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PERMANENT INCOME HYPOTHESIS: AN EMPIRICAL EVIDENCE FROM GHANA.

By

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DECLARATION

I hereby declare that this submission is my own work towards the MPhil. Economics and that, to the best of my knowledge, it contains no material previously published by another person or material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

Consumption is a very important aspect of human life that that cannot easily be done away with. It is therefore the aim of this paper to determine the consumption function of Ghana under the Permanent Income Hypothesis. The paper goes further to test whether consumption is influenced by some behavioral tendencies like the conspicuous consumption and the bandwagon effect of consumption. The paper also determined the main causes of low income among retirees. Using a time series data on final household consumption expenditure and real GDP from 1970 to 2010, a Cagan's adaptive expectation model is adopted to test the hypothesis. The results confirmed that indeed the Permanent Income Hypothesis holds in Ghana. Two separate questionnaires were designed for respondents below the age of 60 and another for those above the age of 60. Data for respondents below the age of 60 was used to determine if individuals engaged in conspicuous consumption and or whether they were affected by the band wagon effect of consumption. The results showed that, individuals are not influenced by the consumption of others neither do they consume to display their wealth. With regard to the factors leading to the low income among retirees, the study showed that one's income length of contribution toward the scheme, ability to save before retirement, ability to prepare before retirement and the educational level all have a positive and significant impact on the income of retirees. Based on the findings of this paper, it is recommended that, government policies that aim at increasing consumption through the increment of income should be prolonged or be permanent before the full effect is released. Another policy recommendation is for the National Commission for Civic Education to sensitize Ghanaian about the essence of preparing for retirement. In addition, Banks and financial institutions should design good and attractive saving policies to encourage young people to save.

DEDICATION

This thesis is dedicated to my parents, Mr. and Mrs. Butu and the entire family for their unwavering support and love.

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TABLE OF CONTENTS

Title **Page**

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The Ghanaian economy has seen tremendous growth in GDP over the past two decades. The GDP for 2011 estimate released by the Ghana Statistical Service revealed that the economy grew by 14.4 percent over that of 2010 in real terms. The final estimate of GDP for 2010 recorded an 8 percent growth rate. The service sector documented the highest growth rate of 9.8 percent, followed by the Industrial and Agricultural with 6.9 percent and 5.3 percent respectively. According to the Annual Economic Outlook, (April 2010) household spending is the largest source of spending in the economy of Ghana. Over the years, contribution of household spending to GDP has decreased from 85% in 2000 to a little below 80% in 2010. On the other hand, the contribution of government spending to GDP increased (Ghana Statistical Service, 2011).

In the Ghana Living Standard Survey (GLSS 5) (2008), average annual household expenditure recorded GH¢1918.00 while the mean annual per capita consumption expenditure in Ghana was GH¢644.00. Household in the GLSS is defined as a person or a group of persons, who live together in the same dwelling, share the same house-keeping arrangements and are catered for as one unit. Expenditure on food accounts for two-fifth of total household expenditure. At the intra-regional level, Greater Accra Region recorded the highest per capita expenditure of GH¢1,050.00 whilst Upper West has the lowest of GH¢166.00. Even though the household size in rural households tends to be larger than urban households, the average annual household

expenditure is about 1.6 times higher in urban localities (GH¢2,449) than in rural localities (GH¢1,514). The Ashanti Region, which happens to be the second largest commercial region has a mean annual per capita expenditure of GH¢682 (GLSS 5, 2008).

From the PIH framework, Milton Friedman (1957) categorized both income and consumption into permanent and transitory. His hypothesis postulated that consumption is determined by permanent income and that the marginal propensity to consume out of transitory income is zero. For this reason, irregular income will have no effect on unplanned consumption since changes in transitory income reflect in changes in asset holdings. Individuals are therefore able to respond to changes in income by saving or dis-saving. To him, forward looking agents will smooth their marginal utility of consumption across predictable income changes.

This notwithstanding, a number of literature have documented that household expenditure fall drastically after retirement. This is usually referred to as the" retirement consumption puzzle" (Banks, Blundell, and Tanner, 1998; Bernheim, Skinner and Weinberg, 2001; Miniaci, Monfardini and Weber, 2002; Haider and Stephens, 2003; and Hurd and Rohwedder, 2003).

Using British Family Expenditure Survey, Banks, Blundell and Tanner (1988) documented that total expenditure falls sharply as soon as one retires. Bernhiem et al (2001) interprets the fall in expenditure at the onset of retirement as inadequate preparation for retirement. Banks et al (1998) interpret the decline as the presence of some unexpected news about lifetime resources that occurs at the time of retirement. Angeletos et al. (2001) on the other hand interpret decline in expenditure at the time of retirement as evidence that household preferences are time inconsistent.

Fall in the consumption during retirement has several possible causes; one that individuals lack foresight and are unable to plan and prepare financially for retirement to make up for the fall in their income (Aguila, Attanasio, & Meghir, 2008). Another reason is the fall in their work related expenditure such as expenditure on transportation, apparel and eating out expenses (Banks, Blundell and Tanner, 1998; Miniaci, Monfardini and Weber, 2010). Apart from expenses on clothing and transportation, expenses on saving also start decreasing around retirement age (Aguila et al., 2008)

Most often than not the fall in consumption during retirement is a rational responds to a fall in income. Individuals who prepare for retirement and have a comfortable buffer stock of wealth experience very small changes in their consumption (Borella, Moscarola and Rossi,2011).

Bernheim et. al. (2001) using Panel Study of Income Dynamics (PSID) data, found that: 1) total food expenditure declines by about 30% between the pre and post retirement periods for the average household, 2) the decline in expenditure occurs for both food purchased at grocery stores and food "away from home", and 3) total expenditures decline dramatically regardless of the household's position in the pre-retirement wealth distribution. The research also revealed that while the decline in expenditure is largest among low wealth households, very wealthy households and median wealth households experience similar declines in food expenditure at the time of retirement. The decline in expenditures at the time of retirement was not limited to food.

Retirement, for most households, is a discreet, planned event (Haider and Stephens, 2003). Nonetheless if an individual or household is unprepared for retirement, we would expect that individual or household to switch towards lower quality goods (fattier cuts of meat, generic

brands) or to switch away from luxury goods (restaurants with table service) (Aguiar and Hurst, 2004).

The consumption of a particular good could be influenced by the bandwagon effect. The bandwagon effect arises when the consumer preference for a particular good increase when it's patronage increases. It is quiet surprising to know that the choice of a particular good or service is sometimes based on the overall patronage of that commodity. The youth in particular prefer goods in vogue. The desire to conform to the taste and preferences of their peers motivates them to consume certain goods.

In most developing countries, most households spend lavishly during weddings and funerals. This concept is referred to as conspicuous consumption, which is the buying of many things, especially expensive things, that are not necessary to one's life, and which purchases are done in a way that will make people take notice of the spending of money. It is usually motivated by the desire for prestige, public display of status, or wealth instead of the natural utility derived from the consumption of goods and services. James Duesenberry (1949), in his book *Income, Saving and the Theory of Consumer Behavior*, for example, proposed that a person's conspicuous consumption psychologically depends not only upon the actual level of spending, but also depends upon the degree of his or her spending, as compared with and to the spending of other people. Even though 79% of Ghanaians live on less than US$2 a day, the average funeral in Ghana cost between US$2000 and US$3500 (The Economist, 2007). Same can be said of South African households as they also spend about a year's income to bury a departed member of the family, (Case et al, 2008). Such extravagant expenditure is intended to display the wealth of the family.

Heffetz (2007) suggest that status seeking through conspicuous spending is only relevant for the richest half of the U.S. population, nonetheless Veblen argues that "no class of society, not even the abject poor, foregoes all customary conspicuous consumption" (Veblen, 1899; 85).

Van Kempen (2003) has illustrated that in order to" keep up with the Joneses", the poor in Bolivia are ever ready to exchange their consumption of non-positional goods for the consumption of designer- label goods.

1.1 Statement of the Problem

Consumption is one aspect of the human life which cannot be done away with. Every now and then individual households and the government consume in Ghana. Despite the fact that consumption is one of the fundamental determinants of aggregate economic activities there is no consensus among economists about the consumption hypothesis which represents consumer behavior. Various schools of thought have propounded ways of measuring consumption. Of all the schools of thought, the most commonly used is the Permanent Income Hypothesis. It is however not clear whether consumption in Ghana follows the Permanent Income Hypothesis or not. The question I have always asked myself is what exactly motivates people to spend? Could it be ones' current or expected income, the social status of the person, the environment of the individual or the consumption choices of others? There is a short fall in literature to support PIH when Ghana is put under the economic microscope to study its economic function. Even though economic theory assumes that individuals derive utility from absolute levels of consumption, it is well understood that people are also concerned about how their consumption compares to that of others. One reason is that relative consumption is closely linked to social status.

Retirement under normal circumstances is supposed to be a period within which an individual relaxes and enjoy his or her accumulated wealth. This is however not the case among many civil servants in Ghana. On Wednesday January 25, 2012 the Finder news paper reported the woes of many retired civil servants who described their retirement as 'pure hell'. The paper reported an interview with a police officer who confessed, "I have always dreaded the transition between life in the barracks and retirement and my fears have now been confirmed now that I am in retirement". A retired policeman said. "You can imagine what it feels like to move away from free accommodation, water, electricity- the three most important things in life to a world of ever escalating prices, rent hikes, and other hikes in utilities. It is pure hell" He added.

The question then is why do most retirees find life uncomfortable? Could it be inadequate preparation or very low permanent income?

1.2 Objectives of the Study

The objective of this paper therefore is

1. to estimate the consumption function for Ghana under the permanent income hypothesis,
2. to discover the possible causes of low income among retirees
3. to ascertain if the following forms of consumption hold in Ghana;

- Bandwagon effect
- Conspicuous consumption

1.3 Hypotheses

The main hypothesis of this paper is that, consumption in Ghana does not follow the Permanent Income Hypothesis.

The auxiliary hypotheses are

1. The consumption of individuals is not influenced by the consumption of others
2. The consumption of individuals is not influenced by their desire to show their wealth.

1.4 Justification

Permanent Income Hypothesis has without any reasonable doubt very interesting policy implications. It is therefore not surprising that several economists have attempted to test its empirical validity. One policy implication is that, since transitory changes in income have little or no effect on consumption, innovative government policies would only thrive if agents reckon it as a permanent change. For instance, a cut in taxation will yield the necessary results only when economic agents consider the policy as permanent.

Discovering the causes of the relatively low incomes among retirees would assist both the old (retirees) to manage their resources efficiently and the young (workers) to plan and prepare adequately for retirement.

This study is also necessary because, it would add to the stock of knowledge since to the best of my knowledge, very few work has been done on the Permanent Income in the country.

1.5 Scope of the Study

Secondary data used in the paper covered the GDP and Household Final Consumption expenditure from 1970 to 2010 while the primary data was restricted to individuals in the Kumasi Metropolis in the Ashanti Region of Ghana. A separate questionnaire was designed for individuals below the age of 60 and another for those above the age of 60. The Kumasi Metropolis is convenient in terms of cost and distance to the researcher.

1.6 Organization of the Study

This study is organized into five chapters. Chapter one deals with introduction. This is followed by chapter two where a review of literature, both theoretical and empirical is done. Chapters three and four deal with the methodology and analysis of results respectively. Finally, chapter five is on summary of findings and policy recommendation and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Household's decision on how much to consume or save is a microeconomic question as it deals with the individual units of the economy. However, it has an influence on the economy as a whole since aggregate household consumption determines the behavior of the economy in the short and long run.

The effect of changes in consumer spending on aggregate demand is crucial for short run analysis. Consumption forms about two-thirds of GDP. Hence, fluctuation in the level of consumption can create shocks in the economy. In the short run, the marginal propensity to consume has a hand in determining the fiscal policy multiplier. Household consumption also has a part to play in long run analysis because of its influence on the growth of the economy.

Most often than not, the terms: consumption and consumer expenditure are used interchangeably. There is a clear cut difference between the two. Consumption is the amount of service of a good that is used up in any one period whilst consumer expenditure is the expenditure on consumer goods in a period. The consumption function is used to calculate the total consumer spending in an economy. Various schools of thought have come up with propositions with regards to the measurement of consumption.

From the onset of macroeconomics, a number of economists have written about consumption and have promulgated ways of measuring and interpreting data on consumption. This session is divided in two parts. The first part is a theoretical review on the various schools of thought on

consumption while the second part is an empirical review on consumption with much emphasis on permanent income.

