"THE EFFECTS OF LIFE ASSURANCE AND PENSION SCHEMES ON PERSONAL SAVINGS: A CASE STUDY OF THE MIDDLE INCOME GROUP IN NAIROBI"

BY

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This Research paper is my original work and has not been presented for a degree in any other University.

Njuguna P.M.N

This Research paper has been submitted for examination with my approval as a University Supervisor.

Dr. N. Ndung'u.

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ABSTRACT

An individuals earning capacity does decline beyond a certain age, because of uncertainty about future income individuals save during years of peak earning potential in order to finance consumption at the later date. There are many competing forms of savings in which individuals may engage in. Subscription to pension and life assurance schemes act as the most readily available formal indirect method of saving for them. The study analyses the effects of these schemes on private savings. The objectives of the study were;-

(i) To test whether pension and life assurance schemes do lower the level of private savings.

(ii) Evaluate whether these schemes do induce one to retire early,

(iii) To identify other key factors that effect the level of private savings. and

(iv) Based on the study's findings, draw policy recommendations.

Cross sectional data was collected from Umoja I Estate. This was done with the aid of a questionnaire during the month of July 1994. A stratified sample of 100 household heads were personally interviewed.

The framework of analysis was based on the Ando-Brumberg Modglian life-cycle saving model. Regression results show that not all variables considered were significant in affecting savings at 0.10 level of significance, expected income earnings, number of dependents and expected pension benefits were found to have a statistically significant effect at this level of significance.

Lastly, we came up with policy implications which are:

i) The government should ensure that pension schemes are well run to be able to provide members with the necessary benefits when they retire.

ii) The government should institute policies that lead to improvement in peoples incomes and especially those in lower income brackets.

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DEDICATION

To my beloved parents, Mr. and Mrs. James Njuguna Wangai.

CHAPTER ONE

INTRODUCTION

1.0 Background

The pursuit of security is universal amongst human beings. Even though security may mean different things to different people there's a common frame of reference. Views of security relate to needs or wants of being secure. Households therefore have to hedge by having a guaranteed income or savings.

Life assurance policies and pension schemes are forms of social security schemes used by a great majority of Kenyan households to secure themselves against unfavourable contingencies. This may include premature death, disability caused by disease or accident, premature retirement and living so long that one's financial assets are exhausted.

Individuals do voluntarily purchase life assurance policies of a given value according to one's wish. For this they pay a given premium monthly depending on the policy's value. This guarantees them a full face value of income benefit after a given number of years depending on the contract, or in the case of one's death. On the other hand it is mandatory in Kenya for every formally employed worker to be a member of a pension scheme. The civil service pension scheme covers government employees. The National Social Security Fund covers workers not covered by the above scheme or any pension scheme approved by the Ministry of Labour, while many organizations in the country do privately operate private pension schemes for their employees. These schemes guarantee employees of an annuated income after retirement.

Pension Schemes may be classified in several ways. These may be based on characteristics that follow specific provisions of a scheme. Amongst them origin, contribution funding and legal liability. On the basis of origin, there is either negotiated

pension schemes or unilateral schemes. A negotiated scheme is one that results from collective bargaining between the employer and employee, usually through a Union. While a unilateral scheme is established by the employer without negotiation.

Contributory pension schemes are operated to facilitate the payment of benefits, contribution is both by the employer and employee. There is also a non-contributory scheme in which only the employer contributes.

Pension Schemes are also classified on the basis of funding: a funded scheme is one where the employer sets aside funds for future pension benefits by making contributions into a segregated fund, while an unfunded scheme is one where payments are made directly to retired employees as pension becomes due.

On the basis of legal liability the pension arrangement between an employer and employees may be either ex-gratia or of a contractual nature. In the ex-gratia scheme, there is no irrevocable commitment by the employer to provide pension benefits to the beneficiaries though there may be a "practical" liability in the form of the damage a revocation of a pension scheme may have on the organization. In schemes of a contractual nature, there is a legal liability and therefore, a legal obligation that is irrevocable. There are two major types of schemes of this nature: defined contribution schemes and defined benefit schemes. In a defined contribution scheme, the employer will normally discharge his obligation by making agreed contribution into a pension fund from which all the benefits to the employees will have to be paid while in a defined benefit scheme, the amount of benefit to be paid is determined by reference to an employee's earnings and/or years of service.

Pension schemes are operated with the prime purpose of providing income to a person during one's retirement years. These schemes together with life assurance policies do also provide security to individuals and helps them undertake risks that they may encounter in modern society. This is in addition to promoting peace of mind and freedom from worry. Life assurance and Pension

Schemes thus do help people who may be unwise, short sighted, or ill informed when they are young and they may fail to save adequately for old age. This may be either because they are thoughtless or because they do not understand (or are not aware of) the other opportunities provided in the market place for such saving. In the case of pension schemes where it is compulsory for all formally employed members to subscribe to, it is pre-supposed that some external agent namely the government does understand what is in an individuals' own interest better than the individual himself. This saves households against acting contrary to their own best interests.

Employers adopt pension schemes for various reasons. Amongst them, the desire for increased productivity of their employees as a result of enhanced loyalty and commitment, tax inducements offered by the government. There may also be pressure from trade union and social pressure arising from the social political and economic developments that have made people more security conscious. There could also be the belief that old-age care and support is a legitimate social responsibility of businesses.

In Kenya social, economic and political changes together with developments towards an industrial society have been important stimuli to the growth of life assurance and pension schemes. But by average standards, Kenya cannot be said to be an industrial society as around 80% of the population is still rural and peasant and therefore it may be expected that old-age security and support is still family based. Life assurance policy holders and pension hopefuls are therefore mainly people that are in modern formal employment majority of them being urban dwellers.

Majority of household heads in formal employment do therefore participate in pension schemes while many of them hold life assurance policies both of which are forms of saving. It is the aim of this study to establish the relationship between these forms of savings and personal savings within members of the middle income group. The study is be based on the life cycle hypothesis which assumes that the primary motive for saving is to provide for

retirement: thus individuals save during their working years and dissave during their retirement years.

1.1 Statement of the Problem

In line with the life cycle hypothesis, virtually all household heads strive to accumulate enough savings during their active years. To cater for their needs during retirement and/or to leave bequests to their dependents in case of death. As the middle income heads in Nairobi continue increasingly to live on formal employment as the economy modernizes, majority find themselves compelled by law to participate in pension schemes. This guarantees them income during their retirement years. To safe-guard themselves further a good number of them purchase life assurance policies which mature after a given number of years, usually as one nears retirement.

There are many competing forms of personal saving in which one may engage in. These include purchase of equities, bonds and land. To the middle income earners though, subscription to pension and life assurance schemes act as the most readily available formal indirect methods of saving. This is because premiums to the schemes are usually deducted automatically from the employees source of income through a check system. In case the household head perceives participation in life assurance and pension schemes as being substitutory to engaging in other forms of private personal saving. He/She is likely to be discouraged from engaging in this latter forms of saving. On the other hand, participation in these schemes may act as a means of enhancing private personal savings where the household head uses them as a base on which to build other forms of saving. Membership to these schemes therefore is bound to have an effect on the employees personal savings.

There exists an information gap as little research has been conducted in this field in Kenya and no relationship between enrollment into these schemes and saving has been established. It

is the intention of this study to fill this information gap and establish the relationship that may exist within the middle income earners in Nairobi.

1.2 Objectives of the Study

The broad objective of this study is to test the life cycle hypothesis and will be achieved through:-

1.3.1 Testing whether pension and life assurance schemes act in lowering the level of private savings,

1.3.2 Evaluating from the respondents, whether these schemes do induce one to retire early,

1.3.3 Identifying other key factors that affect the level of private savings,

1.3.4 Based on the empirical findings from the above policy recommendations will be drawn.

1.3 Significance of the Study

Studies in this field have aroused very little interest amongst researchers in Kenya and little has been written. It has however been a very active field of research in the developed countries. This study therefore first reviews literature related to the study.

The response of household heads to guaranteed income is important because the future welfare of retired persons depends significantly on whether they reduce their own saving for each shilling of expected pension benefit or whether they use their pensions as a base on which to build for a truly secure retirement. Furthermore, in order to predict the future supply of capital it is essential to create awareness on whether the reserves accumulated in pensions funds are being offset by lower individual saving or whether these reserves represent a net addition to the supply of capital, which is necessary for investments in the country. The

results will assist the government policy makers in formulating rational policies which may encourage savings and in-turn investments within the country. This is important especially when trends in national personal savings have been falling drastically coupled with low incomes.[1]

[1] See IBRD. "Trends in Developing Economies." A World Bank report (Washington D.C:1993) Pages 78-80

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Individuals save (accumulate assets) during years of peak earning potential in order to finance their later consumption because earning capacity declines beyond a certain age and because of uncertainty about future incomes. In the absence of pension schemes individuals would save and accumulate wealth for their retirement and would probably attempt to prolong their working life. A system which therefore encourages man to place himself under an obligation to save for a worthwhile purpose is important. Even more so when the motive actuating thrift is family welfare and old-age provision of pension.

