in securing Schemes' members against life contingencies through pensions payments.

The system theory considers an organization and a system that converts inputs into products that are valuable to consumers thus it therefore consists of three parts which are inputs, conversion and outputs (Njuguna, 2010). In attempt to study the strategies on how to improve the efficient of Pension Funds Njuguna (2010) used the system theory view taking into account independent variables (inputs) membership age, design, regulations and inputs and the findings was that the variables had no significance influence on financial efficiency as an output.

Pension Funds along with other organizations are considered as open systems. Their inputs are monthly accumulated financial contributions from beneficiaries and sponsors, pooled together into a common fund from different contributing members. Their conversion process involves investment of the pooled funds in high yielding investment ventures and holds the hold stewardship to members' benefits upon their retirement as the output (Njuguna, 2010).

Among other factors sustainability and efficiency Pensions Funds is determined by the ability of the Pension Fund to generate enough investment income through its assets to carter the needs its future pension liabilities as they fall due (Njuguna, 2010).

2.2.3 The Life Cycle Saving Theory

This theory also explains the relationship between Members' Contributions to the Social Security Schemes and Investment Income Growth which enables Schemes to secure their members against life contingencies through pensions payments.

According to Bailliu et al (1997), the Life Cycle Saving Theory is often used in the

analysis of pensions as an analysis framework. The theory is centered around individuals saving behavior and it simply states that individuals prefers smoothing their consumption patterns therefore the major motive toward contributing to the Social Security Schemes during their life at work is to maintain smooth consumption after their retirement. The more the saving the better the life after retirement.

The basic assumption of the theory is that individuals are guided by rational expectations about their future consumption patterns and that they will as a necessity pursue saving during their entire working life to meet predetermined purposes and thus be capable of meeting future consumption patterns in their old age. However, individuals in practice do not behave as the theory dictates since there are different prevailing factors that affect their life and prevents them from saving for their future and keep on dealing only with the present needs. These factors are such as low income that is not enough to meet even current consumption needs, diseases, and economic factors such as inflation that reduces currency value and political factor that may affect people's works due to wars (Bogan et al., 2007).

To get rid of inability of individuals to save for their old age consumption, countries in the world decided to establish mandatory Pension Schemes for all workers to contribute in them throughout their entire work life and get benefits from the same after retirement (Bogan et al., 2007).

The theory also suggest that people are capable of making choices intelligently about how much they would like to spend at each age but the only limiting constraint being their available resources over their lifetimes. The theory further suggest that individuals makes provisions for their life after retirement now through their monthly savings to the Social Security Schemes and determine their consumption patterns to their needs at different ages in future through building up and running down assets (Bailliu et al., 1997).

2.2.4 Accounting Profitability theory

This theory explains the relationship between Benefits Payments a cost to Social Security Schemes and Investment Income Growth which enhances Schemes sustainability.

In Pension Funds perspective efficiency refers to the most effective way of providing financial benefits to the beneficiaries such as retirees and survivors. Efficiency involves among other factors the issue of minimizing cost at a specified level of activity (Woller, 2000). High expenditure on benefits payments affect investment expenditures adversely and undermine investment returns (Woller and Schreiner, 2002). The theory explains the various factors that influence the riskiness of customers, income and the expenses incurred by Pension Funds as well as their profitability. The ability to produce maximum output at given level of input is known as efficiency (Heizer, 2010). The options available for the Pensions Fund in order to achieve efficiency are to either to reduce expenses in total at a specified activity level of which benefits are the major part or on the other hand to increase income at the same level of activity (Hauner et al., 2007).

Both internal and external factors of the Pension Funds can affect their incomes and expenditures however the magnitude of the impact caused by these factors whether internal or external varies from one factor to another (Adongo and Stork, 2006). Some of the factors that has influence on the income and expenditure of the Pensions Funds are not controllable within the Pension Funds administrators (Adongo and Stork, 2006). Profitability is argued to be stepping stone to financial sustainability of pension's funds and it has been considered as an indicator that shows the extent of financial sustainability of Pensions Funds according to previous studies (Woller and Schreiner, 2002).

2.3 Empirical Literature Review

There are several studies that have been done in attempt to assess the factors that determine investment performance of Social Security Funds. All the literatures reviewed in this study used the quantitative data analysis approach in attempt to study

and establish the factors that affect financial performance of the social security industry particular in Pensions Funds.

Adeotiet al (2012) carried out a study on Determinants of Pension Fund Investment in Nigeria used primary data, which were generated by the use of questionnaire. Respondents were selected using simple random sampling technique. Data collected were analyzed using factor analysis by principal component. Economic, Risk and Security of real estate factors were identified as the major determinants of pension fund investment. The study found out that interest rate and internal control system are not critical in determining investment of pension funds in Nigeria. This study's findings are quite different from that of Tijjani (2014) who did similar study in the same country and found that there is significant positive relationship between age, size, net income and members' contributions.

Another study similar from that of Christen (2002) was done on the factors that drive financial self-sufficiency of Pension Funds taking into account nine Funds were studies in this study. The study used the financial ration analysis as well as bivariate correlation between financial self-sufficiency in the sample from nine Pension Funds. The study however just like that of Christen (2002) faces the same limitation of simple correlation models that they just indicate whether there is relation among the variables, the direction and strength but does not indicate the cause and effect relationship.

Tijjani (2014) in his study titled "Determinants of Financial Sustainability of Pensions Funds Administrators in Nigeria" found that there is significant positive relationship between age, size, net income and members' contributions as independent variables to financial sustainability. Tijjan (2014) recommended that swift actions should be monitored to remedying possible weakness in the Pension Funds Administrators.

Oluoch (2013) in Kenya with a similar study to that which was done by Tijjani (2014) in Nigeria came out with different findings. Whereas Tijjani (2014) found that age, size, net income and member's contributions had significant positive impact to financial sustainability of Pension Funds, Oluoch (2013) found that there is weak positive relationship between investment performance and Funds value, assets and

contributions and strong positive relationship between age of investor and investment performance. The study used time series regression analysis with data between years 2000 to 2012 and involved entire Kenyans Pensions Funds alone at aggregate level. The study was similar to that of Tijjani (2014) in respect to Age as independent variable but had different findings in respect to member contributions.

Shola (2013) carried out a study on the factors that determine investment income of Pensions Funds, taking into account only one Pensions Fund among seven in Tanzania. He used time series data and ordinary least squire method for model estimation. The study findings revealed that member's contributions, investment in fixed deposits and Government Securities are significant positively related to the growth of investment income. The findings were somewhat different to that of Oluoch (2013) in Kenyan the variable members' contributions which was found to have a weak relationship. However, Shola (2013) recommended that further similar studies should be done to include a wider sample contrary to the sample he employed of one SSS out of seven.

Another study in this field was carried out by Tonks (2005) on determinants of Pension Funds Management and Performance. The study revealed that member's contributions, and investment returns is significantly positive related to increase in Pension Funds value however assets allocation and investment portfolio decisions by managers are the ones determine investment returns. Small investment return changes result into a large change in the value of the Pension Fund and vice versa. Tonks (2005) emphasizes that it is crucial to understand problems associated with poor performance of in the Social Security Industry in particular Pensions Funds for further improvements.

A study carried out by Muia (2015) on the effect of asset allocation on the financial performance of Pension Funds in Kenya came out with similar findings as the study done by Tonks (2005). This research study was conducted through a descriptive survey study and utilized secondary data obtained from the website on the asset allocation and financial performance of the pension schemes. Muia (2015) found out that there is a positive correlation between a pension fund's performance and the returns of the various assets. However, the study based on only secondary data which

among its disadvantages is lack control of data quality, consisting irrelevancy information and also may be lack sufficient representation of the population.

Another study was carried out by Lungu (2009) in Zambia on the viability of Zambian Pensions Funds. The study focused on independent variables inadequate regulatory policy, high level of labor movement, and unstable macro-economic environment and Pension Funds sustainability as dependent variable. This was quite different from many other studies such as Tonks (2005), Shola (2013), Oluoch (2013), Tijjani (2014), Christen (2002) and Christen (2002). The study revealed that seven multi-employer Trusts in Zambia are in deficit and hence they are not viable. The study found that there is a significant positive relationship between the dependent variables and Pensions Funds viability.

Mos and Seulean (2010) carried out a study on the determinant of investment performance of voluntary Pension Funds in Romania. The study aimed at examining the factors that had great impact on investment performance considering investment funds allocated into each investment options. Fixed Deposits, Government Bonds, Mutual Funds, Municipal Bonds, Multinational Bonds, Cash and Deposits, Listed Equity and Corporate Bonds as independent variables. The data collected and used for the study were quarterly panel data for the period from year 2007 to 2010. The study findings revealed that investment made in deposits, Government Bonds and Listed Equity had positive impact on the investment performance and also further revealed that the rate of return obtained were affected by the risks preference adopted by the Pension Funds Managers.

Another study was conducted by Ammann and Zingg (2008) investigating the relationship between governance and investment performance of Swiss Pensions Funds basing on a sample of ninety-six Pension Funds whose total assets amounted to more than CHF 190 billion. The study found that good governance in respect to investment strategy and target setting has significant impact on investment performance of Swiss Pensions Funds and on the other hands investment rules and organization, controlling and steering and communication were not significantly

related to investment performance. The study however insisted that governance issues in the variables with no significance were neglected.

Rono (2009) in his study titled "Evaluation of Factors influencing Investment Decisions in Kenya found that investment returns, risks and interest rates trend rates were less significant. On the other hand, Sustainable long term Return, economic and political condition, global market, rate of inflation and risk profile of the scheme investment were found to be significant qualitative factors that influence pensions Funds investment decisions. The findings further revealed that trustee's consultations bureaucracy, few investment options and dynamic market conditions are major challenges that affect Pension Funds investment performance.

2.3.1 Effect of the Value of SSS on Investment Income Growth

Mugambi (2014) in his study titled "The effect of Property Investment on assets growth of Pension Funds in Kenya" done in Kenya found that increase in the value of Pension Fund Schemes through increased property investment had a strong positive relationship with the growth of investment income.

According to the study done by Oluoch (2013) titled "The Determinants of Performance of Pensions Funds done in Kenya" it was found that Value of Social Security Schemes has a weak positive relationship with return on investment which indicated that Value of Social Security Schemes were not effectively utilized on in generation of investment income. Oluoch (2013) findings are different from Mugambi (2014) on the same variable Value of SSS.

Tijjani (2014) in his study titled "Determinant of Financial Sustainability of Pensions Fund Administrators in Nigeria" found that Size of the Fund (Value of Fund) had a strong positive impact to financial Sustainability of Social Security Schemes at 0.0004 percent. Tijjani (2014) findings about the impact of the value of SSS on investment income were different that of Oluoch (2013) in Kenya who found existence of a weak positive relationship between Value of Pensions Fund and return on investment.