2.1 Theoretical Review

2.1.1 Concept of Consumption

The UN Statistical Classification System called "Classification of Individual Consumption According to Purpose" (COICOP) divides expenditure into food and non-food components. The non-food component comprises expenditure on alcoholic beverages, tobacco and narcotics; clothing and footwear; housing, water, electricity, gas and other utilities; health; education; recreation; personal care and durable goods. The survey found food to be the major component of households' expenditure in Ghana, accounting for 40.4 percent of the estimated total annual expenditure (GLSS, 2008).

Valentino Piana (2001) defined Consumption as the value of goods and services bought by people. According to her, Consumption may be divided based on the durability of the purchased objects and the needs it satisfies. In terms of durability, consumption may be classified as durable goods (as cars and television sets), non-durable goods (as food) and services (as restaurant expenditure). These three categories often show different paths of growth. In terms of the needs it satisfies, it may be grouped into ten categories; Food, Clothing and Foot Wear, Housing, Heating and Energy, Health, Transport, House Furniture and Appliances, Communication, Culture and Schooling, Entertainment (Piana, 2001). Gary S. Becker (1965) also defines consumption as the output of a "home production" function that uses both expenditure and time as inputs.

Consumption is one of the major components of aggregate demand. Consumption decisions have strong influence on the growth of an economy. It is an indisputable fact that consumption is among the basic determinates of aggregate economic activities. However, there is no clear cut procedure as to how to measure the consumption level of an economy. There are various schools of thought concerning the consumption behavior of a rational consumer. The most common consumption hypothesis are; The Relative Income Hypothesis (RIH), The Absolute Income Hypothesis (AIH), and The Permanent Income Hypothesis (PIH) and the Life Cycle Hypothesis (LCH).

2.1.2 Models of Consumption

2.1.2.1 Keynesian Consumption Function

Consumption was the main focus of John Maynard Keynes' paper, *General Theory of employment, interest and money*, which was published in 1936. His consumption theory has played a crucial role in macroeconomics even though some questions have been raised about the theory.

In his work, Keynes supported his consumption model with the three fundamental Laws of Consumption. He defined the fundamental psychological law of consumption as, "The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases but not by as much as the increase in the income." The Keynesian consumption model is written as;

$$C = \dot{c} + dY \qquad \dot{c} > 0\,, \quad 0 < d < 1$$

Where C is consumption, Y is disposable income and d is the marginal propensity to consume (MPC)

The first fundamental law states that, the marginal propensity to consume is between zero and one ($0 < d < 1$). When income increases, the increment will be divided between consumption and saving since what is not consumed is saved. In other words, when a person earns extra income, he consumes part and saves part. This implies that an increase in income leads to an increase in consumption and saving.

The second conjecture was that, the average propensity to consume ($\frac{C}{Y}$) falls as income increases. Average propensity to consume (APC) is the ratio of consumption to income. As income increases, the rich consume a lesser proportion of their income and save a larger share. The poor on the other hand consume a relatively larger share of their income and consume a lesser share. To Keynes saving is a luxury which only the rich can afford.

$$APC = \frac{C}{Y} = \frac{\dot{c}}{Y} + d$$

Thirdly, Keynes' Fundamental Law of consumption assumes that aggregate consumption is a function of aggregate disposable income. In his model, current consumption expenditure is determined solely by current disposable income. To him, on the run of the mill, rational consumers increase their level of consumption upon an increase in income. Nonetheless, this increase in the level of consumption is not proportional to the increase in income.

In Keynes' work, he made certain assumptions to back his work. He assumed that, the spending pattern of consumers does not change. In other words, MPS is stable. He also assumed that there

would be no war, no hyper inflation, no drought, no financial crisis, thus, economic activities must be stable. In the assumed stable economy, there must be no government intervention.

Even though Keynes' work was found to be empirically true, two anomalies rose about the APC. Thus an increase in consumption will lead to a fall in the average propensity to consume. The first anomaly was detected when during the Second World War households income increased together with a fall in consumption over a long period of time. Based on the Keynesian consumption function most of the economists of that era feared that once the war ended, the US economy would fall into a depression or secular stagnation since savings had increased. Their apprehension was that after the war, a fall in government expenditure would lead the economy into a depression unless a fiscal policy was used to increase aggregate demand. However, the opposite occurred as private demand increased after the war. The rationale is that, during the war, consumers converted their savings into government bonds so when the war ended people had excess stock of assets. The excess stocks of assets lead to an increase in consumption demand. This observable fact implies that, aside current income, assets has an influence on the level of consumption.

The second anomaly arose from Simon Kuznets' aggregate data on consumption and income. Using five year moving averages of consumption spending, Kuznets (1946) showed that long run time series consumption data for the U.S. economy are characterized by a constant aggregate APC, a finding that is inconsistent with Keynesian consumption theory. Thus he discovered that, the average propensity to consume was stable over time even though there was a consistent rise in income over the period he studied. Kuznets findings were divergent to Keynes' conjecture that, the average propensity to consume falls as income increased. The result of Kuznets and the

failure of the stagnation thesis reveal that the average propensity to consume is fairly constant over a long period of time.

2.1.2.2 Intertemporal Choice.

The Intertemporal Choice model was developed by an American Economist called Irving Fisher. The theory materialized in the 1940s, after the failure of the Keynesian model. Contrary to Keynes who assumed that current consumption is mainly determined by current income, Irving Fisher proposed a model which explains how rational consumers make choices concerning how much to consume today and save for tomorrow in order to maximize utility. He identified that people had a desire to consume more but are constrained by their income. Thus their budget constraint hindered them from consuming as much as they wanted. He went on to compare consumers' decision on how much to consume today with how much to save for tomorrow with regards to the total resources available to him. This is known as the Intertemporal Budget Constraint.

To have a better understanding of Fisher's model, we assume that the individual's lifetime is made up of two periods- current and future, the individual earns Y_1 and consumes C_1 in period 1(current period) and earns Y_2 and consumes C_2 in period 2 (future period). The model also assumes that the individual can borrow or save in the capital market at the same interest rate *r*. what this means is that what is not consumed is saved thus consumption in any period can be greater or lesser than the prevailing income.

$$C_1 + S \leq Y_1 \quad \text{...(1)}$$

Saving in period one is consumption minus income.

$$S = Y_1 - C_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

If $C_1 > Y_1$, then the consumer is saving and $S > 0$ (saving is positive). If $C_1 < Y_1$, then the consumer is borrowing and $S < 0$ (saving is negative).

Consumption in the second period comprises of period two income, accumulated saving and interest earned on the saving

$$C_2 = (1 + r)S + Y_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Equations 1 and 2 can be combined to derive the consumer's budget constraint which is

$$C_2 = (1 - r)(Y_1 - C_1) + Y_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Rearranging the terms we have

$$(1 + r)C_1 + C_2 = (1 + r)Y_1 + Y_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Divide both sides by (1+r)

$$C_1 + \frac{C_2}{(1 + r)} = Y_1 + \frac{Y_2}{(1 + r)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Equation 6 is the consumer's intertemporal budget constraint. At a zero interest rate total consumption in period one and two will be equal to the total income in period one and two respectively. Y_2 and C_2 are discounted by (1+r); when r>0 thus $\frac{1}{(1+r)}$ is the amount the consumer has to forego in order to earn 1 unit of C_2 thus consumption in the future. The consumer therefore has the prerogative to choose between C_1 *or* C_2.

An increase in income allows the consumer to choose a good combination of C_1 or C_2 (thus both present and future consumption). The consumer spreads consumption over both periods irrespective of the period the increase in income occurred, whether in period one or two. This is because the consumer can lend or borrow between the two periods. This economic behavior is known as consumption smoothening. According to Fisher, consumption at any point in time depends on the present value of current and future income, where future income is discounted by the interest rate.

2.1.2.3 The Relative Income Hypothesis

The Relative Income Hypothesis is founded on two hypotheses. The first hypothesis is that consumers are not so much concerned about their absolute level of consumption as they are with their consumption relative to that of the whole population.

The Relative Income Hypothesis, developed by James Duesenberry (1949) does not begin with consumer utility function as compared to other models. According to Duesenberry, the individual utility is a ratio of consumption to the weighted average of the rest of the population's consumption. $U = U\left(\frac{C_o}{R_o} \ldots \ldots \frac{C_t}{R_t} \ldots \ldots \frac{C_T}{R_T}\right)$. Thus, the individual's utility increases only when the consumption rises relative to that of the average. This implies that, the APC $\left(\frac{c}{y}\right)$ of the individual depends on his position in the income distribution. The $\left(\frac{c}{y}\right)$ ratio will be high for an individual whose income falls below the average income. And the $\left(\frac{c}{y}\right)$ will be low for an individual whose income falls above the average income. This clarifies why the cross-sectional result is that MPC<APC and also in the long run, the $\left(\frac{c}{y}\right)$ is constant.

The second assumption under the RIH is that, current consumption of an individual does not only depend on relative or absolute income, but also on previous levels of consumption. It is very complicated for a family to reduce a level of consumption once attained than to reduce the level of saving to smoothen consumption. This means that, the aggregate ratio of saving to income depends on the level of present income relative to previous peak income $\hat{y}$. Giving s as savings and y as real disposable income, we have equation 6 where as the income rises relative to its previous peak, savings to income ratio increases and when income falls relative to its previous peak, savings to income ratio falls.

$$\frac{s}{y} = a_0 + a_1 \frac{y}{\hat{y}} \dots\dots\dots\dots (6)$$

The Duesenberry consumption function can be derived by substituting $\frac{c}{y} = 1 - \frac{s}{y}$ into equation (6) and multiplying the $\left(\frac{c}{y}\right)$ ratio by y. Thus

$$\frac{c}{y} = (1 - a_0) - a_1 \frac{y}{\hat{y}} \dots\dots\dots\dots\dots\dots (7)$$

$$c = (1 - a_0)y - a_1 \frac{y^2}{\hat{y}} \dots\dots\dots\dots\dots\dots (8)$$

The MPC is obtained by computing the partial derivative of c with respect to y;

$$MPC = \frac{dc}{dy} = (1 - a_0) - 2a_1 \frac{y}{\hat{y}} \dots\dots\dots\dots (9)$$

The Duesenberry relative income hypothesis implies that, in the short run MPC<APC as can be observed from equations 7 (APC) and 9 (MPC).

Accordingly, economy-wide increases in absolute incomes which do not affect the relative income distribution will have little impact on the behavior of consumers in terms of the share of income consumed. This explains Duesenberry's RIH for the stability of the average propensity to consume over long periods of time.

2.1.2.4Life Cycle Hypothesis

This hypothesis was postulated by Franco Modigliani and Richard Brumberg in the early 1950's The hypothesis assumes that, the individual is faced with an income stream that is relatively lower at the beginning (youthful age) and end of his or her life (old age) and high in the middle age of the person. The theory also assumes that, the individual has a fairly constant consumption level. Thus he or she is a net borrower during his early years. This is because consumption level is fairly higher than the income level of the individual during the beginning of his or her life. During the middle age, the individual saves to pay back what he borrowed and also saves toward the future (retirement). This implies that consumption is expected to be stable over ones' life span even thought there would be fluctuations in income. Consumption is therefore smoothened by borrowing and saving.

2.1.2.5 Permanent Income Hypothesis

Milton Friedman (1957) used Irving Fisher's intertemporal choice to explain consumer behavior. Just like Modigliani, he argued that consumption does not only depend on current disposable income as proposed by Keynes. In contrast with the LCH which emphasized that income follow a regular pattern over a person's lifetime, the PIH emphasizes that people experience random and temporary changes in their incomes from year to year.

According to Friedman, consumption is determined by the expected income or permanent income. This expected income is an ex-ante variable which is not observable (Koutsoyiannis)

The Permanent income hypothesis is established by three equations, (10), (11), (12)

$$C_p = K(i, w, u)Y_p \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (10)$$

$$Y = Y^p + Y^y \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (11)$$

$$C = C^p + C^t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12)$$

Equation 10 identifies the relationship between permanent consumption and permanent income. The ratio' *K'* between permanent income and consumption depends on interest rate (*i)* at which the individual can borrow or save; the wealth of the consumer unit (*w*); and the tastes and preference of the consumer (*u*).