Life assurance and pension schemes enable individuals to place themselves under obligatory methods of saving. This is because enrollment into these schemes requires them to remit funds on a monthly basis to pay for their membership. The schemes also aid in character building as they promote careful planning which compels one to self-restraint so that one saves in favour of future requirements. These savings guarantee individuals income during old age. They thus, may act as substitutes to other forms of saving i.e. personal saving.

In this chapter theoretical literature is reviewed in section 2.2 and empirical literature in section 2.3.

2.1 Theoretical Literature

2.1.1 The substitution Hypothesis and Pension.

A standard prediction of the neoclassical theory is that similar products will act as substitutes for each other. In the

case of savings this "substitution" hypothesis is associated in particular with the life cycle Hypothesis (LCH) of Ando and Modiglian (1963).The (LCH) states that the primary motive for saving is to provide for retirement. Complex factors affecting pension funds make it difficult to accept the simplistic view that substitution will be perfect. In particular, the condition that should be satisfied in order that this hypothesis is true are rather extreme.

In general the degree of substitution would seem to depend on the following basic factors:

(i) The degree of awareness of and the valuation put upon, pension rights by individuals. There may be some tendency for individuals to underestimate the value of the annuity which the pension funds will buy for them on retirement, and thus to supplement pension saving by other saving by more than necessary when seen ex post. In addition, the realization of full pension benefits may depend upon continuity of employment, and of course , the equity in a pension scheme is illiquid. These characteristics may lead to a relatively low valuation of pension rights.

(ii) Whether the compulsory nature of pension saving may force some individuals to save more than they would otherwise have done.

(iii) whether pension funds are able to provide annuities on more favourable terms than individuals could by themselves. If this were the case, pension funds may tend to reduce household savings unless the higher rate of return encourages more saving.

(iv) The value of the concessions given to life assurance and pension fund saving as compared with private voluntary saving. In Kenya life assurance policy holders are usually given some tax concessions.

Even with full knowledge on the part of the individuals. It is not obvious that individuals will be willing to substitute for different types of savings. An alternative could be to choose earlier retirement . This could explain non-substitution in an extended life cycle framework.

2.1.2 Theoretical analysis of social security in a simple life - cycle savings model

Broadway and Wildasin (1984) assumed that individuals intend to leave no bequests and that a household's lifetime can be divided into two periods. In the first period the household works; earning an income of *Y*, of which *T* is taxed away by the social security payroll tax. The net income of (Y-T) is then either consumed, with C_1 the amount of consumption, or saved. In the second period, the worker retires and has no earnings. For the moment if we assume that retirement age is fixed, second period consumption denoted by C_2 is financed from social security and by drawing down savings accumulated earlier in life. If B is the social security benefit level and *r* is the (net) rate of return on first period savings C_2 is given by:-

$$C_2 = (Y - T - C_1)(1 + r) + B, \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Or, by dividing (1 + r) and rearranging

$$C_1 + \frac{C_2}{1+r} = Y - T + \frac{B}{1+r} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

In interpreting this budget constraint we see that; the present value of the lifetime consumption shown on the left - hand side of equation (2) is equal to lifetime wealth. In the absence of social security this lifetime wealth would be Y. With social security, lifetime wealth changes by the present value of benefits minus contributions. This lifetime wealth effect is of crucial importance.

Considering a social security system that is operated on a fully funded basis (schemes where benefits are legally allowed to be paid to retirees only to the extent of their past contributions). In particular where current benefits cannot be paid out from current contributions into the program; they must be paid from accumulated past contributions, like private pension plans.

Then the workers' contributions of T would earn a normal rate of return r, so that benefits B would equal (1+r)T. In this case the social security program forces savings of T when young, but does not change lifetime wealth as equation (2) shows. With an unchanged lifetime wealth, the household would find it optimal to maintain the same planned consumption over the cycle. What happens then is that disposable income when young falls by T, consumption, C_1 remains unchanged and private saving when young therefore falls by the amount T. Public savings, on the other hand, rises by T. Then in retirement, the worker is able to carry out the same consumption C_2, as in the absence of social security. Financing this consumption from lower private wealth and from exactly compensating social security benefits. In effect with a fully - funded system, each dollar of public saving in the form of contributions displaces a dollar of private savings, leaving total national saving unchanged. The reduction in private saving resulting from social security is referred to as the "asset substitution effect."

With unfunded social security (a scheme where social security benefits are not linked to the actual contributions paid into the program, where in practice the program has generally financed benefits to retirees from the contributions of those currently working), lifetime wealth is no longer affected; depending on the circumstances, the present value of benefits can exceed or fall short of contributions. The change in lifetime wealth resulting from social security B/(1+r)-T, is the net social security wealth and is positive for those who retire during the start-up phase of the program. For them, T is zero or small, while B is positive or substantial, giving rise to the windfall gains. On the other hand the system matures and moves towards a long-run equilibrium, the return on contributions to the system is limited by the growth of population and earnings per worker or, essentially the growth rate of GNP, g. In the long run whether social security wealth is positive or negative depends on the relationship between g and the

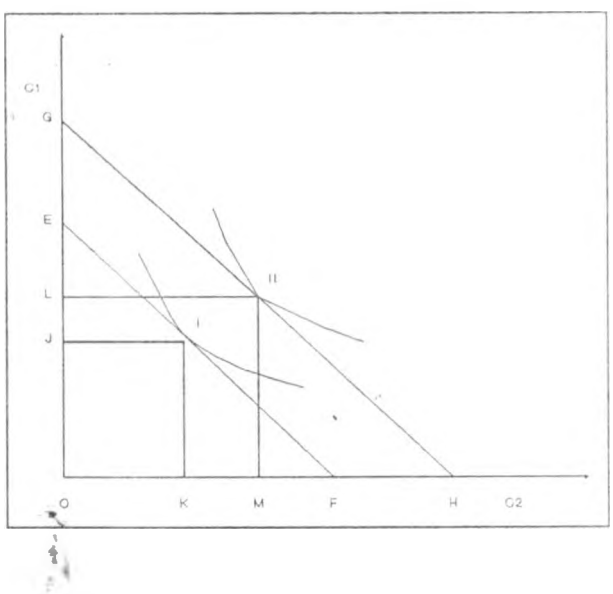
rate of return on private savings, r. Since B = (1+g)T, social security wealth is equal to:-

$$\frac{B}{1+r} - T = 1+\left(\frac{1+g}{1+r} - 1\right) T \quad \ldots\ldots\ldots\ldots 3$$

Which will be greater or less than zero depending on whether g is greater or less than r.

Because an unfunded system can change lifetime wealth, it will generally change a households lifetime consumption plan as well. A simple way to show this is to consider the situation facing a worker who retires just as the program begins. The worker enjoys retirement benefits, but does not have to pay payroll taxes to support the system. Before the program is introduced the household faces a lifetime budget constraint, allowing the choice of consumption plan on the budget line EF as shown on the diagram below. Here OE represents earnings when young, which is the simple two - period model are equal to lifetime wealth. The household under these circumstances will choose the lifetime consumption plan represented by point I, with consumption of OJ in the first period and OK in the second period.

Figure 1. Households Lifetime Consumption Plan.



Savings in the first period (income minus consumption) equal EJ. Now, suppose that a social security program is introduced that will pay retirement benefits equal to $B/(1+r) = EG$, say, but which will not require any contributions by this household provided that the household correctly anticipates these benefits. It enjoys positive social security wealth of EG which shifts the budget line to GH, parallel to EF. The program thus expands the lifetime opportunity sets and if consumption in each period of life is a normal good, the household will move to a point such as II, with higher consumption in both periods. In the case of savings, while earnings are still equal to OE and consumption has risen to OL savings will fall by JL. Thus because of the creation of positive social security wealth the household is induced to save less when young. social security thus displaces private saving, that is there is an asset substitution effect. Unlike the case of a funded social security program, however with an unfunded system there is no off-setting increase in public saving. As a result, national (private plus public) saving is reduced.

It is clear that lifetime consumption increases for all households who enjoy an increase in lifetime wealth from the social security system, even if they make some contributions when young.

While the asset substitution effect provides a plausible explanation for a social security, it has been derived within the framework of a very simple model. As Feldstein (1974) has stressed, social security can also influence retirement decision. This possibility should be taken into account, because it can influence savings behavior indirectly. First we may note that if leisure in old age is a normal good, an increase in lifetime wealth resulting from the introduction of a social security program will result in a lower supply of labor later in life, possibly in the form of early retirement. Secondly, since social security benefits are reduced by a certain percentage for every shilling of earnings above a certain minimum, earnings for workers close to retirement are in effect subject to substantial implicit tax. This too can, induce early retirement or a reduction in earnings when old. If

workers retire earlier, for either or both these reasons they may be motivated to save at higher rate when young. The reason for this is two-fold. First, with fewer working years, assets must be accumulated at a higher rate in order to build up any desired stock of wealth by the date of retirement. Second, the worker will wish to enter retirement with a longer stock of wealth, since past accumulation will have to finance more years of old age consumption. This effect is partly offset by the availability of social security benefits in old age and has been called the "induced retirement effect" of social security.