2.3.2 Effect of Member Contributions on Investment Income Growth in SSS

Oluoch (2013) in her study titled "The Determinants of Performance of Pensions Funds done in Kenya" found that Member Contributions has a weak positive relationship with return on investment. Olouch (2013) argued that weak positive impact of member contributions on return on investment indicated that member contributions were not effectively utilized on income generation.

According to the study done by Shola (2013) titled "Determinant of the Growth of Investment Income of Pension Funds in Tanzania" it was found that independent variable Member Contributions were positively related to the growth of investment income at one percent level of statistical significance level. Shola (2013) findings indicate existence of a very strong positive relationship between member contributions and Investment income growth. While Oluoch (2013) study found a weak positive relationship, Shola (2013) study found a very strong positive relationship for the same independent variable Member Contributions.

Tijjani (2014) in his study titled "Determinant of Financial Sustainability of Pensions Fund Administrators in Nigeria" found that Contributions from Members had a weak positive impact to financial Sustainability of Social Security Schemes at 0.0552 level of statistical significance. Tijjani (2014) findings are similar to that from the study done by Oluoch (2013) but different from Shola (2013) study that indicated a strong positive relationship between Member Contributions and investment income growth.

Oluoch (2013) in her study titled "The Determinants of Performance of Pensions Funds done in Kenya" found that Member Contributions has a weak positive relationship with return on investment. Olouch (2013) argued that weak positive impact of member contributions on return on investment indicated that member contributions were not effectively utilized on income generation.

According to the study done by Shola (2013) titled "Determinant of the Growth of Investment Income of Pension Funds in Tanzania" it was found that independent variable Member Contributions were positively related to the growth of investment income at one percent level of statistical Significance. Shola (2013) findings indicate

existence of a very strong positive relationship between member contributions and Investment income growth. While Oluoch (2013) study found a weak positive relationship, Shola (2013) study found a strong positive relationship for the same independent variable Member Contributions.

Tijjani (2014) in his study titled "Determinant of Financial Sustainability of Pensions Fund Administrators in Nigeria" found that Contributions from Members had a weak positive impact to financial Sustainability of Social Security Schemes at 0.0552 level of statistical significance. Tijjani (2014) findings are similar to that from the study done by Oluoch (2013) but different from Shola (2013) study that indicated a strong positive relationship between Member Contributions and investment income growth.

2.3.3 Effect of Benefits Payment on Investment Income Growth in SSS

According to the study done by Agyeman (2011) titled "Assessment of the Returns on Employee Pension Fund investments and their impact on Future Benefit Payments". The study found Benefits Payment had no impact on investment performance of Social Security Schemes. Agyeman (2011) further indicated that steady growing of Benefits Payment was offset by the increased yearly contributions thus leaving enough excess funds for investment to enable Schemes generate enough income to meet their future obligation to their members.

However, there are limited studies that have attempted to assess the impact of Benefits Payment on the increase in investment income in SSS.

2.4 Research Gap

According to studies done by Oluoch (2013) and Tijjani (2014), Size of Social Security Schemes, and member contributions have positive impact on the growth of investment income and that SSSs value, and benefit payments do not have significant impact on investment income. The findings from these studies however contradicts from the findings from the studies done by Tonks (2005), Muia (2015), Mos and Seulean (2010) and Shola (2013) on the same topic investment performance which found that member contributions, Value of Pension Funds and benefits payment are the significant determinant of the growth of investment income. Moreover, many other studies on

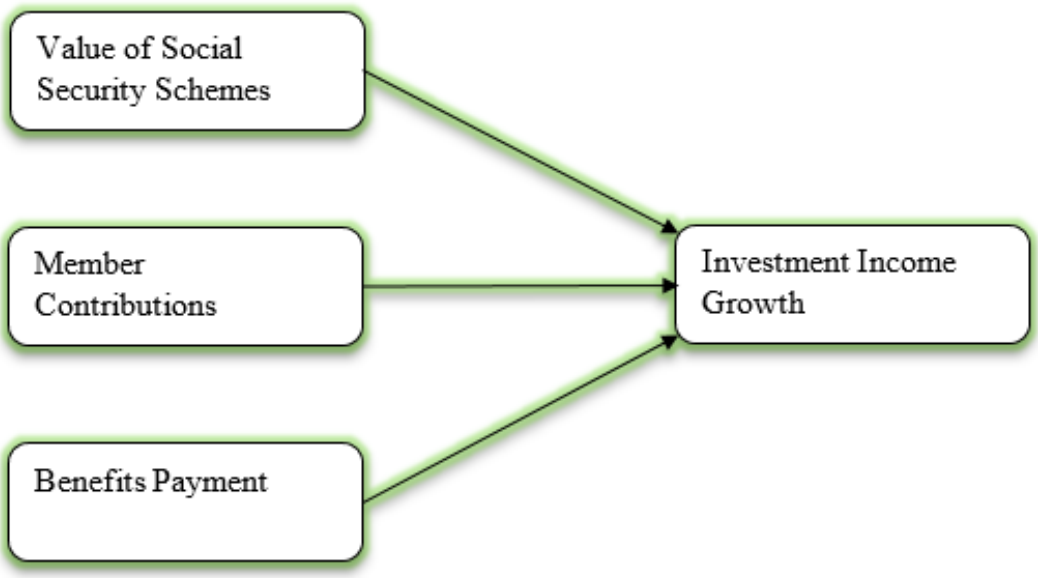
investment income performance such as Rono (2009), Ammann and Zingg (2008) and Adeoti et al., (2012) have looked at quite different variables such as Age of investors, economic and political conditions, global markets, risks and good governance.

Most of these studies such as Tonks (2005), Muia (2015), Mos and Seulean (2010), Oluoch (2013) and Tijjani (2014) have been done in other countries except for a study done by Shola (2013) on his study "Determinant of the Growth of Investment Income of Pension Funds in Tanzania" studied only one Social Security Scheme in Tanzania out of seven. Because of this limitation Shola (2013) recommended that similar studies should be done but in different Social Security Schemes and model specifications to be able to generalize findings.

Although previous studies provided useful insights about growth of investment income of Pension Funds, the contradiction of findings among them leaves inconclusive evidence in this field of study. More over most of these studies have been done other countries therefore little is known about factors that affect investment income of SSS in Tanzania. Following the existence of contradicting findings and limited knowledge, this study intended to examine the determinants of investment income growth in the Tanzania SSS extending coverage to three Social Security Schemes (LAPF, GEPF and PSPF).

2.5 Conceptual Framework

Pensions Funds faces a challenge on how to grow their investment income to enhance their long run financial sustainability. This study examined the net change in investment income of Pension Funds as a dependent variable caused by the effect of variables value Social Security Schemes (Total value of assets), membership contributions and Benefit Payments as independent variables. The following figure (Figure2.1) represents the proposed Conceptual Framework of the study.



Source: Researcher (2017)

Figure 2.1 Conceptual Framework

From the Conceptual Framework (Figure 2.1), Investment Income Growth was expected to be positively affected by the Value of Social Security Schemes. The higher the Value Social Security Schemes the higher the investment income growth and vice versa. According to Muia (2015), Pension Fund Schemes uses their financial and non-financial assets to generate enough income to meet both short and long-term liabilities. Effective use of assets in this regard will lead to positive impact on investment income. The growth in investment income was expected to be positively affected with Member Contributions.

The higher the member contributions the higher the investment income and vice versa. Baruti (2010) argue that the main source of investable funds for Pensions Funds Schemes in monthly contributions from Schemes members and sponsors their major role to collects monetary contributions invest the same and pay benefits to members at their due dates. This being the case, high contributions collections present enough investable funds and increase chance for high return on investment and vice versa. Independent variable Benefits Payment was expected to be negatively related to the

growth in investment income. That means, the higher the Benefit Payments the lower the investment income realized. This is because benefits are the major part of Pension Funds expenditure therefore they draw financial resources away from the Pensions Funds and in general reduce investible funds (Shola, 2013).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter of the research report provided the discussion and justification about the methodology that were used to carry on the research study, area of the study and the research design that included the population of the study, Sample size and sampling procedures, data collection procedures as well as data analysis methods. The research methodology examined the systematic steps that were adopted by a researcher in order to carry on this research study (Kothari, 2004).

3.1 Area of the Study

The research study was done in Tanzania Mainland, specifically in Dodoma region because of easy accessibility. The Researcher visited three out of seven existing Social Security Schemes in the country namely PSPF, LAPF and GEPF. According to NBS (2013), there are seven Social Security Schemes in Tanzania Mainland namely NSSF, PSPF, LAPF, GEPF, WCF and PPF. These Social Security Schemes are considered as the area under which the study was undertaken.

3.2 Research Design

This study used a case research design where PSPF, LAPF and GEPF were selected as a case out of the existing the seven Social Security Schemes in Tanzania. A case study research design enables combining a variety tools including questionnaires, interviews and documents to conduct a thorough inquiry on the phenomenon in its real-life context (Yin RK, 1994).

A case study design is a fairly exhaustive method which enables the researcher to study deeply and thoroughly different aspects of the phenomenon (Kothari, 2004). The design enabled the Researcher to intensively carryon the study on the effect of Value Social Security Schemes, Member Contributions and Benefits Payment on the Growth of Investment Incomes of Social Security Schemes in Tanzania.

3.2.1 Population of the Study

Kothari (2004) argued that, the population of study is the entire spectrum of the systems or processes of interest. This study focused on the entire Social Security Sector in Tanzania mainland (Pensions Fund Schemes). According to NBS (2013) there are six Social Security Schemes in Tanzania Mainland as at May 2017. The population of study therefore consisted of all six Schemes available in the Tanzania Mainland. The list of the Schemes which made the population of study is represented in table 3.1 below.

Table 3.1: Schemes that comprise the Population of Study

Name of the Scheme	Year Started
National Social Security Fund (NSSF)	1997
Public Service Pensions Fund (PSPF)	1999
LAPF Pensions Fund (LAPF)	1944
PPF Pensions Fund (PPF)	2002
Government Employees Pensions Fund (GEPF)	1942
Workers Compensation Fund (WCF)	2008

Source: SSRA (2008)

3.2.2 Unit of Analysis

The unit of analysis is what or who is being studied (Kothari, 2004), and their responses will be analyzed to assess the effect of value of Schemes, member contributions and Benefits payment on investment income growth in Social Security Schemes in Tanzania. The units of analysis of the study consisted of investment records, contributions collection and benefits payment records. Data from these records were collected and analyzed to answer objectives of the study.