Income as presented in equation 11 according to Friedman is a sum of two components, permanent income and transitory income. Thus $Y = Y^p + Y^t$. Friedman defined permanent income as the part of income that people expect to persist. To him, 'The permanent component is to be interpreted as reflecting the effect of those factors that the unit regards as determining its capital value or wealth: the nonhuman wealth it owns; the personal attributes of the earners in the unit, such as their training, ability, personality; the attributes of the economic activity of the earners, such as the occupation, the location of the economic activity, and so on. It is analogous to the "expected" value of a probability distribution (Friedman, 1957).

The transitory component is to be interpreted as reflecting all "other" factors, factors that are likely to be treated by the unit affected as "accidental" or "chance" occurrences, though they

may, from another point of view, be the predictable effect of specifiable forces, for example, cyclical fluctuations in economic activity. In statistical data, the transitory component includes also chance errors of measurement; unfortunately, there is in general, no way to separate these from the transitory component as viewed by the consumer unit' (Friedman, 1957).

Likewise, consumption of the consumer unit has two components, thus the permanent (C^p) and a random transitory component (C^t). According to Friedman, transitory consumption occurs when a temporal condition gives rise to an unexpected or unplanned consumption; examples include an unusual illness, unexpected price fall, bountiful harvest etc. The effect of transitory consumption tends to average out. The permanent component of consumption on the other hand is when consumption is planned or expected.

Friedman held the view that consumption at any point in time should depend on the permanent income of an individual. Consequently, the transitory change in income is used to smoothen consumption by borrowing when the transitory income falls and saving when it is high. Accordingly any transitory changes in income lead primarily to additions to assets or to the use of previously accumulated balances rather than to corresponding changes in consumption. Thus any increase in transitory income adds up to wealth. He defined consumption in terms of purchases which includes durables.

The consumption function under the permanent income hypothesis is presented as

$$C = \alpha Y^p \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (13)$$

where α is the constant that measures the fraction of permanent income, thus the proportion of consumption to permanent income.

The average propensity to consume (APC) therefore can be obtained by dividing equation 13 by *Y*.

$$APC = \frac{C}{Y} = \alpha \frac{Y^p}{Y} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (14)$$

The APC in the PIH function implies that the APC depends on the ratio of permanent income to current income. Thus when current income rises above permanent income, APC falls and when current income falls below permanent income, APC rises. According to Household data on income, income is composed of permanent and transitory income. Transitory income is the random component of the individual's income stream.

The rational consumer aims at smoothening consumption along his income stream, hence has a permanent consumption that is proportional to his permanent income.

$$C^p = kY^p$$

The main assumptions under the permanent income hypothesis include:

1. there is no correlation between transitory and permanent incomes; the covariance of $Y^t and\ Y^p$ is zero
2. there is no correlation between transitory and permanent consumption
3. there is no correlation between transitory income and transitory consumption

The ratio of C^p to $Y^p$is k depends on interest rate, individual tastes and variability of expected income

2.2 Empirical Review

Neng Wang (2005) demonstrates a lower MPC out of human wealth than out of financial wealth through an explicitly solved optimal consumption models. According to him, higher income does not only imply higher level of human wealth but also means a riskier stream of future labour income which leads to higher precautionary saving. He argued that 'a precautionary agent rationally values a unit of human wealth than financial wealth'. The corollary is a lower MPC out of human wealth than out of financial wealth. Following the work of Zeldas (1989) and Caballero (1990,1991), Wang used risk adjusted measure for human capital by calculating expected income at higher discount rates. This puts risk adjusted human wealth and financial wealth on equal footing.

In his paper, Manitsaris (2006) examines the consumption function under the permanent income hypothesis. His research is based on annual data covering the period from 1980 to 2005 for selected 15 European Union member-states. He adopted the combined partial adjustment and the adaptive expectations model as his specification. His analysis revealed a short run elasticity of 0.531 and a long run elasticity of 0.872 and an adaptive expectation coefficient of 0.609. This implies that, a one percent increase in income would increase current consumption by 0.531 percent. However, if there is a continual increase in income, the elasticity to consume out of permanent income will be 0.872, implying that a 1 percent increase in permanent income would increase current consumption by 0.872 percent. A comparison of the results of these two elasticities to consume show strong support for the consumption function under the permanent income hypothesis and the adaptive expectations model.

Using alternative time series techniques to estimate private consumption for Iranian Southern Province, Saber Motaqed found out that the MPC for urban households was 66% in the long run

and 55% in the short, while MPC for rural household was 86% in the long run and 66% in the short run. He fed annual data from 1983-2007 into the four essential consumption function of Keynes (1936), Friedman (1957), Modigliani (1950), and Duesenberry (1949) and found that Friedman model for urban households and Modigliani for rural households were recognized as optimal ones. He attributed the higher MPC in rural Household to the fact that rural households partly hold a higher amount of consumption (Motaqed, 2011).

Sadullah Çelik (2009) tested whether two monthly figures namely CNBC-e Consumption Index and Manufacturing Industry Output Index can significantly predict the economic growth in Turkish economy. Employing six tests, thus Granger Causality, Unit Root, Cointegration, Vector Error Correction, Impulse Response Functions and Variance Decomposition, Sadullah Çelik found out that, that both the monthly consumption and manufacturing indexes have a significant predictive power for the economic growth in Turkey.

In his paper, Luigi Pistaferri (2000) presented tests of the permanent income hypothesis with quadratic preferences. He then used subjective income expectations to test the hypothesis that households save only in response to transitory shocks, a prediction that derives from the assumption that the stochastic part of income is the sum of a random-walk permanent component and a serially uncorrelated transitory shock. The empirical results of the paper reveal that, savings react strongly to transitory income shocks and also, permanent income shocks are good predictors of household savings. This follows the Buffer Stock behavior as illustrated by Deaton (1991) and Carroll (2000), in which consumers are both impatient and prudent; implying that, savings does not only respond to transitory shocks but permanent shocks as well. However, the respond of savings to permanent shocks is not as massive as that of the transitory shocks. Deaton (1991) and Carroll (2000),

Langemeier & Patrick, (1993) in their paper examined whether farm family consumption is liquidity-constrained and so does not behave according to the life-cycle permanent income hypothesis. The model was tested using both time series and cross sectional information on consumption from farm families in two states. Using records of families enrolled in Farm Management Associations in Illinois and Kansas from 1976 to 1990, they found that consumption behavior is not liquidity constrained. Thus, liquidity- constraints did not avert the consumption of farm families from behaving in accordance with the hypothesis. One implication of the hypothesis is that consumption depends on all resources available to the consumer during his lifetime. Consumer may borrow or lend the amount needed to maintain an optimal consumption plan.

Using time-series data from 48 contiguous U.S. states, Dejuan, Seater, & Wirjanto, (2004), set out to implement a direct test of the implication of the PIH that the size of consumption revision due to an income innovation is equal to the size of permanent income due to income innovations. Their empirical results showed that the size of consumption revision due to an income innovation was equal to the size of permanent income revisions due to income innovations. The two parameters were positive across states and statistically significant as well. The corollary implies that, innovations in current income contain new information about the expected future path of income that leads consumers to change both their consumption and permanent income.

Nicholas S. Souleles (1999) tested the responds of household consumption to income tax refunds. He divided household consumption into food, nondurable and strictly non durables. His data was drawn from the Consumption Expenditure Survey for 1980 to 1991. He found that strictly non durable goods are excessively sensitive to tax refunds contrary to the Life-cycle theory. Souleles establish Liquidity constraint to be the main cause of the excess sensitivity in

nondurable goods since the nondurable consumption of constrained households increased far more than for unconstrained households at the time of refund receipt.

Laumas (1969) tested a looser version of Permanent Income Hypothesis for Canada. He utilized data from the Dominion Bureau of Statistics, Canada for 1958-1966 and followed the work of Bird and Bodkin (1965) which requires that "the marginal propensity to consume out of transitory income, though possibly greater than zero be appreciably smaller than the marginal propensity to consume out of permanent income." He also used time series data of income and consumption to arrive at a conclusive test of zero correlation between transitory income and consumption. Laumas computed two linear regressions; one including durable goods and the other excluding them. His empirical results showed that the difference between the MPC out of permanent consumption and transitory consumption for the regression which includes durable goods was not as large as the difference between the MPC out of permanent income and transitory income for the regression which excludes durable goods.

Jesús Fernández-Villaverde and Dirk Krueger (2002) used Consumer Expenditure Survey (CEX) data to estimate life cycle profiles of consumption, controlling for demographics, cohort and time effects. Even after accounting for changes in family size their main finding was that consumption expenditures for both nondurables as well as durables display a significant hump over the life cycle. This is unlike the fundament proposition of the life- cycle hypothesis. Thus the consumption expenditure for nondurable goods should be smooth. The findings also suggest that households cannot perfectly smooth their consumption of services from durables. Alessie et al. (1997). Using CEX data and some additional assumptions, Fisher and Johnson (2002) compute imputed services from a subset of durables. Their result also reveals a hump, implying a lack of consumption smoothing over the life cycle.

In their empirical studies, Mark Aguiar and Erik Hurst (2004) found that consumption is much more stable across individuals with similar permanent income but different current income than are expenditures. They distinguished consumption from expenditure. Following Becker (1965), they defined consumption as the output of a "home production" function that uses both expenditure and time as inputs. While expenditure on food was described as the time spent on shopping and preparing food, their findings revealed that, predicted income changes, smooth consumption, but not necessarily expenditures, as predicted by the standard PIH. They also found no evidence that marginal utility changes with retirement status. Their empirical results showed that, retired households consume higher quality diet compared to their working counterparts. Quality diet was measured by more vitamins and less cholesterol. Their analysis indicated that consumption is stable, both absolutely and relative to expenditures, during anticipated shocks to income such as retirement.

Hyungi Woo and Christopher Udry in 2006 did empirical studies on household consumption in Southern Ghana. Following the work of Jana Guyer and relying on data from the Ghana Living Statistical Survey, they found that, households have a consistent pattern of expenditure over a wide range of levels of overall expenditure. Food accounts for about 40% of all expenditures by household. This share declines only moderately with income. However, the rate at which the food share declines with increase in expenditure is higher among richer households. In their conclusion, Hyungi Woo and Christopher Udry proposed three assumptions; 1) Ghanaian households, by and large, do not have the flexibility within their budgets to make dramatic changes to the food share; 2) the formal financial sector in the U.S. and Europe may account of the more rapid decline in the food share as their income increases; 3) the consistency in the

pattern of food expenditure in the Southern Sector of Ghana may be as a result of limited information about actual expenditure.

Hanan G. Jacoby and Emmanuel Skoufias (1998) developed an integrated framework for testing theories of consumption behavior –the Complete Market Hypothesis (CMH) and the Permanent Income Hypothesis (PIH) by examining how agrarian households respond to transitory seasonal income fluctuations. According to their paper, consumption pattern under the CMH is similar to the very weak PIH where households are assumed to smooth their intertemporal consumption by borrowing and lending. Under the CMH it is believed that households fully diversify idiosyncratic risk so that idiosyncratic income shocks whether anticipated or not do not affect household consumption. This implies that only aggregate shocks affect an individual's household consumption since all idiosyncratic risk is insured. Their results revealed that, apart from credit markets, debt and gifts between households play a role in seasonal consumption smoothing, in addition, there was no evidence against the hypothesis that households smooth idiosyncratic seasonal fluctuations in their income. Lastly, some households were able to stand aggregate shocks with the help of credit market and informal exchange. Data collected by the International Crop Research between 1975 and 1984 from three South Indian villages was used for the empirical analysis.

Using alternative time series techniques, the corollaries of the above literature basically conclude that, the marginal propensity to consume out of permanent income is high, implying a strong support for the permanent income hypothesis. The literature also showed that, individuals usually save excess income, however, the marginal propensity to save out of a transitory shock is greater than that a permanent shock. Nicholas S. Souleles' (1999) work is quiet questionable. This is because he addressed tax refund as transitory income. A refund cannot be used synonymously to

Friedman's transitory income. This is because a transitory income is defined as a windfall gain, accidental or unexpected income whereas a refund such as a tax refund is subjected to negotiations and is therefore anticipated, Laumas (1969).

Most of these papers tested the presence of permanent income hypothesis in their respective countries using individual data sets. It is therefore imperative of this paper to test the presence of permanent income hypothesis in Ghana using national aggregates. This paper also goes a step further to reveal whether certain behavioral tendencies such as bandwagon effect and conspicuous consumption hold in Ghana. It is also the aim of this paper to identify why the consumption of retirees fall after retirement. If indeed the permanent income hypothesis holds in Ghana, then a fall in consumption among retirees could be attributed to low permanent income.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The focal point of this chapter is to illustrate the methodology employed in this study. A critical look of the study area and period, design of the study, instruments employed as well as data analysis. Quantitative and Qualitative methods are also employed for the analysis of the data. The Cagan's Adaptive expectation model will be used to test the permanent income of Ghana.