Boadway and Windasin(1984) went further and studied the effects of social security when households are intergenerational optimizers and wish to leave bequests for their children out of altruistic feeling. According to them, a pay-as-you-go system sets up a series of intergenerational transfers from young to old. Suppose that these transfers are currently anticipated by all households, then in effect the social system creates a series of forced negative bequests across generations. However, the stream of income extending into the indefinite future, which determines the wealth of a sequence of generations, does not change because of the program, and so the intergenerational budget set - that is, the possible paths of consumption across generations, is left unchanged. Intuitively, then one would expect the chosen path of consumption to be unaffected by the program, and that the path of national saving, or income minus consumption, would be unaffected as well. This means, as Baro (1974) has argued, that the asset-substitution effect of social security would be completely nullified.

To see in more detail how this can occur, we may write down the budget constraints facing parents and their children under a pay-as-you-go social security program that only lasts for one generation. (That is, the children are taxed to provide for the parents). The model can be extended to many periods.

Suppose a parent lives for two periods, earning income of Y_1 in the first period of life, and spending the second period in

retirement. Let parental consumption in these two periods be written C_1^P and C_2^P, Let B be the social security benefits received when old, and let I^P be the bequests left to the children at the end of the second period of life. Then, if r is the rate of return on first-period savings of $Y_1 - C_1^P$, the amount of bequests must satisfy:

$$I^P = B + (Y_1 - C_1^P)(1 + r) - C_2^P \quad \text{.....(4)}$$

Since the bequests must equal second-period wealth minus second period consumption.

Similarly, if the children earn income of Y_2 by working in period 2, Consume C_2^c and C_3^c in their two periods of life, leave a bequest to their children of I^c, and pay payroll taxes of B to support the benefits paid out to their parents, the bequests that they make to their own children must be:

$$I^c = (Y_2 + I^P - B - C_2^c)(1 + r) - C_3^c \quad \text{.....(5)}$$

This equation reflects the fact that the parental bequests is received when young, that is in first period of life.

Considering how the presence of the social security system has affected the choices open to each generation. Parents, receiving benefits of B when old, can now leave a bequest that is higher by exactly that amount, if they leave their own consumption unchanged as shown in equation (4) above. Children in order to be no worse off because of the taxes they pay into the system, would need to receive a bequest that is higher by exactly B. If they do, the higher bequest would offset the taxes they pay and their feasible consumption choices and bequests would be unchanged, as shown by Equation (5). In fact substituting into Equation 5 from Equation 4 to eliminate I^P, dividing by $(1+r)^2$, and rearranging, we see the overall constant limiting the consumption of these two generations and their bequests to the third generation is:

$$C_1^P + \frac{C_2^P + C_2^C}{1+r} + \frac{C_3^C + I^C}{(1+r)^2} = Y_1 + \frac{Y_2}{1+r} \quad \ldots\ldots\ldots\ldots\ldots\ldots 6$$

That is, the present value of consumption plus the bequests to the third generation is equal to the present value of income-since the size of the social security program B, does not appear in equation (6). It is clear that the constraint, and therefore the consumption choices by these individuals is unaffected by the program. When the program forces transfers from the young to the old, the old simply respond by increasing their bequests to the young in an exactly offsetting fashion, leaving private savings unchanged.

Thus, the expected impact of an unfunded social security program on savings and capital accumulation is dramatically different in an economy with inter-generational or dynastic utility maximizers, as compared with the simple life-cycle savings with no bequests. Unfortunately, it is not by any means obvious which of these views of the world is closer to reality, and no decisive tests that would resolve the matter have been conducted to date. Further research will be needed to resolve this issue.

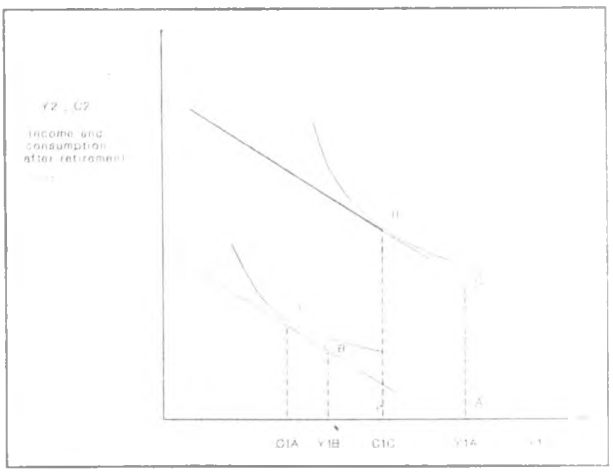
In summary, it should be emphasized that the possible reduction in savings resulting from social security in the simple life-cycle framework results only from the fact that the system is financed on a pay - as - you - go basis. This is what creates positive social security wealth and an increase in consumption. By contrast, a fully-funded system builds up a reserve to pay for retirement benefits, with public saving substituting for private saving. Total national saving and capital accumulation are left unchanged. Thus a reduction in savings is not a necessary consequence of all types of social security systems.

2.1.3 The dual effect of social security.

This is illustrated by figure 1 below. The horizontal axis measures income and consumption before retirement age (Y_1, and C_1) and the vertical axis measures income and consumption after that age (Y_2 and C_2). For simplicity, pre-tax income before retirement age is assumed to be unaffected by the introduction of social security. Consider first the individual who in the absence of social security would be fully retired after age 55. His earnings are described by point A: Y_{1A} in period 1 but zero is period 2. Faced with an opportunity to save at the rate of interest implied by the budget line through point A, the individual chooses the pair of consumption levels denoted by point 1.

During this pre-retirement period, he consumes C_{1A} and saves $Y_{1A} - C_{1A}$. Point B describes the individual's initial position after the introduction of social security tax: his second period income is raised by the amount of the benefit, and his period income is reduced by the payroll tax to Y_{1B}:

Figure 2. The dual effect of Social Security.



the difference between Y_{IA} and Y_{IB} is just sufficient to finance the benefits at the market rate of interest. Since the introduction of social security does not alter this individual's budget line he retains the original equilibrium point I. The reduction in disposable income implies that saving is reduced from $Y_{IA} - C_{IA}$ to $Y_{IB} - C_{IB}$, that is, by the amount of the tax $(Y_{IA}-Y_{IB})$.

The reduction in saving can be contrasted with the experience of an individual who in the absence of social security would continue to work for some time after age 55. Point C indicates, an initial position with positive earnings in the second period and the same level of first - period earnings as point A. The new equilibrium consumption pair is denoted by Point II, first period consumption is C_{IC}, and the corresponding saving is relatively small amount $Y_{IA} - C_{IC}$. If the social security program induces him to retire completely at age 55, his initial position shifts from C to B, that is, his period 1 disposable income is reduced by the amount of the payroll tax, while period 2 disposable income falls because earnings are reduced to zero and not fully replaced by social security benefits. With initial position B, the individual chooses consumption pair I the effect of introducing social security is therefore to change savings from $Y_{IA} - C_{IC}$ to $Y_{IB} - C_{IA}$. The current figure is constructed to make $Y_{IB} - C_{IA} > Y_{IA} - C_{IC}$, that is, the introduction of social security increases saving. Alternative assumptions about the consumption - expansion path could yield different results.

2.1.4 Interaction of social security schemes with private savings

Literature on the interaction between social security schemes and private savings has raised different issues of which the most relevant are listed below;

First, the distribution of disposable income: If the population was to be divided into two groups, those receiving social security benefits (R) and those paying contributions (A) and

if their marginal consumptions propensity differs, then, private consumption and savings would vary with social security.

Disaggregating private saving we obtain;

$$A_p=(Y_A - \tau + G) - C_A + (Y_R + p) - C_R \ldots\ldots\ldots(1)$$

and using consumption functions,

$$C_A = Y_A(Y_A - + C_A) + C_A \ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

$$C_R=Y_R\ (Y_R + P) + C_R \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where:

A_p = Private Savings
Y = Income
τ = social Security revenues
T = Taxes
G = Government Current Expenditure
c = Consumption (Private)

When social security is introduced or expanded if $Y_A > Y_R$ private savings will fall, the beneficiaries of social security may have a higher propensity to consume (Y_R) because they are poorer and /or older.

Second, the life cycle motivation to save: This approach emphasizes the fact that workers who save while they are active in order to have income and finance their consumption when they retire. In this context the prospect of receiving pension upon retirement (or other contingency) weakens this motivation. Therefore private savings decline and unless there is a surplus in the social security accounts aggregate savings decline.

Social security in this view induces a lower level of household wealth accumulation and private pension plan run on a funded basis.

The principal argument can be illustrated by the following equations:

4. $$\sum_{0}^{R} Y_t = \sum_{0}^{M} C_t$$

This represents the budget constraint of a person who earns Y_t during R years and consumes C_t during M > R years.

The introduction of an obligatory pay - as - you - go (a social security system in which benefits are not linked to the actual contributions paid into the program and which in practice does finance benefits to retirees from the contributions of those currently working) system, which is financed by a tax rate T and gives benefits P_t during the period from R to M yields.