3.2.3 Sample Size and Sampling Procedures

Sample and sampling procedures are important elements in any research study. Singleton and Straits (2005) defined a sample as a representative of the target population. A sample is chosen because it is difficult to study the whole population given constraints such as time, cost and accessibility (Kumar, 2011). Probability and non-probability such as purposive and convenient are the main two types of sampling procedure that can be used to draw a sample from the population (Kothari, 2004).

3.2.3.1 Sample Size

According to Kothari (1997), sample size is the chosen number of units from which data will be gathered. In this study, a sample of three Social Security Schemes namely PSPF, GEPF and LAPF was chosen from the population of six Schemes. The study covered a period of 12 years from year 2005/06 to 2016/17 on year quarter basis equivalent to 46 quarters for the entire period. Stevens (1996) pointed out that a minimum of 15 subjects for each predictor variable, equivalent to 45 subjects are required for a reliable regression model in social science studies. Because of limited data accessibility, 46 subjects were therefore considered to be appropriate for this study since they met Stevens (1996) minimum recommendations.

3.2.3.2 Sampling Procedures

The study used Purposive sampling procedures to facilitate the process of collecting suitable data for the objectives of the study as explained below:

The three Schemes consisted the sample of this study was selected purposively because they represent more than 50% of all Schemes in terms of market share hence the researcher believed they will make a good representative of the entire Social Security Schemes (Black, 2010). The study extracted data from the financial year 2005/06 to 2016/17 since more records were able to found with certainty within this period. Most records prior 2005/06 were already moved into archives hence it was difficult to extract them.

3.3 Data Collection Procedures

Researcher used secondary data only in order to extract relevant information for the study. In this view, documentary review was used in the collection of secondary data as explained below: -

46-year quarter data from 2005/06 to 2016/17 regarding Investment Income, Contributions Collection, Benefits Payment and Schemes' Value were extracted from Internal Operations Performance Reports provided at the office premises of each Scheme (PSPF, LAPF and GEPF). Furthermore, Annual data regarding Investment income, Contributions, Benefits and Schemes' Value from Annual Financial Statements were extracted used for verifications purpose to ensure that the extracted quarterly data conforms to annual data and they are correct. All secondary data were collected in billion TZS for all variables presented in the conceptual model (investment income, value of Schemes, member contributions and Benefits Payment).

3.4 Data Analysis Methods

The study used multiple regression technique for data analysis in order to assess how Investment Income Growth was affected by the predictor variables, Member Contributions, Benefits Payment and Value of SSS (Pallant, 2005). The computer program SPSS was employed for data analysis purposes. The following multiple regression model was used for data analysis.

$$IncGrowth = \beta_0 + \beta_1(SSSVal) + \beta_2(ContCol) + \beta_3(BenPay) \ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where;

IncGrowth	=	Growth of Investment Income
β_0	=	Constant (Value of Investment income when all other variables are equal to zero)
SSSVal	=	Value of Social Security Schemes
ContCol	=	Member Contributions
BenPay	=	Benefits Payment
$\beta_1, \beta_2,$ and β_3	=	Regression coefficients for each respective variables

3.4.1 Effect of the Value of SSS on Investment Income Growth

Specific objective one of this study was to assess the effect of Value of SSS in the growth of investment income in Pensions Fund Schemes in Tanzania. The statistical Significance value (Sig.) of less than 5% was used to conclude that the variable had statistically significant unique contribution in the model whereas the Sig. value of greater than 5% implied that the variable had low significant unique contribution to investment income growth. The Standardized Coefficient Beta was used to determine the effect of Value of SSS on investment income growth. The higher the better coefficient implied that a unit change in Value of SSS would cause greater effect on investment income growth and vice versa.

From equation (i) keeping independent variables member contributions and benefits payment constant, growth of investment income remained to be the function of the Value of Social Security Schemes. That is; -

IncGrowth = f(SSSVal)

The equation was written as follows; -

$$IncGrowth = \beta_0 + \beta_1(SSSVal) \ldots \quad (ii)$$

Where;

IncGrowth	=	Growth of Investment Income
β_0	=	Constant (Value of Investment income when all other variables are equal to zero)
SSSVal	=	Value of Social Security Schemes
B_1	=	Regression coefficients for independent variables Value of Social Security Schemes

3.4.1.1 Measurement of Dependent Variable Investment Income Growth

The dependent variable of this study, Growth of Investment Income of SSS was measured based on the total income earned by SSS per each year quarter in billion TZS from 2005/06 to 2016/17. The data for both Value of SSS and investment income were continuous in nature and were regressed through SPSS to find out how investment income was affected by the value of SSS. It was expected that this dependent variable would have a positive relationship with independent variable Value of SSS.

3.4.1.2 Measurement of Independent Variable Value of SSS

The independent variable in the objective one of this study was the Value of SSS. This variable was measured as indicated in Table 3.2 below:

Table 3.2 Measurement of independent variable Value of SSS

Variable	Measurement unit	Nature of data	Expectation
Value of SSS	Total monetary amount of investment made by SSS per each year quarter from 2005/06 to 2016/17 (Billion TZS)	Continuous	Positive relationship with Investment Income

Source: Researcher (2017)

3.4.2 Effect of Member Contributions on Investment Income Growth

Specific objective two of the study was to assess the effect of member contributions on the growth of investment income in Social Security Schemes in Tanzania. The statistical Significance value (Sig.) of less than 5%was used to conclude that the member contributions had a statistically significant unique contribution on the variation in investment income whereas the Sig. value of greater than 5% implied that the variable had low significant contribution to investment income growth. The Standardized Coefficient Beta was used to determine the effect of the predictor member on investment income. The higher the better coefficient implied that a unit change in Value of Schemes would cause greater impact on investment income growth and vice versa.

From equation (i), keeping Value of Social Security Schemes and Benefits Payment constant, Growth of investment income remained to be the function of the member contributions. That is; -

IncGrowth = f(ContCol)

The equation was;

$IncGrowth = \beta_0 + \beta_2(ContCol)$……. (iii)

Where;

IncGrowth	=	Growth of Investment Income
β_0	=	Constant (Investment income when Member Contributions equal to zero)
ContCol	=	Contributions received from the contributors
B_2	=	Regression coefficients (Beta) for Member Contributions

3.4.2.1 Measurement of Dependent Variable Investment Income Growth

The dependent variable of this study, Growth of Investment Income of SSS was measured based on the total income earned by SSS per each year quarter in billion TZS from 2005/06 to 2016/17. The data for both member contributions and investment income were in continuous nature. The data were regressed through SPSS to find out how investment income was affected by the variation in member contributions. It was expected that this dependent variable would have a positive relationship with independent variable member contributions.

3.4.2.2 Measurement of Independent Variable Member Contributions

The independent variable of the objective two, Member Contributions was measured as indicated in Table 3.3 below; -

Table 3.3: Measurement of Independent Variable Member Contributions

Variable	Measurement unit	Nature of data	Expectation
Member Contributions	Total monetary amount of member contributions in SSS per each year quarter from 2005/06 to 2016/17 (TZS)	Continuous	Positive relationship with Investment Income

Source: Researcher (2017)

3.4.3 Effect of Benefits Payment on Investment Income Growth

Specific objective three of the study is to assess the effect of Benefit Payments on Investment Income Growth in Pension Fund Schemes in Tanzania. The statistical Significance value (Sig.) of less than 5% was used to conclude that benefits payment had a statistically significant unique contribution in the variation in investment income and vice versa. The Standardized Coefficient Beta was used to determine the effect of benefits payment on investment income growth. The higher the better coefficient implied that a unit change in Value of Schemes would cause greater impact on investment income growth and vice versa.

From equation (i), keeping value of social security schemes and member contributions constant, investment income growth remained the function of the benefit payments. That is; -

IncGrowth = f(BenPay)

The equation was written as follows;

$$IncGrowth = \beta_0 + \beta_3(BenPay) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iv)$$

Where;

IncGrowth	=	Growth of Investment Income
β_0	=	Constant (Investment income when Benefits Payment equal to zero)
BenPay	=	Benefits Payment
β_3	=	Regression coefficients (Beta) of Benefits Payment variable

Data collected on year quarter basis from 2005/06 to 2016/17 in billion TZS, regressed through SPSS, analyzed and results presented on how benefits payment in Social Security Schemes affect the growth of investment income of the Schemes.

3.4.3.1 Measurement of Dependent Variable Investment Income Growth

The dependent variable of this study, Growth of Investment Income of SSS was measured based on the total income earned by SSS per each year quarter in billion TZS from 2005/06 to 2016/17. The data for both benefits payment and investment income were in continuous nature. The data were regressed through SPSS to find out how investment income was affected by the variation in benefits payment. It was expected that this dependent variable would have a negative relationship with independent variable benefits payment.

3.4.3.2 Measurement of Independent Variable Benefits Payment

The independent variable in the objective three of this study was Benefits Payment. This variable was measured as indicated in Table 3.4 below:

Table 3.4: Measurement of Independent Variable Benefits Payment

Variable	Measurement unit	Nature of data	Expectation
Benefits Payment	Total monetary amount of benefits payment in SSSs per each year quarter from 2005/06 to 2016/17 (TZS)	Continuous	Negative relationship with Investment Income

Source: Researcher (2017)

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.0 Introduction

This chapter focused on data analysis, interpretation and presentation of findings from the empirical study. The aim of the study was to assess the determinants of investment income growth in the Tanzanian Social Security Schemes as described in the research hypothesis. Analysis of data was done using SPSS whereas independent variables member contributions benefit payments and value of social Security Schemes and dependent variable investment income growth was analyzed using multiple regression technique.

4.1 Descriptive Analysis

The dependent variable under this study was Investment Income Growth whereas Member Contributions, Benefits Payment and Value of SSS were the independent variables. The descriptive statistics analysis results are presented in table 4.2 below.

Table 4.1: Summary Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Investment Income	46	10.04	163.29	48.41	36.92
Value of SSS	46	141.69	888.52	4.24	215.27
Member Contributions	46	19.12	362.9	1.36	96.04
Benefits Payment	46	4.92	326.26	1.15	92.57
Valid N (list wise)	46				

Source: Field Data (2017)

Descriptive analysis in table 4.1 above shows that, data for all variables were collected from a total of 46 observations (year quarters) from the year 2005/06 to 2016/17. Investment Income data ranged from 10.04 to 163.29 billion TZS, with a mean of 48.41 and standard deviation of 36.92. The range of Value of SSS was from 141.69 to 888.52billion TZS, with a mean of 4.24 and standard deviation of 215.27. Member Contributions variable ranged from 19.12 to 888.52billion TZS, with a mean of 1.36

and standard deviation of 96.04. Lastly, Benefits Payment ranged from 4.92 to 326.26 billion TZS, with a mean of 1.15 and standard deviation of 92.57.