3.1 Background of the study area

The study employed both primary and secondary data. The Primary data originated from the Kumasi Metropolis. Kumasi is the Administrative capital of the Ashanti Region of Ghana. It is the most commercialized center in the Ashanti Region a number of concentrated economic activities. The most vibrant of these is the Central Business Center, which encompasses the Cental Market, Adum Shopping Center as well as the Kejetia Lorry Park. The Central Business Center is complemented by other satellite markets like Asafo Market, Bantama Market, Oforikrom Market, Ayigya Market, Ayiduasi Market and Atonsu Market. The Asokwa industrial Area, the Angloga Wood Market along with Suame Magazine (Vehicle repair Center) are all other economic nodes . The metropolis is the fastest growing metropolis with a growth rate of 5.4% and an estimated population of about two million people.

3.2 Background of the Study period

The study period is between 1970 to 2010. Prior to 1980, the Ghanaian economy was in a catastrophic state. between 1970 and 1983, the Gross Domestic Product (GDP) per capita fell by more than 2% per annum, production from the Agricultural sector fell by 0.2% while the Industrial output also dropped by 4.2% per annum (Bawumia, 1998:50). In addition, exports per GDP fell from 21% to 4%. The oil crisis of both 1973-1974 and 1979-1980 also had a tow on the economy. After both the military and civilian officials have failed to bring the economy back on its feet the PNDC turned to the Structural Adjustment Programme. The economy of Ghana has seen tremendous growth after 1980. It is for this reason that the period from 1970 to 2010 is used for the study. The large span of the data provides the opportunity to test for the statistical significance of the work.

3.3 Data Source

Data on real GDP and household final consumption expenditure from 1970 to 2010 were derived from the United Nations Statistical division whiles data on real interest rate was derived from the Bank of Ghana. Information on factors influencing the income of retirees was drawn from the Kumasi Metropolis. Data on whether or not individuals below the age of 60 were influenced by the band wagon effect and or engage in conspicuous consumption was also from the Kumasi Metropolis through the use of personally administered questionnaires. The study was conducted in the Kumasi Metropolis because of its heterogeneous nature and proximity to the researcher.

3.4 Method of Data Collection

The study employed the primary method of data collection because information on the consumer behaviour was not readily available to the researcher. The researcher administered 2 separate questionnaires to assemble information. The first questionnaire was designed specifically for retirees. Thus the respondents were above the age of 60. The questionnaire was used to solicit information from retirees concerning their age, educational level, marital status, the sector they worked in before retiring, their monthly income before and after retirement (Pension allowance) and number of dependents. The questionnaire also found out whether they receive financial support from friends and family members or not, whether or not they prepared for retirement or not as well as whether they are satisfied with their SSNIT monthly income. Respondents were also asked to indicate if their expenses on savings, shelter, apparel, transport, health, utilities entertainment and dependents have increased, decreased or are constant. The second questionnaire was designed for those below the age of 60. The questionnaire was used to solicit information from individuals below the age of 60 concerning their age, educational level, marital status, employment status, monthly income, whether they were engaged in impulse buying, whether they purchased goods and services because others were doing so, whether they spent to display their wealth and whether their expenditure revealed their wealth. The questions revealed the correspondents' attitude toward a windfall gain, whether or not they are preparing for retirement and how they were preparing for retirement.

Convenient sampling technique was used in selecting 400 individuals below the age of 60 and 300 respondents above the age of 60 in the Kumasi Metropolis.

3.5 Method of Data Analysis

This paper employed the use of both quantitative and qualitative method of data analysis. The study uses both the OLS and Fully Modified OLS as an empirical method of estimation for factors influencing low income among retirees and the Permanent Income Hypothesis for Ghana respectively. Data on changes in retires expenditure on saving, shelter, apparel, transportation, health, utility, entertainment and dependents are analyzed descriptively using tables and pie charts. Charts and tables are also employed to descriptively analyze information on individuals who are below the age of 60.

3.6 Empirical Estimation

3.6.1 Model Specification - Permanent income hypothesis

According to Friedman (1957) individuals consumption decisions are based on their expected or permanent income and not their current income. The consumption function under the permanent income hypothesis is therefore written as $C = f(Y_t^p)$. This implies that the individual consumes a fraction of their permanent income.

As stated earlier, the Permanent income hypothesis is established by the following equations, (10), (11), (12)

$$C_p = K(i, w, u)Y_p \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (10)$$

$$Y = Y^p + Y^y \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (11)$$

$$C = C^p + C^t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12)$$

$$\rho_{Y_t^p Y_t^T} = \rho_{C_t^p C_t^T} = \rho_{Y_t^T C_t^T} = 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (13)$$

Where

C is measured consumption

Y is measured income

Y^p is Permanent Income

C^P is permanent Consumption

Y^T is Transitory Income

C^P is Permanent Consumption

$\rho_{Y_t^T C_t^T}$ is the correlation between C and Y

Under the PIH, measured income and consumption are divided into permanent and transitory as depicted in equations 11 and 12 respectively.

Permanent Consumption is determined by permanent income under the PIH, thus

$$C_t^p = \alpha + \beta Y_t^p \dots\dots\dots\dots\dots\dots\dots\dots (14)$$

Permanent income and consumption are ex ante variables, hence are not directly observable as a result, the adaptive rule is applied on the two variables. This means that, expectations are formed in a current period by modifying previous expectations based on actual achievements. The adaptive rule presents the unobserved variables as

$$C_t - C_{t-1} = \Upsilon(C_t^P - C_{t-1}) + \varepsilon, \qquad 0 < \Upsilon \leq 1 \dots\dots\dots\dots (15)$$

Where Υ is the partial adjustment coefficient

$$Y_t^P - Y_{t-1}^P = \lambda(Y_t - Y_{t-1}^P), \qquad 0 < \lambda \leq 1 \dots\dots\dots\dots\dots\dots\dots (16)$$

Where λ is the adaptive expectation coefficient.

α and β are parameters to be estimated.

By substituting equation (12) into (14) a new equation is obtained which is as follows;

$$C_t = \alpha + \beta Y_t^P + C_t^T \dots\dots\dots\dots\dots\dots\dots (17)$$

Equation (17) is presented econometrically as

$$C_t = \alpha + \beta Y_t^P + \nu_t \dots\dots\dots\dots\dots\dots\dots (18)$$

$$where\ \nu_t = \varepsilon_t + C_t^T$$

Making Y_t^P the subject from (18) we have

$$Y_t^P = \frac{1}{\beta} C_t - \frac{\alpha}{\beta} - \frac{1}{\beta} \nu_t \dots\dots\dots\dots\dots\dots (19)$$

Lag (19) by one period

$$Y_{t-1}^P = \frac{1}{\beta} C_{t-1} - \frac{\alpha}{\beta} - \frac{1}{\beta} \nu_{t-1} \dots\dots\dots\dots\dots\dots (20)$$

Following Koustyanis we substitute (19) and (20) into equation 16

$$C_t = \alpha\lambda + \beta\lambda Y_t + (1-\lambda) C_{t-1} + [\nu_t - (1-\lambda)\nu_{t-1}] \dots\dots (21)$$

In the final equation all variables are estimable since they are expressed in actual terms.

$$C_t = \phi_1 + \phi_2 Y_t + \phi_3 C_{t-1} + u_t \dots\dots\dots\dots\dots\dots\dots\dots\dots (22)$$

Where $= \phi_1$, $\beta\lambda = \phi_2$, $(1-\lambda) = \phi_3$ and $[\nu_t - (1-\lambda)\nu_{t-1}] = u_t$

The specific model for estimation is presented in the log-linear form as

$$lnC_t = \phi_1 + \phi_2 lnY_t + \phi_3 lnC_{t-1} + u_t \dots\dots\dots\dots\dots\dots\dots\dots (23)$$

The choice of a log-linear model is based on the fact that the paper seeks to find the percentage change in consumption as a result of a percentage change in current income and permanent income. The second model included real interest rate. This assessed the effect of interest rate on consumption. The final model is given as

$$lnC_t = \phi_1 + \phi_2 lnY_t + \phi_3 lnC_{t-1} + \phi_4 IR + u_t \dots\dots\dots\dots\dots\dots\dots (24)$$

Where ϕ is the elasticity coefficient.

3.6.1.1 A priori Expectations for Permanent Income Hypothesis

Income

According to this study, income is defined as the opportunity usually in monetary, given to an individual to consume or save. For the purpose of this work and for lack of data, Gross Domestic Product (GDP) is used as a proxy for income as done in Manitsaris (2006). GDP is the value of output produce in a particular country over a period of one year. Per the National income approach GDP can be used as a proxy because it is assumed that whatever is produced would earn income. Data on GDP is sources from the United Nations Statistics Division-National Account. Consumption increases as income increases. However the increase in consumption is not as high as the increase in income. It is therefore expected that consumption will have a positive relationship with income. Thus the marginal propensity to consume is expected to be positive but less than one ($0<\phi_2<1$).

Consumption

Consumption can be defined as the value of goods and services bought by people (Piana 2001). It can also be referred to as the utilization of goods and services to satisfy wants. Data on final household consumption expenditure (2000 constant prices) is used as a proxy for consumption. The data is sourced from the United Nations Statistics Division-National Account. Consumption is a function of income. A positive relationship is expected between current consumption (C_t) and lag of consumption or previous (C_{t-1})

Real Interest rate

Real interest rate is lending which has been adjusted for inflation. It is calculated by subtracting inflation from nominal interest rate. Data on real interest rate is obtained from the Bank of Ghana. A negative relationship is expected between interest rate and consumption.

3.6.1.2 Estimation Technique

The fully modified OLS was used to test the validity of the permanent income hypothesis in Ghana. Eviews 7 was employed as the statistical tool. The estimates from the causes of low income among retirees were derived from ordinary least square estimation technique with the help of STATA 11.

3.6.2.1 Unit root testing

There are several tests used for testing the presence of unit root however the study employs only the use of Augmented Dickey-Fuller test and the Phillips- Perron test. This test is conducted to avoid generating spurious regressions. Non-stationary variables such as income and consumption which increase over time have the tendency to produce standard errors that are bias thus unreliable criteria are used to decide whether or not there is a causal relationship between two variables. The choice of the ADF test and the Phillips-Perron test are based on the fact that the former overcomes the problem of serial correlation whiles the later is a non-parametric test implying that it can be use in the presence of a very wide set of problems. (Mahadeva, Robinson, Blake, & Hammond, 2004)

3.6.2 Model Specification- Factors influencing low income among retirees in Ghana.

The Ordinary Least Square was used to estimate the factors influencing low income among retirees in Ghana. A single regression model where was used in the estimation. Monthly income was used as the quantitative dependent variable

The model is therefore specified below as

$$Y = \beta_0 + \beta_1 G + \beta_2 Basic + \beta_3 SHS + \beta_4 Tertiary + \beta_5 Prepared + \beta_6 Saves + \beta_7 Support + \beta_8 Dependents + \beta_9 Public + \beta_{10} Length + \beta_{11} Yb4Retirement + \varepsilon_i$$

Where

Y = monthly income (SSNIT monthly benefit)

G = (Dummy variable; G=1 if male and G=0 if female)

Basic = (Dummy variable; Basic=1 if highest education is basic, Basic = 0 if otherwise)

SHS = (Dummy variable; SHS = 1if highest education is SHS; SHS = 0 is otherwise)

Tertiary = (Dummy variable; Tertiary = 1 if highest education is Tertiary; Tertiary =0 if otherwise)

Prepared= (Dummy variable; Prepares = 1 if he prepared for retirement; prepared =0 if otherwise)

Saved = (Dummy variable; Saves= 1 if saved before retirement; Saved= 0 if otherwise)

Support = (Dummy variable; Support =1 if receives support from friends and family members; Support= 0 if otherwise)

Dependants= Number of dependants

Public = (Dummy variable; Public =1 if worked in the public sector before retirement; Public =0 if otherwise)

Length = Length of contribution

Yb4retirement= income before retirement

3.6.2.1 Expected signs of the estimated parameters for respondents above 60 years

In this study, it is expected that education (basic, SHS, tertiary), length of contribution and income before retirement would have a positive relationship with monthly income (SSNIT pension benefit). This is because calculation of SSNIT benefit is based on the level of income before retirement as well as the number of months one contributed. The relationship however between monthly income (SSNIT pension benefit) and all the other parameters is unknown. This is because it is not certain if gender, number of dependents, ones preparation for retirement, one's ability to save before retirement, the number of dependents one has, the sector one worked before retirement as well as the financial support one receives have any effect on one's pension benefit.