5. $$\sum_{0}^{R} Y_t(1-\tau) + \sum_{R}^{M} P_t = \sum_{0}^{M} C_t$$

If there is no redistribution among generations and if inflows of social security equals outflows then we have that:

6. $$\sum_{0}^{R} Y_t\tau = \sum_{R+1}^{M} P$$

Then, at year T (<R), The wealth accumulated A_T in order to meet the consumption plan is:

7. $$A_T = \sum_{T}^{M} C_t - \sum_{T}^{R} Y_t(1-T) - \sum_{R+1}^{M} P_t$$

Using 6, it is the case that

8. $$A_T + \sum_{o}^{T} Y_t\tau = \sum_{T}^{M} C_t - \sum_{T}^{R} Y_t = constant$$

Since the term on the right is independent of security in a pay-as-you-go system each shilling of taxes paid replaces a shilling of accumulated wealth. The rationale behind this is that people know that the taxes will be returned to them as pensions when they retire and have no other income. Thus they do have to accumulate wealth for consumption during their passive stage.

It has not been possible to confirm this theoretical hypothesis. Hence, there is no firm evidence that the lack of reserves has reduced aggregate savings and the stock of capital.

Third, insufficient voluntary savings: The life cycle model assumes that workers left to themselves will save a sufficient amount to meet the risks they face. But part of the rationale for organizing a social security program is precisely that voluntary savings are insufficient, if this is the case then social security surplus cannot be eliminated by private behavior.

Retirement dates may be modified by social security pension rules. If these are post-poned private savings will decline since less wealth is needed to finance a shorter passive life.

2.2 Empirical Results

A number of scholars including Katona(1964), Cagan(1965), Fieldstein(1974), Herming(1978) and Browing(1979) have carried out studies to try and determine the effects of social security on personal savings based on various hypothesis and have come up with contrasting results. We now turn to a brief review of their results;

The life-cycle hypothesis, students of social security have generally argued that social security is not likely to have a substantial effect on personal savings and that it might cause such savings to increase. This conclusion is based largely on the

evidence of Katona (1964) and Cagan (1965), that persons covered by private pensions do not save less and may save more than persons not covered by pensions. More specifically Cagan (1965) analyzed data generated by a mail survey on consumer reports subscribes and food. The results showed that the average savings rate was slightly higher for those with vested pensions than for those whose pensions were not vested.. A regression equation estimated showed that an increase in the individual's rate of pension contribution was associated with a higher level of direct (discretionary) saving. Cagan defended his results in terms of a "recognition effect:" When an individual is forced to participate in a pension plan he recognizes, for the first time, the importance of savings for his old age. Participation in a pension plan has an educational effect, more formally, it changes the individual's utility function as he perceives it ex ante during his working years.

Katona (1964) analyzed data collected by the University of Michigan Survey of randomly selected households and also found that participation in a pension plan raised savings rates when age and current income were taken into account.

According to Cagan (1965) and Katona (1964), workers who are covered by pensions schemes have an incentive to retire earlier than they otherwise would. To receive a pension requires retiring from a current job and this involves loss of wage bargaining power even if the individual is permitted to draw the pension after taking a new job. The loss of the bargaining power and of job specific skills generally entails a substantial fall in the available wage. The pension therefore acts as a combination of an annual lump sum grant and tax on earnings after the standard retirement age. The result is to reduce the labor supply of pension recipients, generally through early retirement. The pension, therefore has two effects on personal savings. First, it reduces personal savings because it substitutes for household assets, but, secondly, it also increase personal savings because it lengthens the period of retirement over which accumulated assets

will be spread, the net effect of the pension depends on the relative strength of these two forces.

Feldstein(1974) on the other hand argued forcefully that social security reduces private savings. In his study, Feldstein-(1974) calculated social security wealth for members of different generations, added it up to find social security wealth in each year since the beginning of the social security program in the United States. He tried to determine whether higher social security was associated with higher aggregate consumption. The relationship estimated by Feldstein(1974) indicated that social security wealth increased consumption substantially and subsequently he argued that social security reduced personal savings by approximately 40 per cent. This was clearly an effect of great importance and implied that the asset substitution effect was powerful. Murnell(1974) and Darby(1979) found much smaller effects of social security on savings, however, while the asset substitution effect, taken by itself was substantial. These studies found that the induced retirement effect was very strong and that the net impact on savings was quite small - in the order of a 0-10 percent reduction as compared with Feldstein's(1974) estimate of nearly 40 per cent.

Work on Canadian data by Schoeplain (1970) found that lower and middle income classes do substitute-albeit imperfectly - pension contributions for alternative forms of (contractual) retirement saving[2]. Other forms of "retirement" saving in Canada and pension contribution, are tax-deductible when inverted in one or more of several savings media, up to various ceiling; There are restrictions both the forms of saving and penalties for withdrawal prior to retirement age. Licensed annuities (including the annuity element of life assurance policies), special life assurance

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[2] In equations for the various lower to middle income ranges with other "retirement" savings as the dependent variable, the significant coefficient on pension contribution ranged from -0.12 to -0.56 although most fell in the -0.25 to -0.45 range.

contracts and special federal government old age income bonds are eligible.

However, he found that other retirements saving complemented pension saving in the highest income groups which, because of tax inducements, have high propensities to save tax inducement, have high propensities to save in all forms.

Mannell (1976) using longtidinal panel data found that male employees over forty-five years have a lower stock of direct or discretionary savings when they have private pension rights, although not lower by as much as the net present value of the benefit. The evidence suggests some substitution between discretionary and contractual saving

Browning (1979) concluded that personal savings in the United States in 1971 were only half of what they would have been if there had been no state pension support scheme. Support was given to the life-cycle saving and to Keynes "Law" that the aggregate rate of saving would increase as income rose if there were no off-setting government policies.

Herming (1978) followed Feldstein (1974) and the (tentative) conclusion drawn was that changes in the net value of future pension wealth (that is, discounted benefits minus discounted contributions) did affect current consumption.

2.3 Overview of the literature

A standard prediction of the neoclassical theory is that similar products will act as substitutes for each other. In the case of savings this substitution is associated with the life cycle hypothesis(LCH) of Ando and Modiglian (1963) and it states that the primary motive for saving is to provide for retirement. However, complex factors affecting social security schemes make it difficult to accept the simplistic view that substitution is perfect. Based on various hypothesis a number of scholars have carried out studies on social security. Katona (1964) Cagan (1965) are of the view that

social security increases savings. Feldstein (1974) Herming (1978) are of the view that social security reduces savings. On the whole literature reviewed shows that, different forms of saving Life assurance and Pension schemes inclusive do both encourage and discourage personal savings. The studies have therefore been inconclusive about the effect of social security. Studies reviewed have all been carried out in Western Nations. This study empirically analyses the kenyan situation and presents the results.

CHAPTER THREE

FIELD STUDY METHODOLOGY AND DATA DESCRIPTION

3.0 Study Area.

The data requirements for this study was obtained from primary sources. This was done by administering a prepared questionnaire. As a result of time and budget constraints it was not possible to cover all the middle income Estates in Nairobi. Therefore, to accomplish the objectives of the study, Umoja I Estate was chosen as the case study. This is because the estate was thought to be the most representative of all the middle class Estates. The Estate lies within the Eastern side of Nairobi, about six Kilometers from the city center. Many of the houses are two bedroomed. Rental rates in the Estate range from Ksh. 2000 for the extensions to Ksh. 4500 for the main house. It is as a result of these characteristics that the Estate was thought to be most representative of the middle income Estates, and hence the reason to gather information concerning the people in this income group.

3.1 Sample Selection.

Sample selection was based on the Estates construction plan which provided a list of all the houses in the Estate. From the plan a stratified sample covering all the areas was constructed, it was felt that this would adequately be representative of the households in the Estate. The interviews were undertaken by the author and three assistants. They were conducted during the month of July, 1994. The interviews were conducted during the evenings and on weekends. These were the times that most of the household heads would be located at their homes, considering that majority of them are employees. In most of the houses visited the reception was good and even though the interviews dwelt mainly on personal

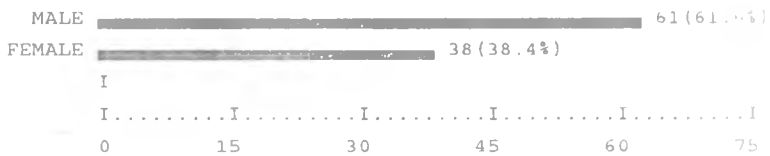
issues the respondents appeared to take care in answering the questions correctly and in detail. However, there were a few cases where the respondents were too suspicious to provide responses to questions, to overcome this we had to assure them that their answers would be used purely for academic work only. In other cases the visits to the houses seemed to be an intrusion into their private lives. They were therefore not ready or willing to respond. The prepared questionnaire was administered orally to the household heads, and in some cases the questionnaires were left behind to be filled and later collected. This was mainly in cases where the household-head was not present when the house was visited. However, we preferred to read out the questions and fill the questionnaires ourselves as in doing this we were able to stress the meaning of each of the questions.

A total of 100 household-heads were interviewed 1 case was later dropped after regressing as it was found to be an outlier.