4.2 Regression Analysis of the Determinants of Investment Income Growth in SSS

This study focused on assessing factors determining investment income growth in the Social Security Schemes in Tanzania. Specifically, the study aimed at assessing how dependent variables member contributions, benefits payment and value of SSS affected investment income growth. This study used multiple regression method to explain the effects of the mentioned predictor variables on the outcome variable investment income growth. The specification of respective regression model is presented below; -

$$IncGrowth = \beta_0 + \beta_1 (SSSVal) + \beta_2 (ContCol) + \beta_3 (BenPay) \ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where;

IncGrowth	=	Growth of Investment Income
β_0	=	Constant (Value of Investment income when all other variables are equal to zero)
SSSVal	=	Value of Social Security Schemes
ContCol	=	Member Contributions
BenPay	=	Benefits Payment
$\beta_1, \beta_2,$ and β_3	=	Regression coefficients for each respective variables

4.1.1 Technical considerations

As part of preliminary analysis, the study assessed technical issues related to linear classical regression assumptions, multicollinearity, auto-correlation and regression results validity. Field (2009) pointed out that for regression results to be true representative of the population of interest, regression assumptions should not be violated. In view of this fact, the study examined regression assumptions namely linearity, normality, multicollinearity and autocorrelation.

4.1.1.1 Classical Assumptions of Regression Analysis

Linearity relationship between dependent and independent variable exist when the value of the outcome variable for each unit increase in the value of predictor variable lies along a roughly straight line (Pallant, 2005). Linearity was checked through scatter plots of dependent variable investment income growth against each independent variable, member contributions, benefits payment and Value of SSS. Scatter Plots indicated existence of a roughly straight line between each predictor variable (Member Contribution, Benefits Payment and Value of SSS) and investment income growth. Furthermore, scatter plots indicated that the error terms fell along a general random pattern without serious deviations from the estimated straight line. This results as presented in **Appendix ii** proves that linearity assumptions were not violated and that there were no outliers.

Normality assumptions imply that observations should spread out around the mean value (Pallant 2005). As pointed out by Garson (2012) as a common rule of thumb normality can be accessed through dividing skewness statistics by respective standard error. Answers between +2 to -2 suggest that scores are normally distributed. Field (2009) also suggested that bell shaped histogram and normal probability curves suggest existence of normality. Normality test was done by assessing both skewness statistics and visual examination of probability curves. Test result of Skewness statistics divided by respective standard errors for the dependent variable Investment Income growth was 3.257, whereas for independent variable value of SSS was 1.169, member contributions 2.277 and benefits payment 2. 071. This results proves that the assumptions of normality were violated for all variables except value of SSS whose divided value fell between +2 and -2 as shown in **Appendix iii**. Furthermore, the probability plots indicated that data for all variables were slightly positively skewed (**Appendixiv**).

According to Tabachnik & Fidell (1996), positively skewed data can be corrected through Square root technique for slightly positive skewness, Logarithm technique for high positive skewness or Inverse techniques for extremely high positive skewness. In view of this fact, data for Investment Income growth and Benefits Payment variables

were transformed using Logarithm function (Log 10) through SPSS whereas the data for Member Contributions were transformed through Square root technique since they were slightly positively skewed. The problem of normality was corrected after transformation as indicated in **Appendix v** except the Value of SSS.

4.1.1.2 Multicollinearity

Multicollinearity is an unacceptable high correlation among predictor variables in the model which bias coefficients of determinations thus makes relative assessment of each predictor variable unreliable (Gerson, 2012). This problem can be fixed through combining highly correlated variables, drop highly correlated ones, introduce new variables, transformation or just do nothing Gujarati (2007). According to Pallant (2005), commonly used cutoff points for determining the presence of multicollinearity is the Tolerance value of less than .10, or a VIF value of above 10. Multicollinearity, was tested using SPSS collinearity diagnostics. Predictor variables, member contributions, benefits payment and value of SSS were regressed against each other. Test results indicated that the Variance Inflation Factor value (VIF) for benefits payment was 5.683, member contributions 9.957 and value of SSS 9.911 (**Appendix vi**).

4.1.1.3 Autocorrelation

Regression models assume that the error terms (residuals) are not correlated. Literatures suggests that, autocorrelation exist when the residuals of two different observations are either positively or negatively correlated (Field, 2009). Furthermore, Garson (2012) pointed out that data that autocorrelation is very common for data that follow a natural order pattern such as time series data used in this study. According to Garson (2012) autocorrelation in time series data can be tested visual examination of the plotted graph of residual again time or examination of the Durbin Watson statistic. A random plot of residuals will indicate absence of autocorrelation whereas a general straight pattern of residuals against time indicates existence of autocorrelation. On the other hand, the Durbin Watson statistic value of 2 ($d = 2$) suggest that there is no autocorrelation, value from 0 to less than 2 ($0 < d \leq 2$) indicate positive autocorrelation and from greater than 2 to 4 ($2 > d \geq 4$) indicates existence of negative autocorrelation.

Since in reality absence of autocorrelation does not exist, values closer to 2 indicate absence of autocorrelation (Field, 2009).

Autocorrelation was tested through both visual examinations of the residual scatter plots and Durbin Watson statistic using SPSS. Scatter plots indicated existence of a random pattern of residuals across different year quarters and there was no indication of a roughly straight line of residuals across different year quarters as portrayed in Appendix VII. Scatter plots of residuals provided evidence that there was no autocorrelation. Similarly, the observed Durbin Watson statistics value (d) was 1.550, which was above the Durbin Watson critical value upper boundary (dU) in the Durbin-Watson Significance Tables as shown in **Appendix viii** and **Appendix ix** (Lower boundary (dL) is 1.201 and Upper boundary (dU) is 1.474). According to Durbin and Watson (1951), the Durbin Watson critical value boundaries tests the null hypothesis of non-autocorrelation against the alternative of positive autocorrelation at 1% level of significance when the observed d value is less than 2, whereas the null hypothesis is not rejected when the observed d value is greater than dU. Basing on this fact, the observed d value of 1.550 which is above the dU suggest that the null hypothesis of non-autocorrelation is not rejected. Finding proves that the assumption of autocorrelation is not violated.

4.1.1.4 Validation of the Results

Model fitness and insurance of validity of regression results are essential for generalizability of the model into the population of interest (Garson, 2012). This study considered this fact for model results to be applicable to the entire Social Schemes in Tanzania. Literatures suggest that the wider the sample the higher the validity of the results. However other approaches available may include the use of Adjusted R Square value in when it is not possible to increase the sample and ensuring regression assumptions are not violated prior running regression (Pallant, 2005; Field, 2009; Garson, 2012; Stevens, 1996; Tabachnick & Fidell, 2001).

In view of this fact, this study assessed validity using the Adjusted R Square value instead of the R Square value method considering that the sample size of 46 periods used was small according to Stevens (1996) (**Appendix viii**). Also Tabachnick & Fidell (2001) suggested that the R Square value in small samples is more optimistic over estimator of the true value in the population and that the Adjusted R Square provides better estimation by correcting the R Square. In view of this fact, the Adjusted R Square was taken into account. Furthermore, considering Garson (2012) comments that violation of regression assumptions may undermine results, regression assumptions of Linearity, Normality, Independent Errors (Autocorrelation) and Multicollinearity were tested and anomalies noticed corrected to ensure that assumptions were not violated.

4.1.2 Regression Results of the Determinants of Investment Income Growth in Social Security Schemes

Regression analysis was done after taking care of preliminary technical considerations as discussed where field data on Investment income, member contributions, benefits payment and Value of Schemes were regressed through SPSS. Regression analysis results are presented in Table 4.1.

Recall the specified regression model; -

$$IncGrowth = \beta_0 + \beta_1 (SSSVal) + \beta_2 (ContCol) + \beta_3 (BenPay) \ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where;

IncGrowth	=	Investment Income Growth
SSSVal	=	Value of Social Security Schemes
ContCol	=	Member Contributions
BenPay	=	Benefits Payment

Table: 4.2: Regression Analysis Results of the Determinants of Investment Income Growth in Social Security Schemes

Variable	Std Error	Coefficient (B)	T-Ratio	Significance
Value of SSS	0.000	0.001	5.134	.000*
Member Contributions	0.007	0.022	2.941	.005*
Benefit Payments	0.046	0.194	4.19	.000*
(Constant)	0.049	0.661	13.614	.000*

R^2	:	96.6%	Note: * & ** Significant at 1% and 5% respectively
Adjusted R^2	:	96.3%	
F-Value	:	394.62	
Durbin Watson	:	1.550	
Dependent Variable	:	Investment Income Growth	(Continuous Variable)

Source: Field Data (2017)

Based on Table 4.1 above, the regression model fits the data quite well because the included predictor variables (Member Contributions, Benefits Payment and Value of SSS) jointly explained about 96.3% of the variation of investment income growth. The significant F-statistic value of 394.617which was significant at 1% is an indication that predictor variables jointly exerted significant effect on investment income growth in Social Security Schemes in Tanzania.

Results in Table 4.1 indicates that, the coefficient of the independent variable Value of SSS (β_1)was significant and positive affect Investment Income Growth (β_1 = .001; Sig. = .000*). These results suggest that, if Value of SSS changes by one unit, investment income will change by .001 billion TZS ceteris paribus. These findings are in line with findings from many past studies such as Mugambi (2014), Oluoch (2013), Tijjani (2014) and Shola (2013). Literatures also suggest that that, Value of Social Security Schemes are not effectively utilized on in generation of investment income Oluoch (2013). This fact is also evident through this study.

Based on regression results in Table 4.1 above, the coefficient of Member Contributions (β_2) was significant and positively affected investment income growth. This means that collection of additional one billion TZS member contributions would increase investment income by additional 0.022billion TZS other factors remain constant ceteris paribus. The findings are in line with Baruti (2010), Shola (2013) and Tijjani (2014) who suggested that, there is significant positive relationship between monthly contributions from Schemes members and sponsors and investment income growth. However, the finding seems to disagree with Oluoch (2013) whose findings revealed existence of a weak positive effect of member contributions on return on investment. Oluoch (2013) argued that member contributions were not effectively utilized on income generation and that was the reason for existence of a weak relationship. The findings are also well linked to the polling theory which principally suggests; the higher Pensions Schemes pool financial resources and diversify the stronger they become (Mathieson et al., 2004).

Finally, based on Table 4.1findings indicates that the coefficient of Benefits Payment (β_3) was significant and positively affected investment income growth in Social Security Schemes, contrary to what was expected (β_3 = .194; Sig = .000)ceteris paribus. Findings from this study suggest that; other things remain constant, each one billion TZS spent on payment of benefits to Scheme members will cause .194billion TZS increase in investment income and vice versa. Considering that benefits are major parts of Pension Social Security Schemes' expenditures as pointed out by (Hauner et al., 2007 and Shola, 2013), it was expected that investment income growth will be negatively affected by the predictor variable, Benefits Payment. Findings seems to disagree with Agyeman (2011) who found that benefits payment had no impact on investment performance of Social Security Schemes however agrees with Agyeman (2011) observation that, steady growing of benefits payment was offset by the increased contributions thus leaving enough excess funds for investment.