CHAPTER FOUR

ANALYSIS OF RESULTS

4.0 Introduction

The main aim of this chapter is to prove whether or not consumption in Ghana follows the Permanent Income Hypothesis. This chapter has been divided into sections per the objectives of the paper. The first session covers PIH where Eviews7 is used to analyze data on the GDP and household consumption expenditure from 1970 to 2011. Fully modified Ordinary Least Square regression is used to estimate the Cagan's Adaptive Model, which is used to determine if the consumption in Ghana follows the PIH. The second session covers the analysis on the band wagon effect and conspicuous consumption. Results on both the band wagon effect and conspicuous consumption are presented in tables and charts. The third session does a detail analysis of the causes of low income among retirees. A graphical presentation of changes in the expenses of retirees is also done in this session.

4.1 Empirical Results for PIH in Ghana

4.1.0 Summary of Data Used

To test for the existence of the PIH in Ghana, data on final household consumption expenditure and real GDP were derived from the United Nations Statistics Division- National Accounts Main Aggregates Database. Data on real interest rate was also obtained from the Bank of Ghana. (Appendix 5). Two separate questionnaires were used to solicit information on the determinants of low income among retries and the behavior of individuals with regards to what influences them to consume. Questionnaire for respondents below the age of 60 can be observed in Appendix 2 while that of respondents above the age of 60 is recorded in Appendix 1.

4.1.1 Augment-Dickey Fuller Unit Root Test Results

The null hypothesis of the ADF test states that, the time series has a unit root and is not stationary. The alternative hypothesis is that the time series variable has no unit root and therefore it is stationary. The alternative hypothesis is accepted against the null hypothesis when the tau value obtained is greater than the critical value of the ADF test statistic and the Phillips-Perron test statistic in absolute terms. Results for the unit root test are reported in Table 4.1a.

Table 4.1a Augmented Dickey-Fuller Test Statistic

Augmented Dickey-Fuller Test Statistic				
	LEVELS		1st DIFFERENCE	
	Intercept	intercept + trend	Intercept	intercept + trend
LN Y	1.912183	-4.133713**	-4.407768***	-5.565115***
LN C	0.935408	-1.782207	-6.217585***	-6.680067***
Interest r	-1.168104	-4.840515***	-7.293417***	-7.415774***

Table 4.1b : Phillips-Perron Test Statistic

Phillips-Perron Test Statistic				
	LEVELS		1st DIFFERENCE	
	Intercept	intercept + trend	Intercept	intercept + trend
LN Y	2.365306	-0.816288	-4.407768***	-6.344187***
LN C	2.564743	-1.272261	-6.248672***	-16.10119***
Interest r	-3.509548**	-4.789584***	-12.49469***	-13.95278***

** and *** denotes the rejection of the null hypothesis of non-stationarity at 5% and 1% significant levels respectively.

The regression includes both log levels and first difference, where both an intercept (constant) and a linear trend analysis are done.

From Tables 4.1a and 4.1b, it can be observed from both the Augmented Dickey-Fuller Test Statistic and the Phillips-Perron that, consumption is not stationary at the levels. It is only stationary after first difference. It is therefore integrated at order one *I(1)*. According to The Augmented Dickey-Fuller Test Statistic, income has no unit root, hence stationary at both the log levels and first difference. The Phillips-Perron Test Statistic indicates that income becomes stationary after the first difference. Income is therefore integrated at order one *I(1)*. Interest rate according to both the Augmented Dickey-Fuller and Phillips-Perron Test Statistic is stationary at both the levels and at first difference. Interest rate is therefore integrated at order zero *I(0)*.

4.1.1 Results of the Fully Modified OLS

Table 4.1c: Regression results for equation (22); Dependent Variable LN_C_t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_Y	0.904889	0.104648	8.646958	0.0000
LN_C(-1)	0.073564	0.110175	0.667696	0.5087
IR	0.000415	0.000512	0.811991	0.4223
C	0.121036	0.349643	0.346170	0.7313
R-squared	0.984623	Mean dependent var		13.62579
Adjusted R-squared	0.983305	S.D. dependent var		0.405062
S.E. of regression	0.052337	Sum squared resid		0.095871
Durbin-Watson stat	1.639674	Long-run variance		0.001919

The overall significance of the model is provided by the Adjusted R-squared, which is 0.983, implying that 98.3% of the total variation in Ghana's consumption expenditure is explained by the variations in income level, interest rate and the lag of consumption expenditure.

A Durbin-Watson statistic of 1.64 reveals that there is no autocorrelation in the model as it falls within the critical zone of $d_L = 1.338$ and $d_U = 1.659$ at 5% significant level. This is the main reason for using the Fully Modified OLS to run the regression as reduces the problem autocorrelation.

The adaptive expectation coefficient is first computed to derive the long run MPC.

Adaptive expectation coefficient $(\lambda) = 1 - \phi_3 \ldots\ldots\ldots\ldots\ldots\ldots (25)$

Recall from equations 21 and 22

$$C_t = \alpha\lambda + \beta\lambda Y_t + (1-\lambda)C_{t-1} + [\nu_t - (1-\lambda)\nu_{t-1}] \ldots\ldots (21)$$

$$C_t = \phi_1 + \phi_2 Y_t + \phi_3 C_{t-1} + u_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (22)$$

From Table 4.1c

Adaptive expectation coefficient $(\lambda) = 1 - 0.073564 \ldots\ldots\ldots\ldots\ldots\ldots\ldots (26)$

Adaptive expectation coefficient $(\lambda) = 0.9264$

The long run MPC or better still the elasticity of consumption out of permanent income (β) is

$\beta = \frac{\phi_3}{1-\phi}$

$$\beta = \frac{0.904889}{0.926436}$$

$$\beta = 0.9767$$

Table 4.1d: Short-Run and Long-Run Elasticity of Consumption With Respect to Income and Adjustment Coefficient

Elasticity of consumption with respect to actual income	adaptive expectation coefficient (λ)	Elasticity of consumption with respect to permanent income (β)
0.90	0.93	0.98

Estimates from equation 24, presented in Table 4.1c shows the Fully Modified OLS results of Ghana's consumption function under the Permanent Income hypothesis. Table 4.1d shows

Ghana's elasticity of consumption respect to actual income and permanent income as well as the adaptive expectation coefficient (λ) was derived from the Table 4.1c which shows estimates from equation 24.

The result shows that with an elasticity of consumption with respect to actual income at 0.90, a 1% increase in current income would increase current consumption by 0.90%. Thus the short run marginal propensity to consume out of current income is 0.90. Nonetheless, if there is a prolong increase in income, in the long run consumption would increase by 0.98%. Thus the elasticity of consumption out of permanent income is 0.98%. This implies that a one percent increase in permanent income would increase current consumption by 0.98%.

For every average Ghanaian household, a 1% increase in current income and for that matter real GDP, would lead an increase in final household consumption expenditure by 0.9%. The short run marginal propensity to consume out of current income is highly statistically significant at 1% level and it conforms to prior expectation.

From Table 1d, the MPC out of permanent income implies that a sustained increase in GDP of 1% would lead to an increase in final household consumption expenditure by 0.98%. The result exhibits a strong support for the permanent income hypothesis for Ghana. An adaptive expectation coefficient of 0.93 implies that in long run expectations of households in Ghana are realized by 0.93%.

Previous consumption (C_{t-1}) was not statistically significant. Even though it has no direct relation to the paper, its insignificance implies that, previous or past consumption has no effect on current consumption as propounded by Duesenberry in the Relative income hypothesis. Thus previous household consumption expenditure has no significant effect on current household consumption

expenditure. It can therefore be concluded that the relative income hypothesis does not hold in Ghana.

In order to avoid misspecification error, interest rate was included in the model. The inclusion of interest rate in the model is based on the fact that interest rate has an effect on the consumption of goods and services (Kapoor & Ravi, 2009). However in this study interest rate is statistically insignificant. This implies that in Ghana, interest rate has no effect on household final consumption expenditure.

4.2 Empirical Results for Low Income among Retirees.

The ordinary least square is used to estimate the causes of low income among retirees in Ghana.

Table 4.2: Empirical Results for Low Income among Retirees

monthlyinc~e |	Coefficient	Std. Err.	t	P>|t|
constant |	-221.0738	67.63513	-3.27	0.001
male |	45.53023	23.45051	1.94	0.053
basic |	47.35254	44.96445	1.05	0.293
SHS |	87.97291	42.05052	2.09	0.037
tertiary |	190.0442	43.79457	4.34	0.000
prepared |	65.44461	22.24783	2.94	0.004
saved |	59.71369	22.61518	2.64	0.009
support |	-10.83616	21.66358	-0.50	0.617

Dependents |	11.36217	8.05685	1.41	0.160
Public |	25.45323	28.48004	0.89	0.372
lengthofcontr |	.5639789	.1100013	5.13	0.000
incomeb4re~t |	.0767382	.0140338	5.47	0.000

R-squared = 0.4148 Adj R-squared = 0.3920

The OLS results displayed in Table 2 shows that all the independent variables with the exception of support is positively related to monthly income (Pension Benefit). Even though Basic is positive, it is not statistically significant since its p-value is above 0.005. What this means is that, if a retiree has a basis level of education, it does not have any significant impact on his income level during retirement as compared to the uneducated retirees (control group).

SHS is significant and positive. This means that if a retiree is educated up to the Senior High level, his income after retirement will be statically different from one who is uneducated (control group). Thus his income would be 87.97 Ghana cedis more than an uneducated retiree.

The result shows that tertiary is statistically significant and positive since the p-value is 0.000. This implies that with a tertiary educational level a retiree would earn 190 Ghana cedis more than his fellow retired Ghanaian who is not educated (control group).

Ability to prepare for retirement is also positive and significant at 5% significant level. This indicates that, retirees who prepared before retirement earn 65.44 Ghana cedis more than other retirees who did not prepare for retirement.

Saving before retirement was positive and was significant since it recorded a p-value of 0.009 which is below 0.05. This means that, retirees who were able to save before their retirement earn 59.7 Ghana cedis more than their counterparts who were unable to do so (control group).

Support from friends and family members was not significant since the p-value was above 0.05. This connotes that income of retirees who receive financial support from friends and family members is not different from retirees who do not receive financial support from friends and family members (control group).

The number of dependents is also not statistically significant at 5% significance level. This implies that the number of dependents a retiree has has no impact on his monthly retirement income.

Public, which signifies the sector one was employed in before retirement was not statistically significant even though it was positive. This implies that the income (pension benefit) of a retired individual who worked in the public sector is not different from the individual who worked in the private sector.

Length of contribution and income before retirement were all positively related to a retiree's monthly income. Length of contribution, income before retirement and tertiary were all significant at 1 percent significant level since they all record p-values of 0.000. This implies that as ones length of contribution increases by one unit, his or her monthly income (pension benefit) will increase by 0.56 and if income before retirement also increases by a unit of one, monthly income after retirement will increase by 0.077.

4.2.1 Descriptive Analysis of the Expenses of Retirees

Table 4.3: Descriptive Analysis of the Expenses of Retirees

Expenses	Increased	Decreased	Constant	Not certain (.a)
Savings	**9%**	**79%**	**9%**	**3%**
Shelter	**43%**	**31%**	**25%**	**1%**
Apparel	**21%**	**57%**	**17%**	**5%**
Transportation	**65%**	**25%**	**8%**	**3%**
Health	**45%**	**31%**	**23%**	**1%**
Utilities	**83%**	**6%**	**10%**	**1%**
Entertainment	**8%**	**58%**	**32%**	**2%**
Dependents	**44%**	**45%**	**10%**	**1%**

Retirees were asked to indicate whether their expenses on savings, shelter, apparel, transportation, health, utilities, entertainment and dependents, have increased decreased or is constant. Their responses have been tabulated in Table 4.3 and also graphically presented in Appendix 3 with pie charts.