3.2 Data Description.

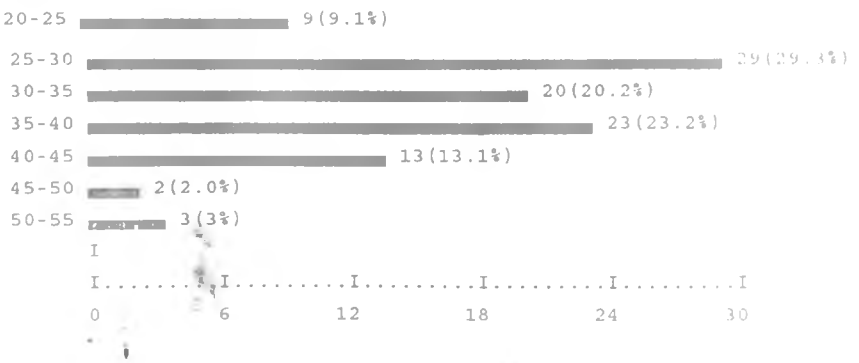
The sample was found to have the following characteristics which are explained with the aid of bar charts.

Graph 1. Sex of the respondents.



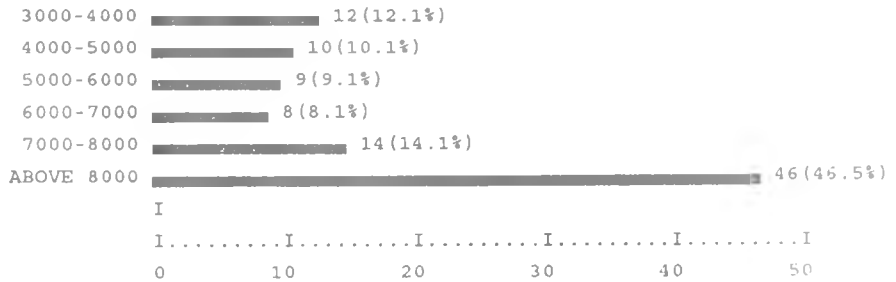
In the resulting sample a total of 61 Males and 38 Females were covered, this was 61.6% and 38.4% respectively as shown above.

Graph 2. Frequency by age category.



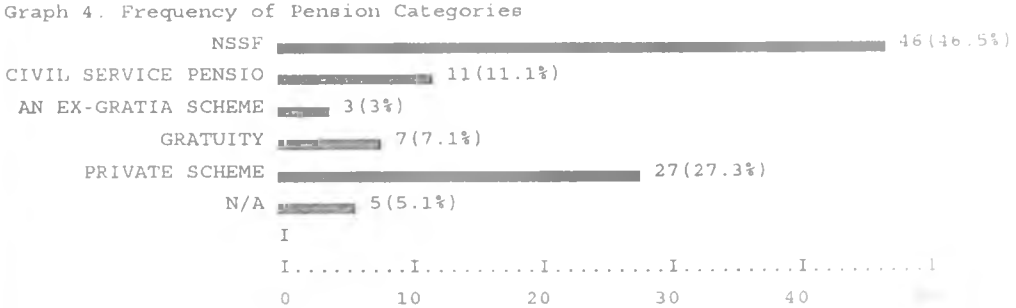
The age distribution was skewed towards the younger generation that is people below the 35-40 years age bracket. The age distribution was as follows: From the sample people aged 20-25 years were 9.1 percent in total, those aged 25-30 years 29 people or 29.3 percent, 30-35 years 20 people or 20.2 percent, 35-40 years 23 people or 23.2 percent, 40-45 years 13 or 13.1 percent, 45-50 years 2 or 2.0 percent, 50-55 years 3 people or 3 percent. This is illustrated graphically in the previous page.

Graph 3. Level of monthly income.



As the graph above shows majority of the respondents that is 46.5% were found to have income of Ksh. 8000 and over. 14.1% fell in the income bracket 7000-8000. The rest of them 12.1%, 10.1%, 9.1%, 8.1% were in the income brackets 3000-4000, 4000 5000 5000 6000 and 6000-7000 respectively.

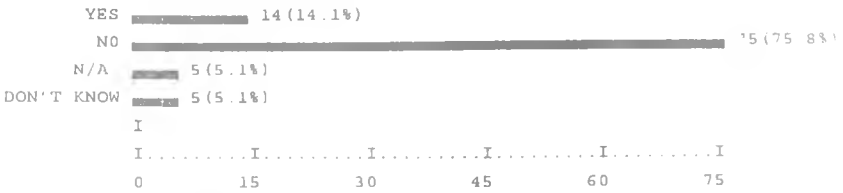
Graph 4. Frequency of Pension Categories



Membership distribution of the various pensions schemes is as shown above. National social security fund had the highest membership with 46.5% of the members falling in this group, this was followed by private schemes with 27.3% of the members, then the civil service pension scheme with 11.1% of the members, gratuity with 7.1% of the members, and lastly ex-gratia 3% of the members.

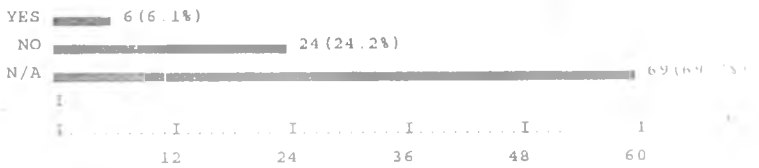
Not applicable(N/A) represents those people who are not enrolled into any pension scheme they were 5 in total

Graph 5. Provision of adequate income by pension benefits during one's non active years.



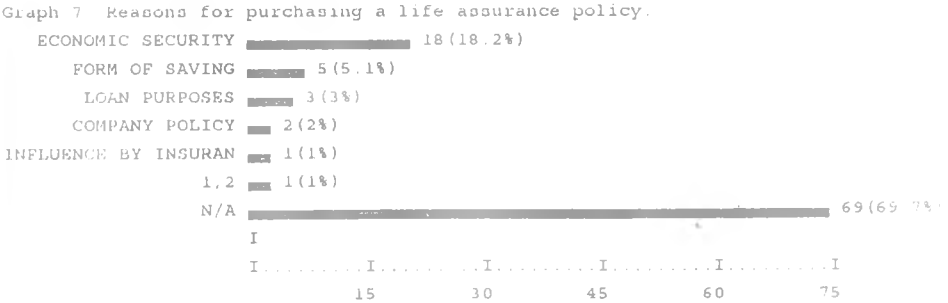
From the above graph, 75.8% of the people interviewed believed that pension benefits would not provide them with adequate income during their retirement years while only 14% believed that it would. 5.1% of the people did not belong to any pension scheme and 5.1% of the rest did not know whether it would be able to or not.

Graph 6. Provision of adequate income by insurance benefits in one's non active years.



From the above graph, 6.1% of the people interviewed felt that their insurance policies would provide them with adequate income during their non active years while 24.2% of them felt that their policies would not, 69.7% of the people did not have an insurance cover.

Graph 7 Reasons for purchasing a life assurance policy.



The respondents were asked why they decided to purchase an insurance policy and they gave various reasons; 18.2 percent said it was for security reasons, 5.1% said they purchased it as a form

of saving, 3% said it was for the purpose of obtaining loans, 2% said it was their company's policy, 1% said it was due to influence by insurance agents, another 1% said it for the purpose of economic security and also because it acts as a form of saving. The others 69.7% did not have an insurance cover.

Crosstabulations were also done to show various relationships as shown in the tables below.

3.21 Savings behaviour in relation to pension scheme membership.

Table 1. Crosstabulation: X20 Are you a member of a pension scheme
by
X18 how much are you able to save each month

X18->
X20

	0	0-200	200-400	400-600	600-1000	1000-1500	1500-2000	2000-2500	Row Total
YES	15	23	26	14	6	7	2	1	94 94 9
NO	1	1	0	2	0	1	0	0	
Column Total	16 16.2	24 24.2	26 26.3	16 16.2	6 6.1	8 8.1	2 2.0		

The respondents were asked whether they belonged to a pension scheme and how much they are able to save on monthly basis. The results showed that 16.2% of the respondents made no savings, 15 of of them were members of pension schemes while one person was not. 1 person who was a member of a pension scheme saved within the income bracket Ksh.2000-2500, none of the persons who were not members of pension schemes were able to make savings of this level. The people saving in the savings brackets 0-200, 200-400, 400-600, 600-1000, 1000-1500, 1500-2000, 2000-2500 were 24.2%, 26.3%, 16.2%, 6.1%, 8.1%, and 2.0% respectively.

3.22 Savings behaviour in relation to life assurance policy.

Table 2. Crosstabulation: X29 Do you have a life assurance policy
by
X18 How much are you able to save each month

X18->
X20

	0	0-200	200-400	400-600	600-1000	1000-1500	1500-2000	2000-2500	Row Total
YES	2	2	11	9	2	2	1	1	30 90.9
NO	14	22	15	7	4	6	1		69 [illegible]
Column Total	16 16.2	24 24.2	26 26.3	16 16.2	6 6.1	8 8.1	2 2.0	1 1.0	99 [illegible]

The respondents were asked whether they had a life assurance policy and the much they were able to save on monthly basis. The results showed that 16.2% of the people made no savings, 2 of these had an insurance policy while 14 did not have. 24.2% of the people made savings within the income bracket 0-200 of these 2 had an insurance policy while 22 did not. The people saving in the savings brackets 400-600, 600-1000, 1000-1500, 1500-2000, 2000-2500 were 16.2%, 6.1%, 8.1%, 2.0%, and 1.0% respectively.