4.3 Analysis of the Relationship between the Value of SSS and Investment Income Growth

According to the various literatures reviewed earlier in chapter two, it was expected that the coefficients of the predictor variables Value of SSS would have a positive coefficient (i.e. > 0) indicating a positive relationship with the outcome variable investment income growth.

Based on regression results in Table 4.1 above of the specified model (equation ii), hypothesis one of the study was tested as follows; -

H_0 : There is no significant positive relationship between Value of SSS and Investment Income Growth in the study area.

H_1 : There is significant positive relationship between Value of SSS and Investment Income Growth in the study area.

In Table 4.1, findings show that, the coefficient of the Value of SSS (estimated β1) is0.001which was significant at 1% level (Significance = .000). Therefore, according to Literatures reviewed, it was expected that the coefficient of the predictor variable Value of SSS will be positive (i.e. > 0) indicating that, Investment Income will grow with increase in the Value of SSS and vice versa. Due to this fact, findings explain if the finding support or does not support the hypothesis.

The findings in Table 4.1 show that the relationship between independent variable Value of SSS and Investment Income Growth is significant and positive. Based on these findings, null hypothesis one (H_0) which states that, there is no significant relationship between Value of SSS and Investment Income Growth in the study area is rejected in favor of alternative hypothesis (H_1)**.**

All other variables remain constant; investment income growth will be the function of Value of SSS. Basing on the model results, this argument was stipulated here under; -

IncGrowth* = 0.661 + 0.001 *(SSSVal)* ……..... *(iii)

From the equation (iii) above, the estimated coefficient of Value of SSS (β_1) was 0.001 which was greater than 0 *($\beta_1 > 0$)* and was significant level of 1% (Significance = .000). This being the case, the null hypothesis (H_O) was rejected in favor of alternative hypothesis (H_1). Findings proves that Value of SSS have a positive effect on the growth of investment income in Social Security Schemes in Tanzania.

This imply that, when the effect of Member Contributions and Benefits Payment is constant, Investment Income will grow by 0.001 billion TZS as a result of increase of Value of SSS by one billion TZS vice versa. In attempt to explain this relationship, past studies such as a study by Baruti, 2010, Mugambi, 2014, Oluoch, 2013 and Tijjani, 2014pointed out that, a positive relation between Value of SSS and investment income growth exist due to the fact that Value of SSS consists assets Schemes such real estates, Securities and Fixed deposits that generates return on investment in form interests, dividends and appreciations.

Furthermore, findings about existence of significant positive effect between Value of SSS and Investment Income Growth from these results (Table 4.1) seems to confirm the theoretical anticipation as put forth by the Polling Theory as discussed by (Mathieson et al., 2004). Mathieson et al., 2004 suggested that Social Security Schemes pools financial resources from the beneficiaries and employers and diversify investment of the same through assets in different areas and thereby increasing the value of the Pension Fund Schemes. The theory further suggests that the higher they pool and diversify the stronger they become.

4.4 Analysis of the Relationship between Member Contributions and Investment Income Growth in Social Security Schemes

Hypothesis two of the study was stated as follows; -

H_0 : There is no significant positive relationship between Member Contributions and Investment Income Growth in the study area.

H_1 : There is significant positive relationship between Member Contributions and Investment Income Growth in the study area.

In Table 4.1, findings show that, the coefficient of the Member Contributions (estimated β_2) is 0.022 which is significant at 1% level (Significance = .005). According to Oluoch, 2013 &Tijjani, 2014, it was expected that the coefficient of the predictor variable Member Contributions will be positive (i.e. > 0) indicating that, Investment Income will grow with increase in the Member Contributions and vice versa. Due to this fact, findings explain if the finding support or does not support the hypothesis.

The findings in Table 4.1 show that the relationship between Member Contributions and Investment Income Growth is significant and positive. Based on these findings, null hypothesis one (H_0) which states that, there **i**s no significant relationship between Member Contributions and Investment Income Growth in the study area is rejected in favor of alternative hypothesis (H_1)**.**

Assuming other variables remains constant (Value of SSS and Benefits Payment), investment income growth will be the function of Member Contributions. Basing on the model results, this argument was stipulated here under; -

IncGrowth* = 0.661 + 0.022 *(ContCol)*……. *(iv)

From the equation (iv) above, the estimated coefficient of Member Contributions (β_2) was 0.022 which was greater than 0 *($\beta_2 > 0$)* and was significant level of 1% (Significance = .005). In view of findings, the null hypothesis (H_O) was rejected in favor of alternative hypothesis (H_1) which states that, there is significant relationship

between Member Contributions and Investment Income Growth in the study area. Findings provide evidence that Member Contributions have a significant positive effect on investment income growth in the Social Security Schemes in Tanzania.

These findings suggest that, when the effect of Value of SSS and Benefits Payment remains constant, Investment Income will grow by 0.022 billion TZS as a result of increase in Member Contributions by one billion TZS and vice versa ceteris paribus. These findings prove the theoretical postulation as put forth by past studies such as a study by Shola (2014) and Tijjan (2014) which pointed out that Member Contributions affect Investment Income Growth positively because the only source of funds for investment in the Social Security Schemes is contributions Schemes members.

Furthermore, the findings conform to the System Theory as discussed in chapter two of this report. Based on System Theory as discussed by Njuguna (2010), Social Security Schemes are systems that take in Contributions from Scheme members as inputs, process it through diversified investment avenues to sustainably generate sufficient investment income and finally produce output which various benefits are paid to Scheme members and their beneficiaries. The theory suggested that there is a direct relationship between Member Contributions and investment income which is proved by the findings from this study.

4.5 Analysis of the Relationship between Benefits Payment and Investment Income Growth in the Social Security Schemes

Hypothesis three of this study was stated as follows; -

H_0 : There is no significant negative relationship between Benefits Payment and Investment Income Growth in the study area.

H_1 : There is significant negative relationship between Benefits Payment and Investment Income Growth in the study area.

In Table 4.1, findings show that, the coefficient of the Benefits Payment (Estimated β_3) is 0.194which is significant at 1% level (Significance = .000). According to Literatures reviewed, it was expected that the coefficient of the predictor variable Benefits Payment will be greater than zero (i.e. $\beta_3 > 0$) with a negative sign indicating that, Investment Income will decrease with increase in the Benefits Payment and vice versa ceteris paribus. Due to this fact, findings explain if the finding support or does not support the hypothesis.

The findings in Table 4.1 show that the relationship between Benefits Payment and Investment Income Growth is significant and positive. Based on these findings, null hypothesis one (H_0) which states that, there is no significant relationship between Benefits Payment and Investment Income Growth in the study area is rejected in favor of alternative hypothesis (H_1)**.**

Assuming other variables remains constant (Value of SSS and Member Contributions), investment income growth will be the function of Benefits Payment. Basing on the model results, this argument was stipulated here under; -

IncGrowth* = 0.661 + 0.194 *(BenPay)*……. *(v)

From the equation (v) above, the estimated coefficient of Benefits Payment (β_3) was 0.194 which was greater than 0 *($\beta_3 > 0$)* and was significant level of 1% (Significance = .000). In this view, the null hypothesis (H_O) was rejected in favor of alternative hypothesis (H_1) which states that, there is significant relationship between Benefits Payment and Investment Income Growth in the study area. Findings prove that Benefits payment have significant positive effect on investment income growth in the Social Security Schemes in Tanzania. These findings suggest that, when the effect of Value of SSS and Member Contributions remains constant, Investment Income will grow by 0.194 billion TZS as a result of increase in Benefits Payment by one billion TZS and vice versa ceteris paribus.

Findings that Benefits Payments have a significant positive effect on investment income growth disagree with the accounting Profitability theory as discussed by Heizer (2010) and (Hauner et al., 2007). Briefly, the theory suggests that, efficiency in Social Security Schemes can be achieved by either to reduce expenses (of which benefits is a major part) or on the other hand to increase income at the same level of activity (Hauner et al., 2007). The theory suggests existence of a negative relationship between Benefits Payment and Investment Income Growth whereas findings from this study shows existence of a positive relationship.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter of provides a summary discussion of findings of the study, conclusion of the study, recommendation and suggested areas for further studies in this topic as explained below.

5.1 Summary of the Study

The theoretical arguments indicated that, growth in investment income among other factors is affected by Member contributions, Values of the Schemes and Benefits Payment. Specifically, the theoretical expectation was that as contributions collection increases, so does investment income. The theoretical implication was that, more contributions to the Schemes leads to availability of more funds for investment which in turn leads to earning more investment income. It was also expected that, as the value of the Schemes goes up through acquisition of more assets, investment income will also grow up and vice versa. On the other hand, it was predicted that more payment of Benefits to members will result into decrease in the level of investment income, however the empirical study found different outcome regarding this relationship.

This study aimed at finding out overall as well as unique relationship between the investment income growth and independent variables; Member contributions, Benefits Payment and Value of Social Security Schemes. Mainly the study used aggregate secondary data which was collected from the PSPF, GEPF and LAPF from the year 2005/06 to 2006/07. Preliminary analysis through SPSS was done to assess compliance to basic regression assumptions (Normality and linearity, Multicollinearity and outliers). Data for Investment income, contributions collection and benefit payment variables were transformed to make them normally distributed and correct multicollinearity problem.

Data were regressed using aggregate year quarter figures of Investment income, member contributions, benefits payment and Value of SSS. Statistical value of Adjusted R- Square was used assess model goodness, Sig. for assessing the significance of the model and each variable whereas Beta coefficients were used to assess contribution of each variable in the predictions of investment income growth.

The results of this study indicated that the overall model was quite good (Adjusted R Square 96.3%) and that member contributions, benefit payment and Value of SSS were statistically significant at 1%. Both Member Contributions and Value of SSS were positively related to Investment Income Growth as expected. On the other hand, Benefits Payment was positively related to the growth of investment income which is contrary to what was expected.

5.2 Conclusion of the Study

Basing on the findings of this research study, the following conclusions have been made.

Growth of Investment income in Social Security Schemes is affected by all predictor variables member contributions, benefits payment and value of SSS. All variables were significant at less than 5% therefore all had statistical significant contribution to investment income growth in Social Security Schemes in Tanzania. However, findings revealed that member contributions contribute more to investment income, followed by benefits payment and lastly Value of SSS.