Concerning savings, 79% of the respondents said their savings have decreased, 9% of the respondents said expenses on their savings have increased and constant. A few of the respondents thus 3% could not tell whether there has been a change in their expenses on savings (Chart 1-Appendix 3). This result is not surprising since according to the Life-Cycle hypothesis, individuals save toward the future so that during retirement when income is low they can fall on what was saved during their working period.

When asked about their expenses on shelter, 43% retirees said their expenses on shelter have increased, 31% said it has decreased , 25% said there has been no change in their expenses for shelter and 1% of the respondents could not tell if there has been a change or not (Chart 2- Appendix 3).

With regards to their expenses on apparel, 21% of the respondents said there has been on increase in their expenditure on cloths while 57% of retirees said there has been a decrease. 17% of the respondents saw no change in their expenses for cloths while 5% of the retirees could not confirm a change or not (Chart 3- Appendix 3).

Pertaining to their expenses on transportation, 64% of the retired Ghanaians said they have observed an increase, 25% said there was a decrease, 8% said their expenses on transportation have not change while 3% could not indicate if there was a change or not (Chart 4- Appendix 3).

When asked about their expenses on health, 45% of the respondents said there has been an increase, 45% said there has been a decrease, 23% said their expenses on health was constant while 1% could to tell whether there was a change or not (Chart 5- Appendix 3).

With reference to their expenses on utilities (here utility was limited to electricity and water), 83% reported an increase while 6% reported a decrease. 10% said it was constant while 1% of the respondents were not sure (Chart 6- Appendix 3).

44% of the retirees said their expenses on their dependents have increased, 45% said it has decreased, 10 % said it there was no change and 1% could not indicate if there has been a change in their expenses on dependant (Chart 7- Appendix 3).

Last but not least was their responds on entertainment. 8% of the respondents said there has been an increase in their expenses on entertainment, 58% reported a decrease while 32% said there was no change (Chart 8- Appendix 3).

4.3 Empirical results for Conspicuous Consumption and the Band Wagon Effect of Consumption

4.3.1 Descriptive Analysis of the Conspicuous of Consumption.

The main aim of this descriptive analysis is to discover whether people deliberately consumed goods and services to display their wealth. Table 4a illustrates the qualitative results.

Table 4.4 a: Descriptive Analysis of Conspicuous Consumption

Spend to reveal Wealth		
spends to reveal Wealth	17	4.25
Doesn't spends to reveal Wealth	381	95.25
Uncertain	2	0.5
Expenditure reveals wealth		
expenditure reveals wealth	101	25.25
Expenditure doesn't reveals wealth	295	73.75
Uncertain	4	1

When respondents were asked if they deliberately spent to reveal their wealth, 95.25% responded in the negative while 4.25% responded in the affirmative. 0.5% of the respondents were however not sure. In order to confirm the above analyses a subsequent question was asked thus whether their expenditure revealed their wealth. Individuals who responded in the negative were 73.75%

while 25.25% responded in the positive. 1% of the respondents were however not certain whether or not their expenditure revealed their wealth.

The result shows that, even though people do not deliberately consume to display their wealth, their expenditure sometimes reveals their wealth. This implies that people do not engage in conspicuous consumption as they do not consume with the intension of displaying their wealth.

4.3.2 Descriptive analysis of the Band Wagon Effect on Consumption

In Table 4.4 b, a qualitative analyses on the band wagon effect on consumption is illustrated. The study examines whether the consumption of people is based on the consumption of others.

To confirm the responses of respondents, a series of questions were asked concerning what motivated them to spend. When individual were asked if they consumed because they see others consume, only 15.25% said yes. Those who responded in the negative were 84.25% and 0.5% of the respondents were not certain. Respondents who said they purchased goods and services because of what other think were 22.75%. 76.76% of the respondents said otherwise while only 0.5% were not sure. Individuals were also asked they whether they purchased goods and services because friends, family members and neighbours have. To these questions, 86.5%, 86.25%, 89.5% said they did not purchase goods and services because friends, family members and neighbours have respectively.

Table 4.4b: Band Wagon Effect on Consumption

Buy by seeing others buy		
Consumes because others have	61	15.25
Doesn't consume because others have	337	84.25
Uncertain	2	0.5
Buy by what others Think		
buys because of what others think	91	22.25
buys not because of what others think	307	76.75
Uncertain	2	0.5
Purchase because friends have		
purchase because friends have	45	11.25
Doesn't purchase because friends have	346	86.5
Uncertain	9	2.25
Purchase because family members have		
purchase because family members have	43	10.75
Doesn't purchase because family members have	345	86.25
Uncertain	12	3
Purchase because neighbours have		
purchase because neighbours have	29	7.25
Doesn't purchase because neighbours have	358	89.5
Uncertain	13	3.25
Purchase because you need them		
purchase because You Need Them	370	92.5
Do not purchase because You Need Them	24	6
Uncertain	6	1.5
Care what people Say when you use a product		
care what people Say when you use a product	142	35.5
Doesn't care what people Say when you use a product	252	63
Uncertain	6	1.5

When asked if they bought goods and services because they needed them, 92.5% of the respondents responded in the affirmative and only 6% said no. 1.5% of the respondents were however not sure. When individuals were asked whether they cared about what people said when using a product, 35.5% said they did, 63.5% said they did not, 1.5% of the respondents were uncertain.

From the above analyses it observed that most people did not consume based on what others consume but their consumption is based on the fact that they really need them. This implies that the on a large scale, the band wagon has no effect on the consumption of people.

4.3.2 Descriptive analysis of respondents' position on Saving, Impulse buying, and Preparation toward Retirement.

This session does descriptive analyses on respondents' position on saving, impulse buying, and preparation toward retirement. Out of the 400 respondents, 63.5% said they saved, 34.5% said otherwise whiles the remaining 2% said they were not sure whether they saved or not. When asked whether they buy goods on impulse (without planning), 41.25% responded in the positive whiles 57.25 responded in the negative and 1.5% of the respondents said they were not sure. Concerning preparation toward their retirement, only 22.25% said they were preparing for retirement. Those who were not preparing for retirement accounted for 76% of the total respondents whiles those who were not sure were 1.5%.

This implies that, when these individuals approach retirement without any preparation, all other things being equal their consumption will fall (Aguila et al., 2008).

Table 4.4c: Respondents' position on Saving, Impulse buying, and Preparation toward Retirement

Do you Save?	**Frequency**	**Percentage**
Saves	254	63.5
Doesn't save	138	34.5
Uncertain	8	2
Buy by impulse		
Does impulse buying	165	41.25
Doesn't buy by impulse	229	57.25
Uncertain	6	1.5
Prepares for retirement		
prepares for retirement	89	22.25
Doesn't prepare for retirement	304	76
Uncertain	7	1.75

CHAPTER FIVE

SUMMARY OF RESEARCH FINDS AND POLICY RECOMMENDATION

5.0 Introduction

The main purpose of this study was to find out whether consumption in Ghana follows the Permanent income hypothesis. Data on real GDP and final household consumption expenditure were used the analysis. The study went a step further to find out whether individuals in the Kumasi Metropolis were influenced by the Band wagon effect of consumption and or engaged in conspicuous consumption. The cause of low income among retirees was also studied. This chapter therefore gives a precise summary of all the major findings of the study, provides effective policy recommendation, discloses the limitations of the study and ends with a straightforward conclusion.

5.1 Summary of Research Findings.

The study showed that an elasticity of consumption with respect to actual income was 0.90. Thus a 1% increase in current income would increase current consumption by 0.90%. Thus the short run marginal propensity to consume out of current income is 0.90. However, in the long run consumption would increase by 0.98%. Thus the elasticity to consume out of permanent income is 0.98%. This implies that a one percent increase in permanent income would increase current consumption by 0.98%. Previous consumption (C_{t-1}) was not statistically significant. Even though it has no direct relation to the paper, its insignificance implies that, previous or past consumption has no effect on current consumption as propounded by Duesenberry in the

Relative income hypothesis. The study also revealed that real interest rate has no significant impact on consumption.

Concerning the causes of low income among retirees, the study found that, incomes of retirees who had only basic education was not statically different from retirees who were not educated (control group). For those who had attained education up to the senior high level, it was observed that their income was 87.79 Ghana Cedis more than their fellow retirees who are illiterates (control group). Tertiary education earned respondents 109 Ghana Cedis more than their counterparts who were not educated.

With regards to their ability to prepare for retirement, the study revealed that those who prepared for retirement earned 65.44 Ghana Cedis more than other retirees who did not prepare for retirement.

Savings before retirement was significant. This means that, retirees who were able to save before their retirement earned 59.7 Ghana cedis more than their counterparts who were unable to do so (control group).

The results showed support from friends and family members and the public (sector one was employed in before retirement) were not statistically significant. This means that, income of retiree who received financial support from friends and family members as well as those who worked in the public sector was not different from those who did not (the control groups). The number of dependents was also not significant. Thus the number of dependents of a retiree had no effect on their income.

The results also illustrated that, as a retirees' contribution length of contribution increases by one unit, his or her monthly income (pension benefit) will increase by 0.56 and if income before

retirement also increases by a unit of one, monthly income after retirement will increase by 0.077.

Concerning whether individuals engaged in conspicuous consumption, the results showed that people 95.25% of the respondents did not purchase goods and services just to show off their wealth, but rather because they need them. An average of 87.4% of the respondents also confirmed that they did not purchase goods and services because friends, family members and neighbours have. 92.5% of the respondents however said they purchased goods and services because they really need them.

Out of the total respondent only 22.25% of the respondents said they are preparing for retirement. Those who said they were not preparing for retirement were 76% of the total respondents.

5.2 Conclusions

For every average Ghanaian household, a 1% increase in current income and for that matter real GDP, would lead an increase in final household consumption expenditure by 0.9%. The short run marginal propensity to consume out of current income is highly statistically significant at 1% level and it conforms to prior expectation. MPC out of permanent income implies that a sustained increase in GDP of 1% would lead to an increase in final household consumption expenditure by 0.98%. The result exhibits a strong support for the permanent income hypothesis for Ghana. An adaptive expectation coefficient of 0.93 implies that in long run nine tenth of households expectations are realized in Ghana. The revelation from the preceding session shows that previous household consumption expenditure has no significant effect on current household

consumption expenditure. It can therefore be concluded that the relative income hypothesis does not hold in Ghana.

With respect to the income of a retiree, it can be concluded that, the length of contribution toward the SSNIT pension scheme has an effect on ones level of income during retirement. Income before retirement as well as one's level of education all have significant effect on ones income during retirement. Thus the higher the educational level, the higher ones income and therefore the higher the income during retirement. Low income among retirees accounts for a fall in the consumption level of retirees. This can be observed in Table 3a and Charts 1-8 (Appendix 3) as a decrease in their expenses on saving, shelter, apparel and Entertainment. Their expenses on transportation and utilities however increased. This can be attributed to the fact that continuous rise in the prices of fuel and utility do not only affect the young but the old as well. Concerning health, the difference between those who said their expenses have increased is not so different from those who said it has decreased. This implies that the increase in ill-health among the old makes them visit the hospital on a regular basis. However, with the existence of health insurance some of their medical expenses would be catered for by the scheme.

Concerning whether individuals below the age of 60 engaged in conspicuous consumption, the results showed that people did not purchase goods and services just to show off their wealth, but rather because they needed them. On this premise, this study reveals that on a large scale, people do not engage inconspicuous consumption. Neither is their consumption effected by the bandwagon effect of consumption.

The study disclosed that 76%of the respondents below the age of 60 do not prepare for retirement. This implies that in some few years to come these people who are not preparing for

retirement are likely to earn 65.55 Ghana Cedis less than their fellow counterparts who prepared for retirement.

5.3 Policy recommendation

Viability of the permanent income hypothesis in Ghana implies that, current consumption primarily depends on permanent (average expected life time) income. This means that in Ghana, any policy that is expected to have a temporal change on income will have no effect on consumption. This study would therefore recommend that, for any policy to have an effect on income and therefore impact on the final household consumption expenditure, policy makers must ensure that, economic policy is permanent. In other words, a fiscal policy will have the desired changes in the level of consumption only when the policy is sustained for a long time.

Another policy recommendation is that for retirees to be better off during retirement, thus for their income during retirement to be high, policies should be put in place to encourage savings as savings was positively related to the income of retirees. The current Three Tier Pensions Scheme is therefore in the right direction as contributors would have the opportunity to save more toward the future. Policy makers should also design attractive saving policies to encourage the youth to save. This is because the rate of saving among young people is very low as out of the total respondents below the age of 60, only 63.5 percent of the respondents engage in saving.