3.2.3 Intentions of retiring early and pension scheme membership.

Table 3. Crosstabulation: X20 Are you a Member of a Pension Scheme
by
X35 Wish to retire earlier than on compulsory retirement age

X35->
X20

	YES	NO	NOT APPLICABLE	Row Total
YES	62	27	5	94 94.9
NO			5	5 5.1
Column Total	62 62.6	27 27.3	10 10.1	99 100%

Respondents were asked whether they had intentions of retiring early and whether they were members of a pension scheme. The results showed that 62.6% of the people who were members of pension schemes wished to retire early, 27% did not wish to. Five of the people did not respond to this question, this is shown as not applicable. 5 of the others did not belong to any pension

scheme as they were privately employed.

3.24 Acquisition of a life assurance policy based on the level of education.

Table 4. Crosstabulation: x5 level of education
by
x29 Do you have a life Assurance Policy

X29->
X5

	YES	NO	Row Total
PRIMARY	3	4	7 7.1
SECONDARY	7	35	42 42.4
COLLEGE/ UNIVERSITY	20	30	50 50.5
Column Total	30 30.3	69 69.7	99 100%

The above crosstabulation shows that 30.3% of the sample interviewed had a life assurance policy, of these 3 of them had upto primary level of education, 7 had upto secondary level of education and 20 of the others had attained either collage or university level of education. 69.7% of the respondents did not have an insurance cover of these 4 had primary level of education, 35 had secondary level of education while 30 had attained either college or university level of education. The crosstabulation also shows that of the respondents, 7.1% had attained primary level of education, 42.4% secondary level of education and 50.5% collage or University level of education.

3.2.5 Membership into both pension scheme and insurance scheme.

Table 5. Crosstabulation: X20 Are you a Member of a Pension Scheme
by
X29 Do you have a life Assurance Policy

X29-> / X20	YES	NO	Row Total
YES	25	65	90 90.9
NO	5	4	9 9.1
Column Total	30 30.3	69 69.7	99 100%

The above crosstabulations show that 30.3% of the respondents had an insurance policy, of these 25 of them were enrolled into both pension and life assurance schemes 5 of the others had an insurance cover but were not members of a pension scheme. 69.7% of the people did not have an insurance policy, of these 65 of them were members of a pension scheme while 4 were not.

CHAPTER FOUR

MODEL SPECIFICATION AND REGRESSION ANALYSIS

4.0 Model Specification

This chapter shows the model specification and presents the empirical results. The framework of analysis in this study is based on the Ando-Brumberg-Modiglian life-cycle saving model where consumption is a function of lifetime resources.

$$C_t = \frac{1}{LE}\left[Y_t + (D-T)Y^e + A_{t-1}\right] \quad (1)$$

Where C_t represents consumption

LE represents Life expectancy from the date of interview,

Y_t represents actual income in the present time t,

D represents age at death,

Y^e represents expected income in subsequent periods,

A_t represents assets held,

T represents age in period t.

The expected future income expression is then re written as the sum of future income plus expected pension benefits after retirement. Assuming future earned income to be equal to income in period t (or that the rate of growth of earnings is equal to the discount rate), then total expected income was written as follows:-

$$(D-T)Y^e = (R-T)Y_t + (D-R)PEN \quad (2)$$

Where R represents expected retirement age. Therefore:-

$$C_t = \frac{1}{LE}\left[Y_t(1+R-T) + (D-R)PEN + A_{t-1}\right] \quad (3)$$

$$S_t = Y_t - C_t \quad (4)$$

$$S_t = Y_t - \frac{1}{LE}\left[Y_t (1+R-T) + (D-R)PEN + A_{t-1} \right] \quad (5)$$

$$= \frac{D-R-1}{LE} Y_t - \frac{(D-R)PEN}{LE} - \frac{A_{t-1}}{LE} \quad (6)$$

Where PEN = Expected benefits.

From this expression, the propensity to save out of earned income, Y_t is proportional to the ratio of an individual's retirement span (D-R-1) to one's total life expectancy (LE). Total savings was reduced by a fraction, also dependent on retirement and/or life expectancy, of expected pension income and total assets. To test this model, each individual's earned income, expected pension and life assurance benefits was introduced into the equation weighted by the appropriate ratio of retirement year to life expectancy. Assets were also introduced divided by the individual's life expectancy.

The model used was based on equation 6. The regression was hence based on the following equation:-

$$S_t = \alpha_0 + \alpha_1 \left(\frac{D-R-1}{LE}\right) Y_t - \alpha_2 \left(\frac{D-R}{LE}\right) PEN - \alpha_3 \left(\frac{D-R}{LE}\right) LAB - \alpha_4 \left(\frac{A_t}{LE}\right) + D-t$$

. . . (7)

Where LAB stands for expected life assurance benefits PEN expected plan benefits and D the dummy variables. Step-wise regression analysis was used as the estimation technique.

4.1 The Data

As mentioned earlier the data for this study was derived from a survey conducted in Umoja I Estate.

The questionnaire was structured in a manner that made it possible to gather data about the following specific attributes of the sampled household heads.

Income - From the survey net family income was established. This was income from employment and that from any other sources, that is, businesses.

Assets - Detailed information on family assets was collected.

Retirement age - A series of questions were asked concerning compulsory retirement age, whether the respondent planned to retire early or (in the absence of compulsory retirement), the age at which he/she planned to retire. From this set of questions an "expected retirement age" was constructed. Persons who failed to answer these questions were assigned a retirement age of 55 years.

Life Insurance benefits- The value of one's insurance cover was established and life insurance benefits were assessed from this.

Life expectancy - Each respondent was assigned a life expectancy based on his/her age. It has however been established from many pension schemes that on average people retiring at the age of 55 years receive pension for a period of 15 years. Therefore life expectancy was calculated from the age of 70 years.

Pension benefits- This was calculated based on one's present income. It shall was therefore proportional to income.

Savings - A question was asked to establish savings that each individual was able to make on monthly basis.

Social-economic variables- Some social-economic variables were included in the regression in an attempt to specify the saving relationship more precisely. Dummy variables were included for the level of education, level of additional income and dependents. Those with education of 7 years and below were assigned 0 and those with above were assigned 1. Those with less than 3 dependents were assigned a value of 0 and those with more than this were

assigned a value of 1. Those with an additional income of less than Ksh. 3000 were assigned a value of 0 and those more this were assigned a value of 1. There were intentions to use attitude towards inheritance as a dummy but this was decided against after all the respondents gave positive answers to this question, that is, they all wished to leave inheritance.

4.2 Regression results

The regression had the following variables.

X18ab = level of savings (Dependent variable)
XL = Expected life assurance benefits,
XP = Expected pension benefits,
YT = Expected income earnings,
XA = Total Assets,
X5A = level of education (Dummy variable),
X11A = Level of additional Income (Dummy variable),
X4A = number of depedents (Dummy variable),

Var.	Mean	Std. Deviation
X18AB	56.875	51.114
X5A	.667	.482
X11A	.708	.464
XL	53005.834	87715.394
XA	12434.471	12652.355
X4A	.833	.381
XP	171641.091	112532.981
YT	2927.749	1232.378

The above shows that all variables used had a finite mean and a finite variance.

Correlation Matrix:

	X11A	X18AB	XL	XP	YT	X5A	XA	X4A
X11A	1.000							
X18AB	.262	1.000						
XL	.215	-.115	1.000					
XP	-.114	.063	.362	1.000				
YT	.005	.247	.323	.952	1.000			
X5A	-.065	.318	.080	.304	.347	1.000		
XA	.309	.451	.127	.213	.402	.191	1.000	
X4A	.205	-.207	.276	.300	.417	.158	.414	1.000

There is low correlation amongst most of the variables. The correlation between X11A and YT is low at 0.005 this may imply that most of the income is generated from formal employment. YT and XP are highly correlated with a correlation of 0.952, this could be because many people may consider pension benefits as future income. X4A and X18AB have a low correlation, the reason for this could be that the higher the number of dependents the lower is one's ability to save.

Multiple R	.87750
R Square	.77000
Adjusted R Square	.66938
Standard Error	29.39025

The above shows that the explanatory power of the model is 77 percent. This means that the variables identified in the determination of savings explain 77 percent of the changes or variations in savings. This is a good fit given that the study was based on cross-sectional data. The remainder 23% may be explained by other variables such as consumption and past savings.

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	46270.03800	6610.00543
Residual	16	13820.58700	863.78669

F = 7.65236 Signif F = .0004

F= 7.65236 rejects the null hypothesis of H_0 : R^2 /= 0 in favour of H_1 : R^2 > 0 showing that all the regression coefficient are not 0 hence they are significant in magnitude. This therefore shows that the model is significant.