The hypothesis of study suggested that independent variable member contributions and Value of SSS would have a significant positive relationship with growth of investment Income and that Benefits payment would have a significant negative relationship which the growth of investment income. Findings agree with the hypothesized relationship regarding member contributions and value of SSS however findings have proven that benefit payment does not have negative relations as expected.

5.3 Recommendations of the Study

In respect to the findings from this study, the following recommendations are derived for Social Security Schemes in Tanzania.

5.3.1. Increase Coverage into Informal Sector

Policies should be geared toward increasing social security coverage especially to informal sector. The Schemes in country were originally established to serve the formal Sector alone leaving the informal Sector uncovered. This means that there is a wide ready market which should be extracted.

5.3.2. Increase Member Registration

Members are the source of contributions to the Schemes and findings revealed that contributions have a significant contribution to investment income growth. In view of this fact it is recommended that Schemes should focus on registration of more members. Public awareness seminars at least secondary to university level will build community free will interest to join the Schemes.

5.3.3. Improve Benefit Packages

Social Security policies should not always consider that benefits payment have a negative impact on investment income since the study revealed existence of positive relationship between benefits payment and investment income. Benefits, being the products of Social Security Schemes may attract members into the schemes which eventually lead to more investable funds. Management should consider initiating more short term benefits since these are lively going to be sweeteners that attract members into the Schemes. Though with benefits, funds are paid out, however the results suggest that, the overall impact as compared to investment income growth is positive.

5.3.4. Invest Contributions of Members into more Productive Investments

Contributions from Members should be kept into more productive investments. Policies should be put in place to allow investment of pension funds to generate higher returns and reducing investment in low return investment.

5.4 Suggestions for further Studies

As it has been discussed, this study used only 12 years' period data. Future researches on the same topic should consider including data from a longer period to improve the findings. This is due to the basic regression assumptions that the wider the sample the better the results.

Future studies in this topic should seek to determine the contribution of the value of Schemes into the growth of investment income. Theoretical postulation is that, the higher the Schemes Value the higher the investment income growth. Since this study was not able to establish this, it is recommended that future studies should incorporate this variable along with other variables which may have impact in investment income growth such as government regulations, demographic and good governance.

Not only that but also futures studies should consider including other Social Security Schemes apart from the three covered by this study (PSPF, GEPF and LAPF) to improve generalization of results to the entire Social Security Industry in Tanzania.

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APPENDICES

APPENDIX I (A)

ORIGIONAL FIELD DATA IN BILLION TZS

Financial Year	Time Period	Period Code	Investment Income	Member Contributions	Benefits Payment	Value of SSS
2005/2006	1st Quarter	1	17.87	64.57	34.76	245.12
	2nd Quarter	2	16.34	60.02	31.88	224.79
	3rd Quarter	3	16.15	42.92	33.34	195.08
	4th Quarter	4	35.86	116.89	86	389.21
2006/2007	1st Quarter	5	14.77	39.9	30.57	178.9
	2nd Quarter	6	20.31	52.6	38.1	222.95
	3rd Quarter	7	22.47	79.12	39.73	280.14
	4th Quarter	8	15.98	52.66	21.85	183.78
2007/2008	1st Quarter	9	62.89	181.82	163.02	565.02
	2nd Quarter	10	13.76	24	20.56	172.97
	3rd Quarter	11	34.14	134.85	83.34	396.52
	4th Quarter	12	81.71	204.22	191.18	587.9
2008/2009	1st Quarter	13	16.79	36.67	23.13	194.59
	2nd Quarter	14	24.37	64.28	64.63	254.06
	3rd Quarter	15	11.65	41.94	5.98	172.05
	4th Quarter	16	15	29.67	17.99	151.35
2009/2010	1st Quarter	17	27.26	79.44	74.1	291.26
	2nd Quarter	18	27.16	110.05	72.92	346.95
	3rd Quarter	19	24.83	102.3	66.87	318.17
	4th Quarter	20	10.04	19.12	6.32	181.67
2010/2011	1st Quarter	21	73.04	165.26	166.76	512.81
	2nd Quarter	22	10.94	23.63	4.92	141.69
	3rd Quarter	23	72.04	155.39	188.25	684.84
	4th Quarter	24	45.74	137.93	130.81	453.39
2011/2012	1st Quarter	25	50.02	148.38	142.64	494.4
	2nd Quarter	26	12.24	29.21	5.65	162.44
	3rd Quarter	27	32.89	94.55	98.29	444.81
	4th Quarter	28	40.11	144.45	110.58	500.42
2012/2013	1st Quarter	29	115.88	307.54	305.33	888.52
	2nd Quarter	30	28.62	59.25	40.72	238.23
	3rd Quarter	31	48.11	151.9	89.05	423.7
	4th Quarter	32	25.95	114.07	78.48	308.5
2013/2014	1st Quarter	33	87.86	237.39	211.78	770.44

	2nd Quarter	34	31.66	89.13	42.45	299.34
	3rd Quarter	35	22.35	52	82.87	325.74
	4th Quarter	36	78.53	192.09	164.72	599.23
2014/2015	1st Quarter	37	88.62	204.81	174.2	603.76
	2nd Quarter	38	84.28	233.31	245	667.23
	3rd Quarter	39	77.77	293.24	202.5	622.7
	4th Quarter	40	92.18	250.98	267.16	727.58
2015/2016	1st Quarter	41	83.62	340.86	200.01	727.64
	2nd Quarter	42	121.13	257.46	270.5	723.81
	3rd Quarter	43	38.18	207.4	104.43	472.62
	4th Quarter	44	66.99	133.68	213.81	657.5
2016/2017	1st Quarter	45	125.23	362.9	307.43	656.47
	2nd Quarter	46	163.29	346.43	326.26	831.52

APPENDIX I (B)

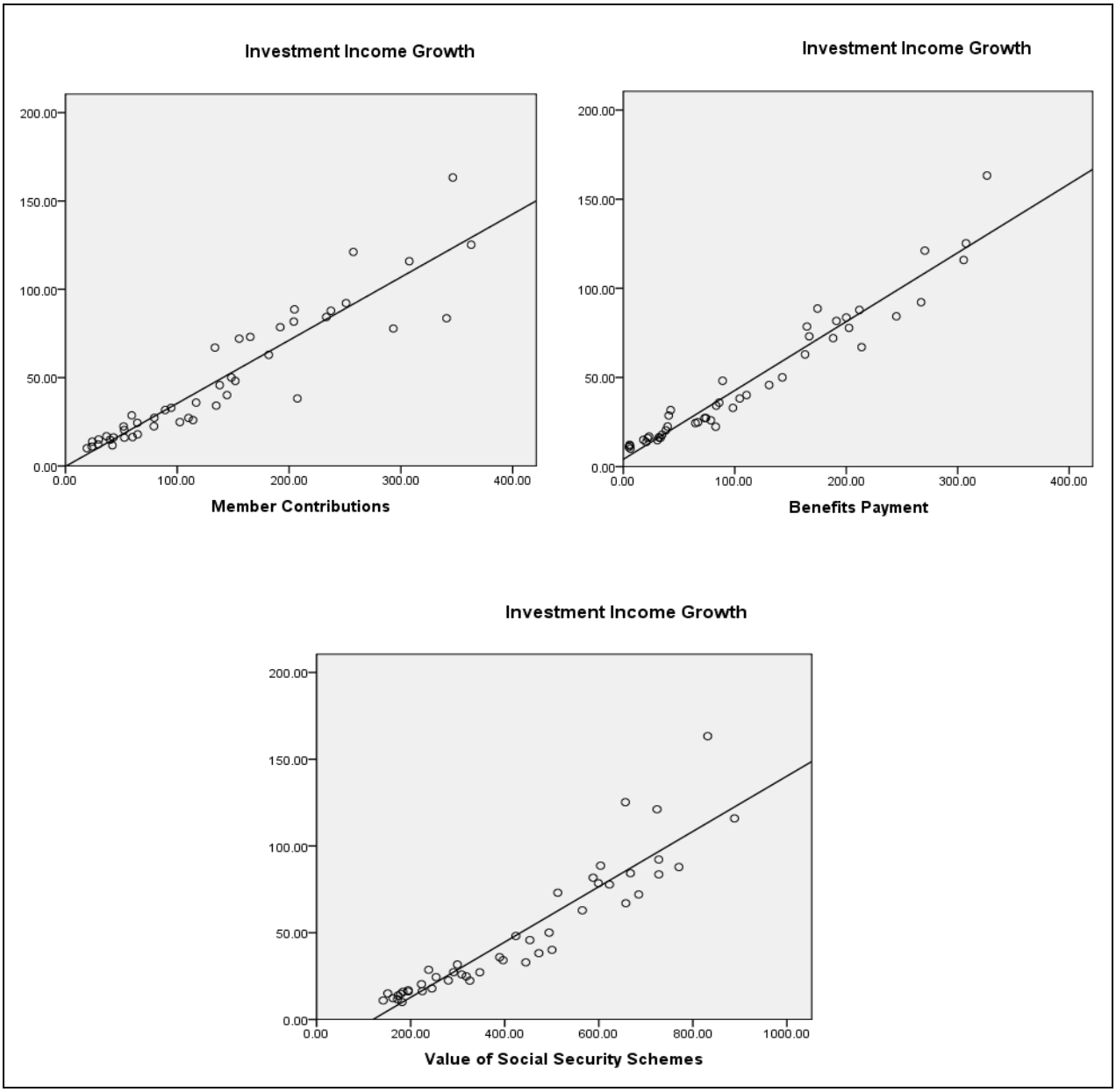
FIELD DATA ENTERED INTO SPSS AFTER TRANSFORMATION