In addition, the National Commission for Civic Education should be mandated to educate people on the importance of preparing for retirement since the study has proven that individuals who prepare for retirement are better off than those who do not prepare for retirement.

The study also recommends an educational policy that would increase the increase enrollment of Ghanaians to the tertiary level. This policy is likely to increase not only the income of individuals but would also increase income during retirement.

Concerning the expenses of retirees on their health, the study recommends a Special Health Insurance Scheme for the aged. With a fall in income, it is expected that the expenses during retirement would also fall. It is therefore a detriment to the welfare of retirees if they have to spend out of their meager income to pay for their expenses on health.

5.4 Limitations of the study

The study faced a number of challenges especially during the collection of data. Whiles administering the data for respondent above the age of 60, most of them because of old age could not provide data could not provide the highest income and lowest income they have ever received before retirement. This information would then have been included in the estimation of the factors that influence the income of retirees. They could not also provide the level of their monthly expenditure before retirement.

REFERENCES

Aguiar, M., & Hurst, E. (2007). *The Permanent Income Hypothesis An Entry Prepared For The New Palgrave Dictionary Of Economics*, 1–12.

Aguila, E., Attanasio, O., & Meghir, C. (2008). *Changes in Consumption at Retirement*,1–29.

Alessie, R., M. Devereux and G. Weber (1997), "*Intertemporal Consumption, Durables and Liquidity Constraints: A Cohort Analysis"*. European Economic Review 41, 37-59.

Ando, A & Modigliani, F. (1953). *The Life- Cycle Hypothesis of Saving: Aggregate Implication, Tests*, American Economic Review, 53, 8- 55.

Angeletos, G., Laibson, D., Repetto, A., Tobacman, J., Weinberg, S. (2001). *The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation*. Journal of Economic Perspectives, 15(3), 47-68.

Banks, J., Blundell, R., Tanner, S. (1998). *Is there a Retirement-Savings Puzzle?* American Economic Review, 88(4), 769–788.

Becker, G. S.,(1965) *"A Theory of the Allocation of Time,"* The Economic Journal, 75, 493-517.

Bernheim, D., Skinner, J., Weinberg, S. (200)1. *What Accounts for the Variation in Retirement Wealth Among U.S. Households*. American Economic Review, 91(4), 832–857.

Bird, R. C. and Bodkin, Ronald G. (1965). *"The National Service Life-Insurance Dividend of 1950 and Consumption: A Further Test of the "Strict" Permanent-Income Hypothesis."* Journal of Political Economy, 73(5), 499-515.

Bollen, K. A., Glanville, J. L., Stecklov, G., & Hill, C. (2007). *Socio-Economic Status Permanent Income , Fertility : A Latent-Variable Approach*, 61(1), 15–34.

Borella, M., Moscarola, F. C.,& Rossi M. (2011). *Unexpected Retirement and the Consumption Puzzle*, Netspar Discussion Paper, 10.

Branson W. H. (1989), *Macroeconomic Theory and Policy*, Third Edition. Harper & Row Publishers, New York

Brown, P. H., Bulte, E., & Zhang, X. (2010). Positional Spending and Status Seeking in Rural China. *IFPRI Discussion Paper 00983*, (May).

Caballero, R. J. (1990) "*Consumption Puzzles and Precautionary Savings."* Journal of Monetary Economics, 25(1), 113–36.

Caballero, R. J. (1991) *"Earnings Uncertainty and Aggregate Wealth Accumulation."* American Economic Review, *81*(4), 859–71.

Carroll, C. (2000). *"Precautionary Saving and the Marginal Propensity to Consume Out of Permanent Income,"* Johns Hopkins University

Carroll, Christopher D. and Kimball, Miles S, (1996). "On the Concavity of the Consumption Function." *Econometrica*, *64*(4), 981–92.

Carroll, Christopher D.(1997) "Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis." *Quarterly Journal of Economics*, *112*(1), 1–55.

Case, A. C., A. Garrib, A. Menendez, and A. Olgiati. 2008. *Paying the Piper: The High Cost of Funerals in South Africa.* National Bureau of Economic Research (NBER) Working Paper 14456. Cambridge, Mass.: NBER.

Çelik, S. (2009). *The Importance Of Consumption Index As A Leading Economic Indicator In An Emerging Market : The Case Of Turkey.*

Chao, H.-K. (2000). *Milton Friedman and the Emergence of the Permanent Income Hypothesis*, 35, (1), pp 77–104.

Chaudhry, I. S., Faridi, M. Z., Bashir, F., & Ur Rehman, H. (2011). *Rural-Urban Saving Differentials Investigation From Primary Data In Pakistan*, 26(1), 19–35.

Deaton, A., (1992). *Understanding Consumption*. Oxford, Clarendon Press.

Deaton,A.,(1991). "*Saving and Liquidity Constraints*," Econometrica, 59(5), 1221-1248.

Dejuan, J. P., Seater, J. J., & Wirjanto, T. S. (2004). *A Direct Test Of The Permanent Income Hypothesis With An Application To The U . S . States*, *36*(6), 1091–1103.

Duesenberry, J. (1949). *Income, saving, and the theory of consumer behavior*. Cambridge, Mass.: Harvard University Press.

Elmendorf, W. D. (1996). *The Effect Of Interest Rate on Household Saving and Consumption: A Survey*, Federal Reserve Board.

Fisher, J.D. and D.S. Johnson (2002), "*Consumption Mobility in the United States: Evidence from Two Panel Data Sets".* Mimeo, Bureau of Labor Statistics.

Flavin M. A. (1981) *The Adjustment of Consumption to Changing Expectations about Future Income*, Journal of Political Economy.

Friedman, M. (1956). *A Theory of the Consumption Function*, Princeton: Princeton University Press.

Friedman, M. (1957). *Consistency of the Permanent Income Hypothesis With Existing Evidence On The Relation Between Consumption And Income : Time Series Data*, 115–156.

Ghana Statistical Service (2008) *Ghana Living Standards Survey Report of The Fifth Round* (GLSS 5)

Haider, S. J., Stephens, M. (2007). *Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations*. The Review of Economics and Statistics, 89(2), 247-264.

Heffetz, O. (2007). *Conspicuous Consumption and the Visibility of Consumption Expenditures*. Ithaca, N.Y.: Cornell University.

Hurd, M., Rohwedder, S. (2008). *The Retirement Consumption Puzzle: Actual Spending Change in Panel Data*, RAND, Working Paper WR-563.

Jacoby, H. G., & Skoufias, E. (1998). *Testing Theories Of Consumption Behavior Using Information On Aggregate Shocks : Income Seasonality And Rainfall In Rural India, 80* (1), 1-14.

Kapoor, M., & Ravi, S. (2009). *The Effect of Interest Rate on Household Consumption: Evidence from a Natural Experiment in India.*

Katsouli, E. (2011). *Testing the 'surprise' consumption function: A comparative Study between 15 European Union member-states.* International Research Journal of Finance and Economics

Keeler, J. P., & James, W. L. (1985). *Relative Size Windfall Permanent Hypothesis*, 3(3), 209–215.

Keynes, John Maynard (1936). *The General Theory of Employment, Interest and Money*. New York: Harcourt, Brace.

Khan K., Muhammad A., Mohammed N. (2010). *Estimation of Consumption Function under the Permanent Income Hypothesis: Evidence from Pakistan*

Koutsoyiannis A., (1977). *Theory of Econometrics, 2nd Edition* Published by Palgrave MacMillan, New York.

Kuznets, S. (1946) *National Income: A Summary of Findings*. New York: National Bureau of Economic Research.

Laiglesia, D., & Juan, R. (2008). *Household Structures And Savings: Evidence From Household Surveys.*

Laiglesia, J. R. De, & Morrisson, C. (2008). Household Structures And Savings : Evidence From Household Surveys, OECD Development Center, Working Paper 267.

Langemeier, M. R., & Patrick, G. F. (1993). *Constraints Liquidity*, *75* (2), 479–484.

Laumas, P. S. (1969). A Test of The Permanent Income Hypothesis, *77* (5), 857–861.

Mahadeva, L., Robinson, P., Blake, A., & Hammond, G. (2004). *Unit Root Testing To Help Model Building*, (22).

Manitsaris, A. (2006). *Estimating the European Union Consumption Function Under The Permanent Income Hypothesis*, 2 (2).

Miniaci, R., Monfardini, C., Weber, G. (2003). *Is There a Retirement Consumption Puzzle in Italy?* IFS, Working Paper W03/14.

Motaqed, S. (2011*). Estimation the Consumption Function for Urban and Rural Household in Developing Country : A Case Study of Iranian Southern Province*, *33*(33).

Nicholas S. S., (1999). *The Response of Household Consumption to Income Tax Refunds*, The American Economic Review, 89(4), 947-958.

Osei-Akoto, I., Adiah, G. A., Osei Darko, R., & Quarmine, W. (2007). *Public Spending In Ghana : An Assessment Of National Level Data,*. G S S P Background Paper 4

Palley, T. I. (2005). *Relative Permanent Income and Consumption: A Synthesis of Keynes, Duesenberry, Friedman, and Modigliani and Brumbergh*, 1–23

Piana, V. (2001). *Consumption*, Economics Website Institute, http://www.economics website institute.org/glossary/cons.htm

Pistaferri, L. (2001). *The Permanent Income Hypothesis*, *83*, 465–476.

Rutherford, D. (2002). *Routledge Dictionary Dictionary Of Economics* Second Edition.

Stock J. H., Watson M. W.(2007) *Introduction to Econometric*, 2nd Edition, USA Pearson.

The Economist (2007). *Can Ghanaians afford such splendid funerals?* The Economist, May 24.

Tigo Joshua (2012). It's Pure Hell; Woes of Many Retired Civil Public Servants, The Finder, (105).

Udry, C. & Woo Hyungi (2007). *Households and the Social Organization of Consumption in Southern Ghana,* African Studies Review, 50(2), 139-153

Ullah Aman, S. B. (1976). *The Consumption Function : The Permanent Income Versus The Habit Persistence*, 58(1), 96–103.

van Kempen, L. (2003). *Are the poor willing to pay a premium for designer labels? A field experiment in Bolivia*. Oxford Development Studies. 32, 205–224.

Veblen, T. 1899. *The Theory of the Leisure Class* (reprinted in 1965). New York: MacMillan.

Wang Neng, (2005). *Generalizing The Permanent-Income Hypothesis : Revisiting Friedman's Conjecture On Consumption*,

Zeldes, S. P.(1989). *"Optimal Consumption with Stochastic Income: Deviations from Certainty Equivalence."* Quarterly Journal of Economics, *104*(2), 275–98.

APPENDIX 1

QUESTIONNAIRE 1

Permanent Income Hypothesis: an empirical evidence in Ghana

This study is being executed in partial fulfillment for the award of a Master of Arts degree in Economics. All information provided would be treated with the strictest confidentiality. In addition, all information received would be used solely for academic purpose. This questionnaire targets respondents who are 60 years and above.

1 Gender: Male [ ] Female [ ]

2 Age: ……..

3 Educational Level: Basic [ ] Senior High [ ] Tertiary [ ] None [ ]

4 Marital Status: a) Married [ ] b) single [ ] c) divorced [ ] d) separated [ ]

5 Which sector were you employed in before retirement?

a) Private b) Public

6 Employment Status after retirement: Unemployed [ ] Employed [ ]

7 Do you have dependents? Yes [ ] No [ ]

8 If yes how many? ……

9 What was your monthly income before retirement? GH¢……...

10 What is the highest income you have ever received? GH ¢.....

11 What is the lowest income you have ever received? GH¢.....

12 For how long did you contribute to SSNIT? …….

13 How much do you currently earning a month from SSNIT? GH¢…….

14 Is the amount you receive from SSNIT enough? Yes [ ] No [ ]

15 Do you receive any money from friends and family members? Yes [ ] No [ ]

16 If yes, how much do you on the average? …….

17 What was the level of your monthly expenditure before retirement? GH¢……

18 Were you able to save before retirement? Yes [ ] No [ ]

19 If yes how much? …….

20 What would you do with an unexpected bonus or gift?

a) Save [ ] b) consume [ ] c) both [ ]

21 Did you prepare for retirement? Yes [ ] No [ ]

22 If yes how…….……

……

……..

23 If no why?……

……

……..

24 Are you satisfied with your current income level? Yes [ ] No [ ]

25 If yes explain what makes you satisfied……

……..……

…….