Variables in the Equation

Variable	B	SE B	Beta	t Sig	t
YT	.09940	.02443	2.39667	4.069	.0009
X11A	14.21371	15.32507	.12911	.927	.3675
X5A	22.73248	13.72300	.21416	1.657	.1171
XL	-3.03417E-06	8.20631E-05	-5.207E-03	-.037	.9710
X4A	-93.66514	19.59839	-.69761	-4.779	.0002
XA	5.658592E-04	6.78623E-04	.14007	.834	.4166
XP	-9.48375E-04	2.53127E-04	-2.08795	-3.747	.0021
(Constant)	-25.41947	25.38042		-1.002	.3315

With the exception of Assets (X4) with a t - significance value of 0.834 all the other variables met the hypothesized signs. Expected income, level of education, additional income, and Assets were found to affect the level of savings positively. Number of dependents, expected life assurance benefits and expected pension benefits were found to affect the level of savings negatively.

The elasticities for variables that are significant at 10% level of significance have been calculated below:

YT = 0.09940 * 2927.749/56.875 = 5.1168

X4A = -93.66514 * 0.833/56.875 = -1.3718

XP = -0.0009 * 171641/56.875 = -2.7161

These results show that a 10% change in the level of expected income earnings(YT) results in savings increasing by 51.1%, to raise savings therefore income should be increased. A 10% change in the number of dependents(X4A) results in the level of savings decreasing by 13.7%, to raise savings the number of dependents may be decreased. A 10% change in pension benefits(XP) results in the level of savings decreasing by 27.1%.

Variables that were found not to be significant in affecting the level of saving at 10% level of significace were, the level of additianal income, expected life assurance benefits, level of education and value of assets.

Durbin-Watson Test = 1.87672

Given that $0<1.8<2$ there is some degree of positive correlation which is not strong.

Outliers - Standardized Residual

Case #	*ZRESID
86	1.51169
64	1.49093
26	1.44637
4	-1.37670
42	-1.26118
18	1.10230
62	-.95123
43	-.87925
79	-.87639
77	-.84025

The above outliers could have lead to R^2 not being very high, and could also have resulted to the standard error of the model being big.

For comparative purposes the above outliers have been dropped and the regression analysis re-run, the result is that there is an improvement in the test statistics and coeffoicients as shown

later. Caution should however be taken since removing these cases means that the randomness of the data is destroyed.

Histogram - Standardized Residual

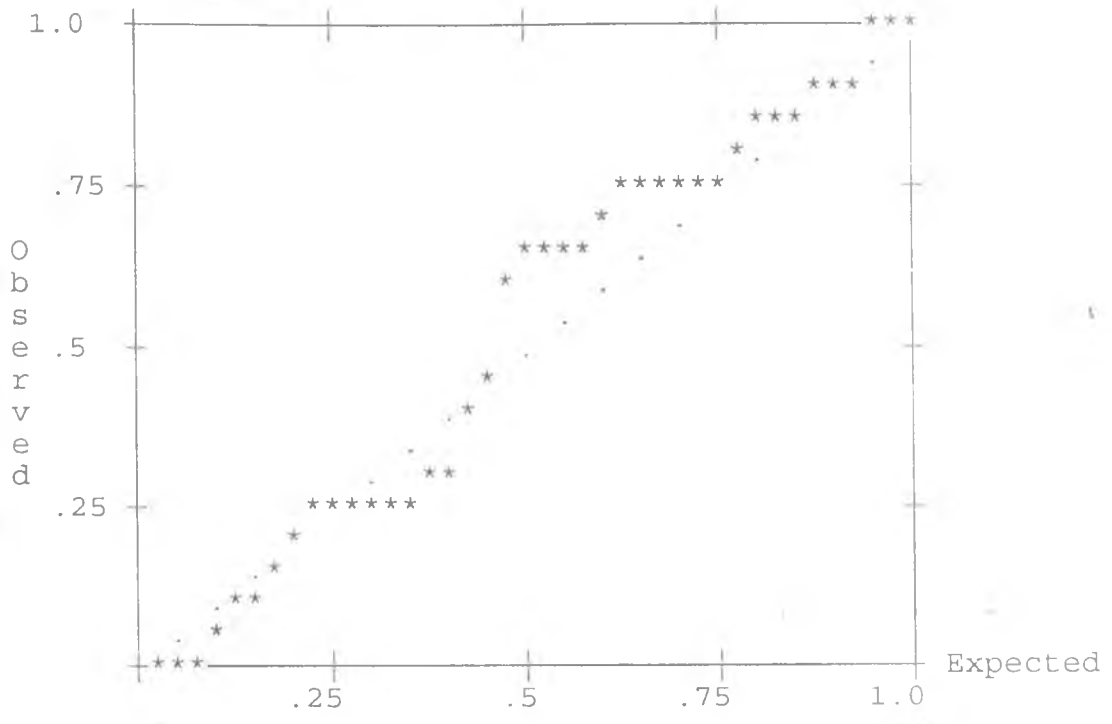
NExp N (* = 1 Cases, . : = Normal Curve)

```
0   .02   Out
0   .04  3.00
0   .09  2.67
0   .21  2.33
0   .44  2.00
1   .80  1.67 :
2 1.32   1.33 :*
1 1.94   1.00 *.
2 2.55    .67 **.
2 3.01    .33 **.
6 3.18    .00 **:***
4 3.01   -.33 **:*
0 2.55   -.67   .
4 1.94 -1.00 *:**
2 1.32 -1.33 :*
0   .80 -1.67 .
0   .44 -2.00
0   .21 -2.33
0   .09 -2.67
0   .04 -3.00
0   .02   Out
```

The standard residuals are approximately normally distributed, this is evident from the approximate normal curve where the residuals fall in the range 1.33 and 1.33.

Normal Probability (P-P) Plot

Standardized Residual



The curve shows that there were more positive outliers than negative ones. However, there were no extreme outliers.

Regression results after dropping the ten outlier cases reported on page 39

	Mean	Std. Deviation
X18AB	64.000	57.607
XL	61254.875	103502.857
XP	194361.601	134338.324
YT	3180.584	1399.657
X5A	.600	.507
XA	13082.892	13974.079
X11A	.800	.414
X4A	.867	.352

The above shows that all the variables still have a finite mean and a finite variance.

Multiple R	.96774
R Square	.93651
Adjusted R Square	.87303
Standard Error	20.52725

R^2 improves from 0.77000 to 0.93651 while the standard error drops from 29.39025 to 20.52725.

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	43510.42375	6215.77482
Residual	7	2949.57625	421.36804

F = 14.75142 Signif F = .0011

The degrees of freedom drop from 24 to 15 and the F statistic increases from F = 7.65236 to F = 14.75142.

Variables in the Equation

Variable	B	SE B	Beta	t	Sig t
X4A	-115.15737	19.12047	-.70339	-6.023	.0005
X5A	34.90554	11.44598	.30726	3.050	.0186
XL	-3.25997E-05	6.23339E-05	-.05857	.523	.6171
X11A	25.89972	19.04430	.18615	1.360	.2160
XA	6.120677E-04	5.74013E-04	.14847	1.066	.3217
YT	.10652	.02337	2.58805	4.559	.0026
XP	-9.99310E-04	2.43902E-04	-2.33037	4.097	.0046
(Constant)	-28.43501	23.30776		1.220	.2

There is an increase in of all the variables t statistics. Unlike in the previous case at 10% level of significance the level of education becomes significant.

The elasticities for the now significant variables are shown below:

X4A = -115.15 * 0.833/64 = -1.4987

YT = 0.10652 * 3180.584/64 = 5.2937

XP = -0.0010 * 194361.601/64 = -3.0369

X5A = 34.90554 * 0.600/64 = 0.3272

The above results show that a 10% change in the number of dependents would result in the level of savings decreasing by 14.9%, previously this effect was 13.7%. A 10% change in expected income earnings would result in savings increasing by 52.9%, peviously the effect of such a change was 51.1%. A 10% change in pension benefits would result in savings decreasing by 30.3%, previously this change had an effect of 27.2%. A 10% change in the level of education would result in the level of savings increasing by 3% this, as is been said above was previously not a significant variable.

Durbin-Watson Test = 2.16146

The Durbin-Watson Test statistic changes from 1.87672 to 2.16146. This now shows that there is some degree of negative correlation unlike in the previous case where the correlation was positive.

CHAPTER FIVE

SUMMARY AND POLICY IMPLICATIONS

5.0 Summary

The main objectives of the study were to test whether pension and life assurance schemes act in lowering the level of private savings, evaluating whether these schemes result in early retirement identifying other factors that affect the level private saving and making policy from the findings.

Studies carried out mainly in western nations have been inconclusive on the impact of social security schemes on private savings.

The framework of the analysis of this study was based on the Ando-Brumberg Modiglian life-cycle saving model in which consumption is a function of lifetime resources.

Data requirements for the study was obtained from primary source by administrating a prepared questionnaire in Umoja I Estate, during the month of July, 1994. This estate was chosen as it was thought to be most representative of the middle income estates. Sample selection was based on a stratified sample of the Estate's construction plan.