Financial Year	Time Period	Period Code	SSSVal	IncGrowth_Log10	ContColl_SQRT	BenPay_Log10
2005/2006	1st Quarter	1	141.69	1.04	4.86	0.69
	2nd Quarter	2	181.67	1.00	4.37	0.80
	3rd Quarter	3	162.44	1.09	5.40	0.75
	4th Quarter	4	172.05	1.07	6.48	0.78
2006/2007	1st Quarter	5	151.35	1.18	5.45	1.26
	2nd Quarter	6	172.97	1.14	4.90	1.31
	3rd Quarter	7	194.59	1.23	6.06	1.36
	4th Quarter	8	183.78	1.20	7.26	1.34
2007/2008	1st Quarter	9	178.9	1.17	6.32	1.49
	2nd Quarter	10	195.08	1.21	6.55	1.52
	3rd Quarter	11	222.95	1.31	7.25	1.58
	4th Quarter	12	238.23	1.46	7.70	1.61
2008/2009	1st Quarter	13	224.79	1.21	7.75	1.50
	2nd Quarter	14	245.12	1.25	8.04	1.54
	3rd Quarter	15	280.14	1.35	8.89	1.60
	4th Quarter	16	299.34	1.50	9.44	1.63
2009/2010	1st Quarter	17	254.06	1.39	8.02	1.81
	2nd Quarter	18	325.74	1.35	7.21	1.92
	3rd Quarter	19	291.26	1.44	8.91	1.87
	4th Quarter	20	308.5	1.41	10.68	1.89
2010/2011	1st Quarter	21	318.17	1.39	10.11	1.83
	2nd Quarter	22	346.95	1.43	10.49	1.86
	3rd Quarter	23	396.52	1.53	11.61	1.92
	4th Quarter	24	423.7	1.68	12.32	1.95
2011/2012	1st Quarter	25	389.21	1.55	10.81	1.93
	2nd Quarter	26	444.81	1.52	9.72	1.99
	3rd Quarter	27	500.42	1.60	12.02	2.04
	4th Quarter	28	472.62	1.58	14.40	2.02
2012/2013	1st Quarter	29	453.39	1.66	11.74	2.12
	2nd Quarter	30	494.4	1.70	12.18	2.15
	3rd Quarter	31	565.02	1.80	13.48	2.21
	4th Quarter	32	603.76	1.95	14.31	2.24
2013/2014	1st Quarter	33	512.81	1.86	12.86	2.22
	2nd Quarter	34	657.5	1.83	11.56	2.33

	3rd Quarter	35	587.9	1.91	14.29	2.28
	4th Quarter	36	622.7	1.89	17.12	2.31
2014/2015	1st Quarter	37	599.23	1.90	13.86	2.22
	2nd Quarter	38	684.84	1.86	12.47	2.27
	3rd Quarter	39	770.44	1.94	15.41	2.33
	4th Quarter	40	727.64	1.92	18.46	2.30
2015/2016	1st Quarter	41	667.23	1.93	15.27	2.39
	2nd Quarter	42	727.58	1.96	15.84	2.43
	3rd Quarter	43	831.52	2.06	17.54	2.48
	4th Quarter	44	888.52	2.21	18.61	2.51
2016/2017	1st Quarter	45	723.81	2.08	16.05	2.43
	2nd Quarter	46	656.47	2.10	19.05	2.49

APPENDIX II

LINEARITY SCATTER PLOTS PORTRAYING



APPENDIX III

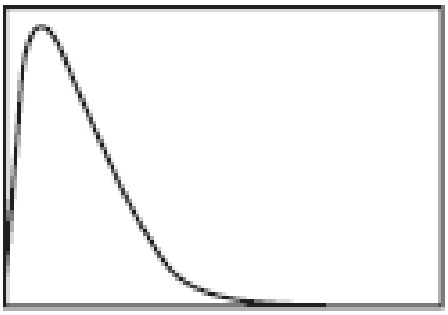
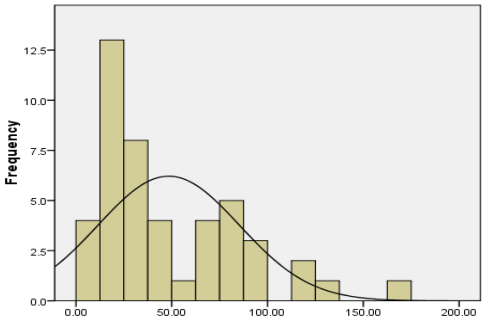
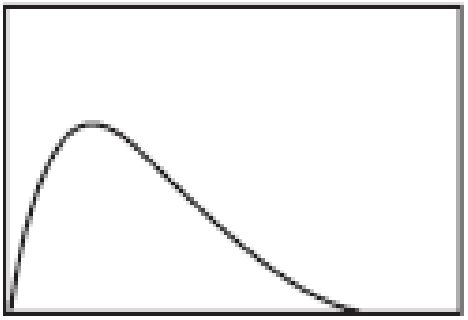
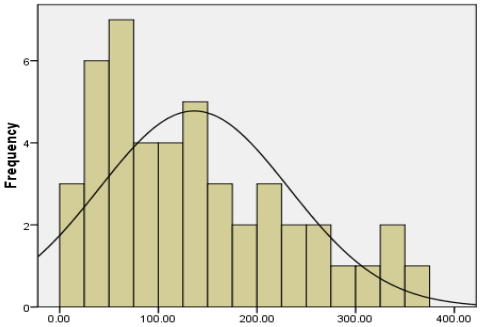
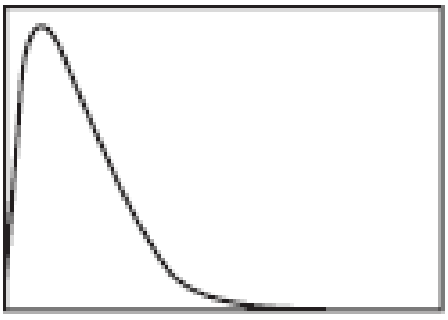
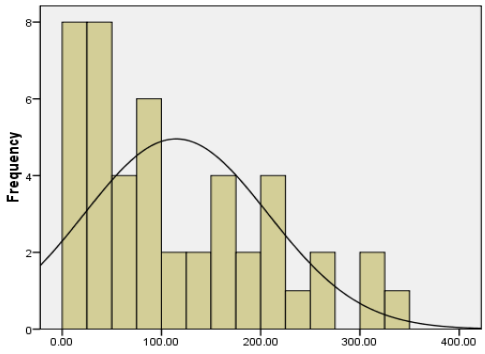
NORMALITY TEST USING SPSS SKEWNESS STATISTICS

	Investment Income Growth	Member Contributions	Benefits Payment	Value of Social Security Schemes
Skewness	1.14	0.797	0.725	0.409
Std. Error of Skewness	0.35	0.35	0.35	0.35
Skewness/Std. Error of Skewness	**3.257**	**2.277**	**2.071**	**1.169**
Kurtosis	0.799	-0.262	-0.545	-1.074
Std. Error of Kurtosis	0.688	0.688	0.688	0.688
Kurtosis/Std. Error of Kurtosis	**1.161**	**-0.381**	**-0.792**	**-1.561**

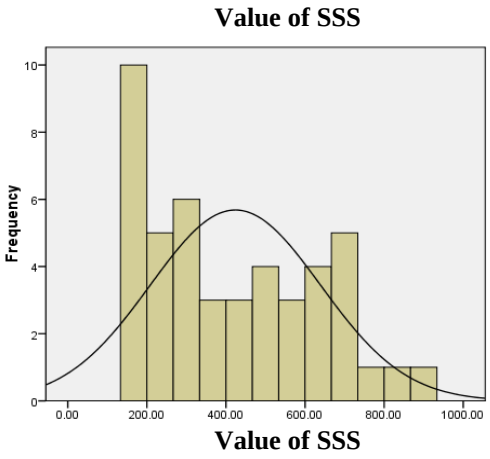
a. Multiple modes exist. The smallest value is shown

APPENDIX IV

FIELD DATA DISTRIBUTION GRAPHS AND PLOTS

Distributions of Scores and Suggested Transformation (Tabachnic and Fidell, 1996)	Actual Distribution of Scores (Field data, 2007)
 **Formula = Logarithm – Log 10 (Old variable)**	**Investment Income Growth**  **Investment Income Growth**
 **Transformation = Square root – SQRT (Old variable)**	**Member Contributions**  **Member Contributions**
 **Transformation = Logarithm – Log 10 (Old variable)**	**Benefits Payment**  **Benefits Payment**

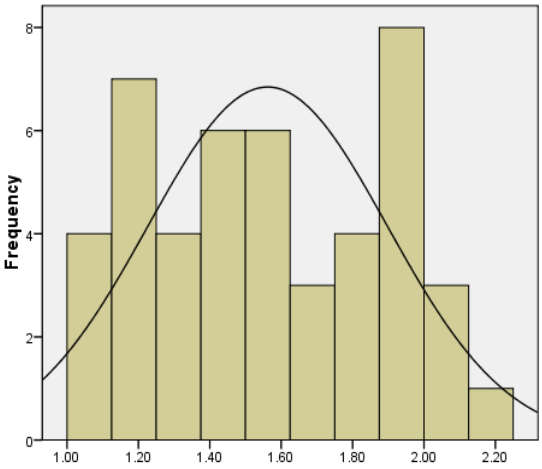
NOT TRANSFORMED
(NORMALLY DISTRIBUTED)



APPENDIX V

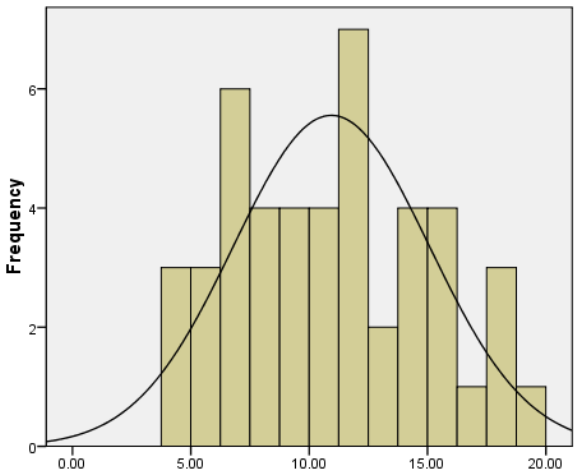
DISTRIBUTION OF FIELD DATA POTRAYING NORMALLITY

Investment Income Growth



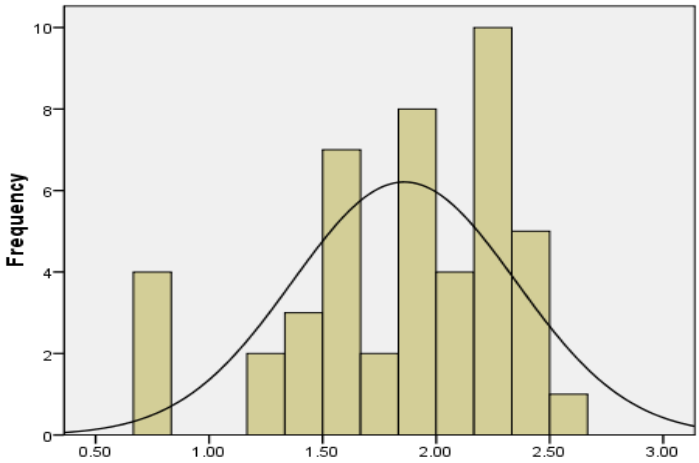
Investment Income

Member Contributions



Member Contributions

Benefits Payment



Benefits Payment

(Source: Research findings 2017)