The sample was found to have 61 males and 38 females household heads, their age distribution was skewed towards the younger generation. That is people within the 35-40 years age bracket and below. In the sample 94.9% of the respondents were found to be members of pension schemes. The remainder 5.1% were in private business and were therefore not enrolled into any pension scheme of those who were members of a pension scheme only 14.1% of them believed that benefits derived from the schemes would provide them with adequate income during their retirement years. In the sample 30.3% percent of the respondents were found to have an insurance cover, and out of these only 6.1% of them thought that benefits derived from their policies would provide them with adequate income

during their non-active years. Other than for economic security most respondents said that they purchased life assurance policy for various other reasons such as, to act as a form of saving, to be able to obtain loan from their policies, company policy and due to influence by insurance agents.

A majority of the people interviewed, that is 64.6 per cent said that they wished to retire early. The respondents who had attained college/university level of education were found to be 50.5%. An interesting characteristic of the sample was that all those interviewed said that they would wish to leave bequest to their dependent.

Variables that were used for the regression analysis are expected life assurance benefits, expected pension benefits, expected income benefits, total assets, level of education, level of additional income, number of dependents and level of savings which was used as the independent variable. The results showed that there was low correlation amongst most of the variables other than between expected income and pension benefits with a correlation of 0.952. This high correlation was thought to be as a result of the reason that people tend to regard pension as future income. The model was found to have an explanatory power of 77 per cent.

Not all variables considered were found to have a significant effect at 0.10 level of significance. Variables which were found to be statistically significant at this level are expected level of education, number of dependents and expected pension benefits. Variables that were not significant at this level are expected life assurance benefits, level of additional income, assets worth. Expected income, level of additional income level of education and assets worth were found to have a positive impact on the level of savings while the other variables were found to have a negative impact. All the variables other than assets worth meet their hypothesized signs.

5.1 Policy Implications

From the survey a number of policy implications may be drawn.

First, expected Pension benefits were found to lower the level of private savings. The government should therefore ensure that pension schemes are well run so as to provide individuals with the necessary benefits when they retire. Many individuals may have to rely heavily on these benefits in their old age. This is important taking into account that family based social security in old age is getting eroded fast.

Secondly, expected earnings were found to be statistically significant in encouraging private savings. The government should institute policies that lead to improvement in peoples incomes and especially those in lower income brackets. improved incomes would result in more savings.

Third, the level of education was found to be a significant factor in enhancing the level of saving. This could be because education does enlighten individuals on the need to save so as to have a secure future. The government should therefore make educational opportunities be more readily and cheaply available to all. This could be a long term policy.

Fourth, in an estate that was thought to be well representative of a middle income estate, it was found that most of the of residents, that is 46.5% had an income of Ksh 8,000 and above which according to the consumer price index should fall within the high income bracket. This shows that peoples' purchasing power has been seriously eroded as a result of the structural adjustment program. The government should therefore revise income brackets to tally with the current money purchasing power.

Lastly, only a small number of the respondents that is 30.4 were found to be holding an insurance policy. Since there are many benefits the economy and people accrue by holding this, such as mobilizing savings and providing security to individuals, the government should improve the existing tax concessions given to

individuals who hold an insurance cover, with a view to encouraging more people to purchase insurance policies.

5.2 Limitation of the Study

Due to time and financial constraints. The study covered only a small number of household heads, that is 100. Further to this the household heads were all residents of one Estate namely Umoja I Estate. Though the Estate was carefully chosen as it encompass most of the characteristics of a middle income estates. The respondents may not have been well representative of the middle income group.

Many of the questions asked centered mainly on the household's financial status, this being a sensitive issue, there may have been some understatement of financial standing as is the characteristics of most people to do. This could have affected the accuracy of the data and that of the empirical results.

Finally, for a research that aims to establish the effects of pension scheme and life assurance policies on private savings. It is rather unfortunate that the survey was done at a time when the economic environment was rapidly changing. This is as a result of implementation of the Structural Adjusted Program. The sharp rise in the price of goods and services has meant that peoples incomes are highly and quickly eroded. Most people are therefore forced to cut back on their savings in order to meet their daily consumption. This may have lead individuals to be unable to subscribe money in any form, and could have been the cause why a great majority of the respondents were found not to have life assurance policies. as to save very little at the time the interview was conducted.

5.3 Further Research

The study was carried out at a time of an unstable economic environment, as a result of the sharp rise in the price of goods

and services. A follow-up survey should be conducted in a favourable period without extremes in economic events like such a time when the government is able to manage the rate of inflation. This follow-up study should encompass all the middle income Estates in the city and also a larger number of household heads. This as earlier mentioned was not possible due to time and financial constraints. A study of such a kind would augment the results of this study.

ANNEX A: QUESTIONNAIRE

Good Morning,

My name is .....

I am a student at the University of Nairobi currently pursuing a master's degree course in Economics. I am conducting a survey on pension and life assurance schemes to try and ascertain the effects that they have on private personal savings. I would be most greatful if I could see the household head to help answer such questions. I assure you that any information you shall give will be treated in strict confidence, and will be used purely for my academic work in the degree of Master of Arts in Economics.

House Number_____

1. State your age category.(Tick where appropriate) Sex: M. F.
   (a) 20-25
   (b) 25-30
   (c) 30-35
   (d) 35-40
   (e) 40-45
   (f) 45-50
   (g) 50-55
2. Marital status.
   (a) Single ———
   (b) Married ———
   (c) divorced ———
   (d) Widowed ———
   (e) Other (Specify) ————
3. Number of dependents. ————
4. Highest level of education? ————
   (a) None (0) Years
   (b) primary (1-8) Years
   (c) Secondary (9-13) Years
   (d) University/College (14 and over) Years

   * Indicate the number of years where appropriate.

5. Are you formally employed? Yes —— No ——

6. If employed, Who is your employer?

   (a) Civil service (The Government)

   (b) A parastatal organization,

   (c) A private company/person,

   (d) Self employed,

   (e) Casual Employment,

   (f) Other (Specify)

7. What is your occupation? _____

8. How much money do you earn per month? Tick income category.

   (a) 3,000 - 4,000

   (b) 4,000 - 5,000

   (c) 5,000 - 6,000

   (d) 6,000 - 7,000

9. Do you have any other additional income? Yes —— No ——

10. If yes, Indicate the source.

    1. profit
    2. Interest
    3. Rents
    4. Gifts and Transfers
    5. Dividends
    6. Other (Specify)

11. How much money do you get from these sources per month? Tick income category.

    (a) 0 - 500

    (b) 500 - 1,000

    (c) 1,000 - 2,000

    (d) 2,000 - 3,000

    (e) 3,000 - 4,000

    (f) 4,000 - 5,000

12. Do you own a house/s? Yes —— No ——

13. If yes, What is its value? ——————————

14. Do you own land? Yes ———— No ————

15. If Yes, What is its value? ——————————

16. What other assets do you own?

(a) Shares in the stock exchange

(b) Commercial building

(c) Car/s

(d) Fixed savings in a bank or financial institution

(e) Other/s (Specify)

17. How much would you value them? _____

18. How much savings are you able to make each month?

a) None

b) 0 - 300

c) 300 - 600

d) 600 - 900

e) 900 - 1200

f) 1200 - 1500

g) 1500 - 2000

h) 2000 - 2500

i) 2500 - 3000

j) 3000 - 3500

k) 3500 - 4000

l) 4000 - 4500

m) 4500 - 5000

n) 5000 and over

19. Are you a member of a pension scheme? Yes _____ No _____

20. If yes, Which of these do fall into?

(a) National Social Security Fund,

(b) Civil service pension Scheme,

(c) An ex-gratia Scheme,

(d) Other (specify)

21. Do you contribute towards the scheme/s? Yes _____ No _____

22. If yes, what is your contribution per month?_____

23. Does your employer contribute towards the scheme?

Yes ___ No___

24. If yes, How much per month? _____

25. Can you be able to withdraw your pension earlier than on your retirement? No _____ Yes _____

26. If yes, at what time?

27. What benefits are provided by the pension scheme?

    (a) Normal retirement benefits
    (b) Early retirement benefits
    (c) Death benefits
    (d) Children allowance
    (e) Disability
    (f) Other (specify)

28. Do you have a life assurance policy? Yes —— No ——

29. If yes what is the face value of the policy? Ksh. ——————

30. After how many years will it mature?_____

31. For how many years have you had the policy?_____

32. What benefits are provided under the life assurance scheme?

    (a) Premature death benefits
    (b) accident benefits
    (c) Premature disability benefits
    (d) Pension benefits
    (e) Other (specify)

33. Why did you decide to purchase a life assurance policy?

34. What is your compulsory retirement age? ——————

35. Do you hope to retire earlier than this? Yes —— No ——

36. If yes, at what age do you hope to retire?_____

37. For what reasons do you hope to retire early?

    (a) Start a business
    (b) Change jobs
    (c) Rest
    (d) Gov't policy of retirement
    (e) Other (specify)

38. If you retire with pension benefits, do you hope that this will provide you with adequate income? Yes —— No ——

39. If you get insurance benefits do you hope they will provide you with adequate income during retirement years?

    Yes —— No ——

40. If no How else do you plan to finance your retirement years?

(a) Start a business

(b) Dividends from shares

(c) Transfers from my children

(d) Other (Specify)

41. Do you wish to leave bequests to your dependents?

Yes ——— No ———

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