APPENDIX VI

MULTICOLLINEARITY TEST RESULTS FROM SPSS

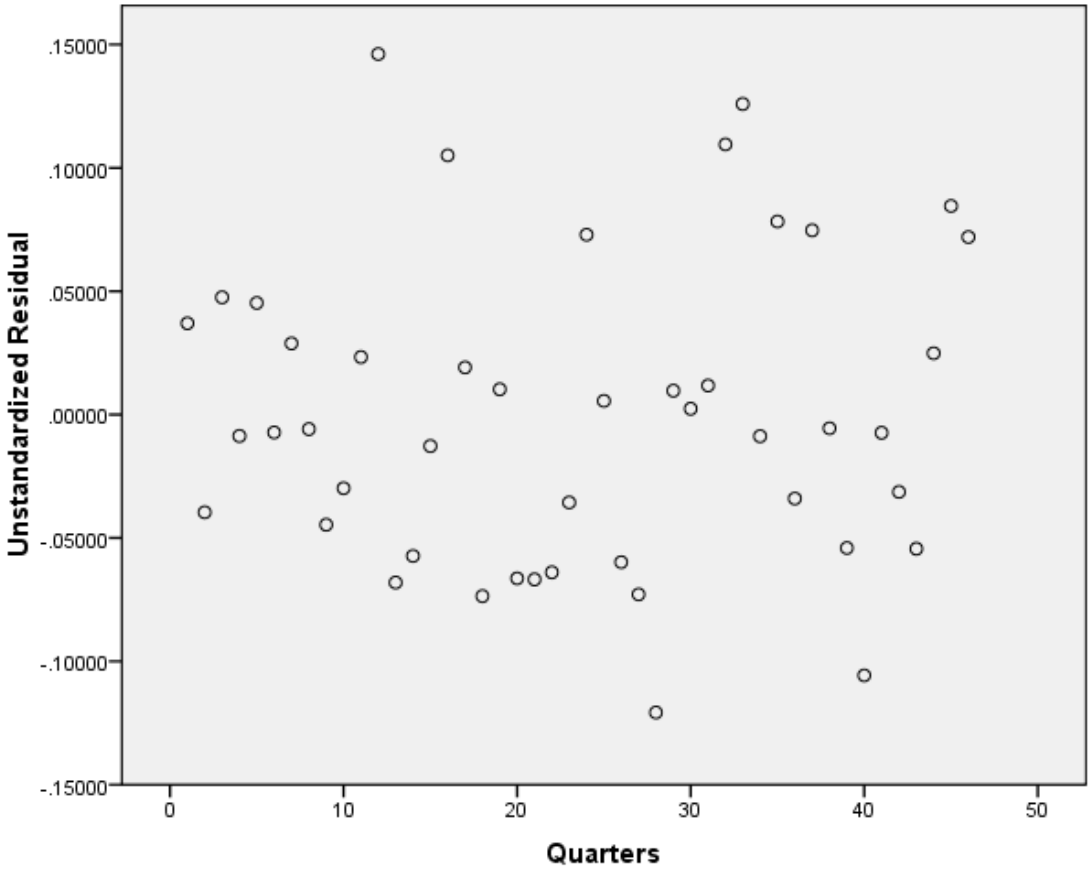
Coefficients[a]

Model		Correlations			Collinearity Statistics	
		Zero-order	Partial	Part	Tolerance	VIF
1	Value of Social Security Schemes	.966	.621	.147	.101	9.911
	ContColl_SQRT_1	.955	.413	.084	.100	9.957
	BenPay_Log10_1	.935	.543	.120	.176	5.683

a. Dependent Variable: IncGrowth_Log10

APPENDIX VII

RESIDUALS SCATTER PLOTS POTRAYING ABSENCE OF AUTOCORRELATION



APPENDIX VIII

MODEL SUMMARY TABLE FROM SPSS

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.983[a]	.966	.963	.06421	1.550

a. Predictors: (Constant), BenPay_Log10_1, Value of Social Security Schemes, ContColl_SQRT_1

b. Dependent Variable: IncGrowth_Log10

APPENDIX IX

DURBIN WATSON CRITICAL VALUES TABLE

Table A-1

Models with an intercept (from Savin and White)

Durbin-Watson Statistic: 1 Per Cent Significance Points of dL and dU

	k'=1		k'=2		k'=3		k'=4		k'=5		k'=6		k'=7		k'=8		
n	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	d
6	0.390	1.142	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---
7	0.435	1.036	0.294	1.676	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---
8	0.497	1.003	0.345	1.489	0.229	2.102	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---
9	0.554	0.998	0.408	1.389	0.279	1.875	0.183	2.433	-----	-----	-----	-----	-----	-----	-----	-----	---
10	0.604	1.001	0.466	1.333	0.340	1.733	0.230	2.193	0.150	2.690	-----	-----	-----	-----	-----	-----	---
11	0.653	1.010	0.519	1.297	0.396	1.640	0.286	2.030	0.193	2.453	0.124	2.892	-----	-----	-----	-----	---
12	0.697	1.023	0.569	1.274	0.449	1.575	0.339	1.913	0.244	2.280	0.164	2.665	0.105	3.053	-----	-----	---
13	0.738	1.038	0.616	1.261	0.499	1.526	0.391	1.826	0.294	2.150	0.211	2.490	0.140	2.838	0.090	3.182	---
14	0.776	1.054	0.660	1.254	0.547	1.490	0.441	1.757	0.343	2.049	0.257	2.354	0.183	2.667	0.122	2.981	0
15	0.811	1.070	0.700	1.252	0.591	1.465	0.487	1.705	0.390	1.967	0.303	2.244	0.226	2.530	0.161	2.817	0
16	0.844	1.086	0.738	1.253	0.633	1.447	0.532	1.664	0.437	1.901	0.349	2.153	0.269	2.416	0.200	2.681	0
17	0.873	1.102	0.773	1.255	0.672	1.432	0.574	1.631	0.481	1.847	0.393	2.078	0.313	2.319	0.241	2.566	0
18	0.902	1.118	0.805	1.259	0.708	1.422	0.614	1.604	0.522	1.803	0.435	2.015	0.355	2.238	0.282	2.467	0
19	0.928	1.133	0.835	1.264	0.742	1.416	0.650	1.583	0.561	1.767	0.476	1.963	0.396	2.169	0.322	2.381	0
20	0.952	1.147	0.862	1.270	0.774	1.410	0.684	1.567	0.598	1.736	0.515	1.918	0.436	2.110	0.362	2.308	0
21	0.975	1.161	0.889	1.276	0.803	1.408	0.718	1.554	0.634	1.712	0.552	1.881	0.474	2.059	0.400	2.244	0
22	0.997	1.174	0.915	1.284	0.832	1.407	0.748	1.543	0.666	1.691	0.587	1.849	0.510	2.015	0.437	2.188	0
23	1.017	1.186	0.938	1.290	0.858	1.407	0.777	1.535	0.699	1.674	0.620	1.821	0.545	1.977	0.473	2.140	0
24	1.037	1.199	0.959	1.298	0.881	1.407	0.805	1.527	0.728	1.659	0.652	1.797	0.578	1.944	0.507	2.097	0
25	1.055	1.210	0.981	1.305	0.906	1.408	0.832	1.521	0.756	1.645	0.682	1.776	0.610	1.915	0.540	2.059	0
26	1.072	1.222	1.000	1.311	0.928	1.410	0.855	1.517	0.782	1.635	0.711	1.759	0.640	1.889	0.572	2.026	0
27	1.088	1.232	1.019	1.318	0.948	1.413	0.878	1.514	0.808	1.625	0.738	1.743	0.669	1.867	0.602	1.997	0
28	1.104	1.244	1.036	1.325	0.969	1.414	0.901	1.512	0.832	1.618	0.764	1.729	0.696	1.847	0.630	1.970	0
29	1.119	1.254	1.053	1.332	0.988	1.418	0.921	1.511	0.855	1.611	0.788	1.718	0.723	1.830	0.658	1.947	0
30	1.134	1.264	1.070	1.339	1.006	1.421	0.941	1.510	0.877	1.606	0.812	1.707	0.748	1.814	0.684	1.925	0
31	1.147	1.274	1.085	1.345	1.022	1.425	0.960	1.509	0.897	1.601	0.834	1.698	0.772	1.800	0.710	1.906	0
32	1.160	1.283	1.100	1.351	1.039	1.428	0.978	1.509	0.917	1.597	0.856	1.690	0.794	1.788	0.734	1.889	0
33	1.171	1.291	1.114	1.358	1.055	1.432	0.995	1.510	0.935	1.594	0.876	1.683	0.816	1.776	0.757	1.874	0
34	1.184	1.298	1.128	1.364	1.070	1.436	1.012	1.511	0.954	1.591	0.896	1.677	0.837	1.766	0.779	1.860	0
35	1.195	1.307	1.141	1.370	1.085	1.439	1.028	1.512	0.971	1.589	0.914	1.671	0.857	1.757	0.800	1.847	0
36	1.205	1.315	1.153	1.376	1.098	1.442	1.043	1.513	0.987	1.587	0.932	1.666	0.877	1.749	0.821	1.836	0
37	1.217	1.322	1.164	1.383	1.112	1.446	1.058	1.514	1.004	1.585	0.950	1.662	0.895	1.742	0.841	1.825	0
38	1.227	1.330	1.176	1.388	1.124	1.449	1.072	1.515	1.019	1.584	0.966	1.658	0.913	1.735	0.860	1.816	0
39	1.237	1.337	1.187	1.392	1.137	1.452	1.085	1.517	1.033	1.583	0.982	1.655	0.930	1.729	0.878	1.807	0
40	1.246	1.344	1.197	1.398	1.148	1.456	1.098	1.518	1.047	1.583	0.997	1.652	0.946	1.724	0.895	1.799	0
45	1.288	1.376	1.245	1.424	1.201	1.474	1.156	1.528	1.111	1.583	1.065	1.643	1.019	1.704	0.974	1.768	0
50	1.324	1.403	1.285	1.445	1.245	1.491	1.206	1.537	1.164	1.587	1.123	1.639	1.081	1.692	1.039	1.748	0
55	1.356	1.428	1.320	1.466	1.284	1.505	1.246	1.548	1.209	1.592	1.172	1.638	1.134	1.685	1.095	1.734	1

Source: Durbin and Watson (1951)

APPENDIX X

REGRESSION COEFFICIENTS TABLES FROM SPSS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.661	.049		13.614	.000
	Value of Social Security Schemes	.001	.000	.462	5.134	.000
	ContColl_SQRT_1	.022	.007	.265	2.941	.005
	BenPay_Log10_1	.194	.046	.285	4.190	.000

a. Dependent Variable: IncGrowth_Log10

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.881	3	1.627	394.617	.000[a]
	Residual	.173	42	.004		
	Total	5.054	45			

a. Predictors: (Constant), BenPay_Log10_1, Value of Social Security Schemes, ContColl_SQRT_1

b. Dependent Variable: IncGrowth_Log10