26 If no explain…….

..……

……

27 In your own estimation, what do you think are the causes of low standard of living among retirees……..

……

……

28 In your own estimation, what do you think are the causes of low income among retirees……

……

……

Please indicate if expenses on the following have increased, decreased or is constant?

	Saving	Shelter	Apparel	Transport	Health	Utilities	Entertainment	Dependants
Increased								
Decreased								
Constant								

APPENDIX 2

QUESTIONNAIRE 2

Permanent Income Hypothesis: Empirical Evidence in Ghana

This study is being executed in partial fulfillment for the award of a Master of Arts degree in Economics. All information provided would be treated with the strictest confidentiality. In addition, all information received would be used solely for academics purposes. This questionnaire targets respondents who are below 60 years.

29 Gender: Male [ ] Female [ ]

30 Age: a)below 20 a) 20-30 [ ] b) 31-40 [ ] c) 41- 50 [ ] d)51-60 [ ]

31 Educational Level: a) Basic [ ] b)Senior High [ ] c) Tertiary [ ] d)None [ ]

32 Employment Status: a) Unemployed [ ] b) Employed [ ]

Please skip to question 7 if unemployed

33 Are you a) Student [ ] b) Self employed [ ] c) On Government payroll [ ]

d) Employed in the private sector [ ]

34 If employed, what is your occupation?

a) Trader [ ] b) Teacher [ ] c) Banker[ ] d) Artisan[ ] e) Medical officer [ ]

f) Others [ ] Please specify……

35 Marital Status: a) Married [ ] b) single [ ] c) divorced [ ] d) separated [ ]

36 Do you have dependents? Yes [ ] No [ ]

37 If yes, how many? ……

38 What is your monthly Income: a) Below GH¢200 [ ] b) GH¢200-GH¢500 [ ]

c) GH¢600-GH¢1000 [ ] d) GH¢1100 – GH¢2000[ ] e) above GH¢2000[ ]

39 What is the level of your monthly consumption expenditure?

Below GH¢200 [ ] b) GH¢200-GH¢500 [ ] c) GH¢600-GH¢1000 [ ]

d) GH¢1100 – GH¢2000[ ] e) above GH¢2000[ ]

40 What is the highest income you have ever received?.....

41 What is the lowest income you have ever received?.....

42 Are you able to save? Yes [ ] No [ ]

43 If yes how much? ……

44 Do you buy goods by impulse? Yes [ ] No [ ]

45 Do you buy goods by seeing others buying? Yes [ ] No [ ]

46 Do you buy goods based on what others think or say? Yes [ ] No [ ]

47 Does your expenditure reveal your wealth? Yes [ ] No [ ]

48 Do you spend in order to display your wealth? Yes [ ] No [ ]

49 How much are you willing to spend out of your income to display your wealth?

Below GH¢100 b) GH¢200-GH¢500 c) GH¢600-GH¢1000 d) GH¢1100 – GH¢2000

e) above GH¢2000

50 What are some of the goods you are willing to spend on in order show how wealthy you are? You can tick more than one.

a) Education [ ] b) Cloths [ ] c) phones [ ] d) shoes [ ] e) cars [ ]

f) weddings [ ] g) funerals [ ] h) others [ ] Please specify……

51 Do you receive any gifts in the form of money? Yes [ ] No [ ]

52 If yes, how much do you get on the average? …….

53 What would you do with an unexpected money (gift) which is twice your current income? a) Save [ ] b) consume [ ] c) both [ ]

54 How much of an unexpected bonus or gift would you spend?

a) Below 10% [ ] b)10%-30% [ ] c)30-50% [ ] d)50-80% [ ] e)80% -100% [ ]

55 How much of an unexpected bonus or gift would you save?

a) Below 10% [ ] b)10%-30% [ ] c)30-50% [ ] d)50-80% [ ] e)80% -100% [ ]

56 Do you purchase goods and services because

a) Friends have purchased or will purchase them? Yes [ ] No [ ]

b) Family members have purchased or will purchase them? Yes [ ] No [ ]

c) Neighbors have purchased or will purchase them? Yes [ ] No [ ]

d) You really need them Yes [ ] No [ ]

57 Do you care about what people will say when you use a product?

Yes [ ] No [ ]

58 Are you preparing for retirement? Yes [ ] No [ ]

59 If yes why?.....

.....

.....

60 If yes, how are you preparing for retire?.....

.....

61 If no, why? .....

.....

62 Are you a SSNIT contributor? Yes [ ] No [ ]

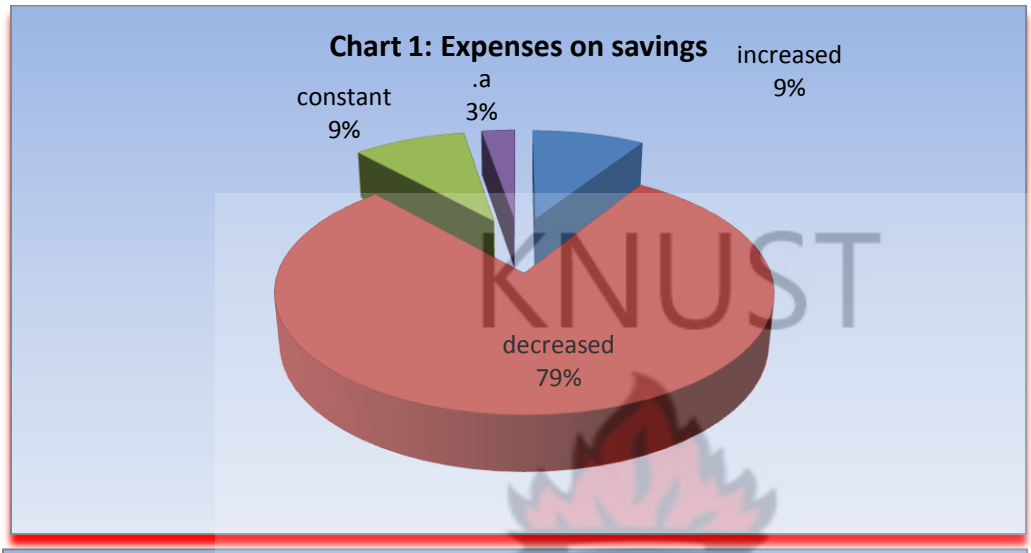
63 If yes, for how long have been contributing?

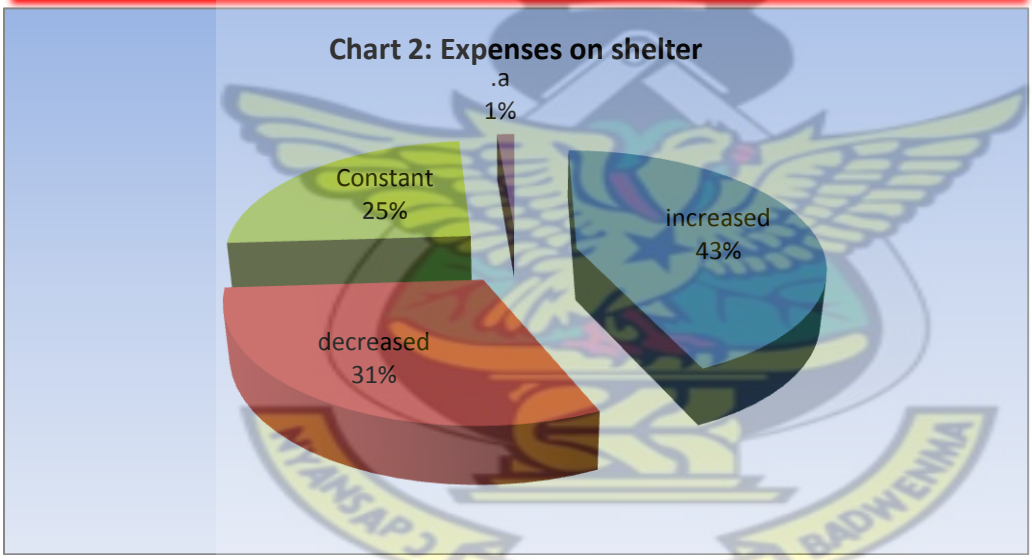
64 Apart from SSNIT do you have any private scheme you contribute to?

Yes [ ] No [ ]

APPENDIX 3

Descriptive Statistics of Changes in Expenses of Retirees





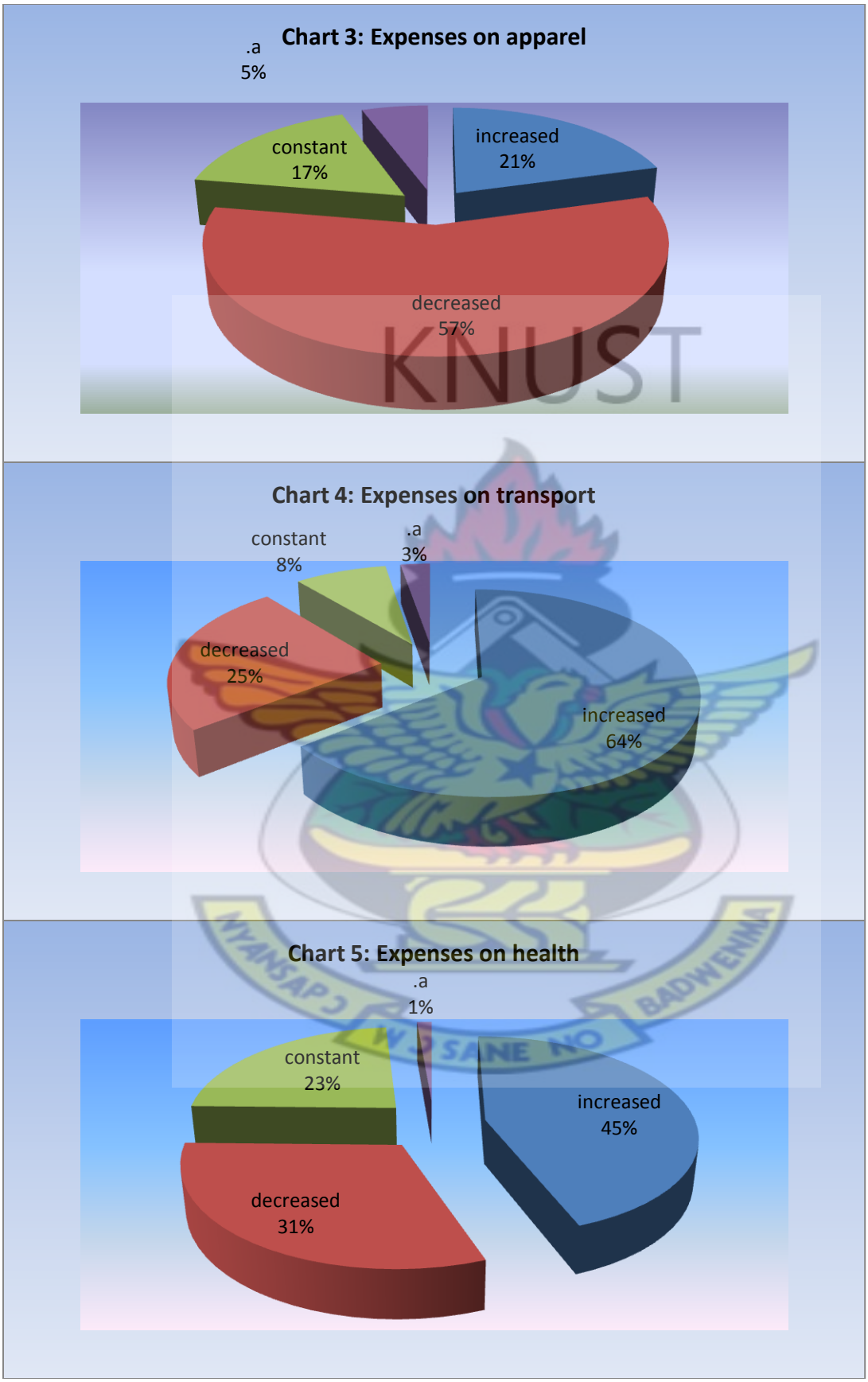


Chart 3: Expenses on apparel
.a
5%
constant
17%
increased
21%
decreased
57%
Chart 4: Expenses on transport
constant
8%
.a
3%
decreased
25%
increased
64%
Chart 5: Expenses on health
.a
1%
constant
23%
increased
45%
decreased
31%

Chart 6: Expenses on Utilities

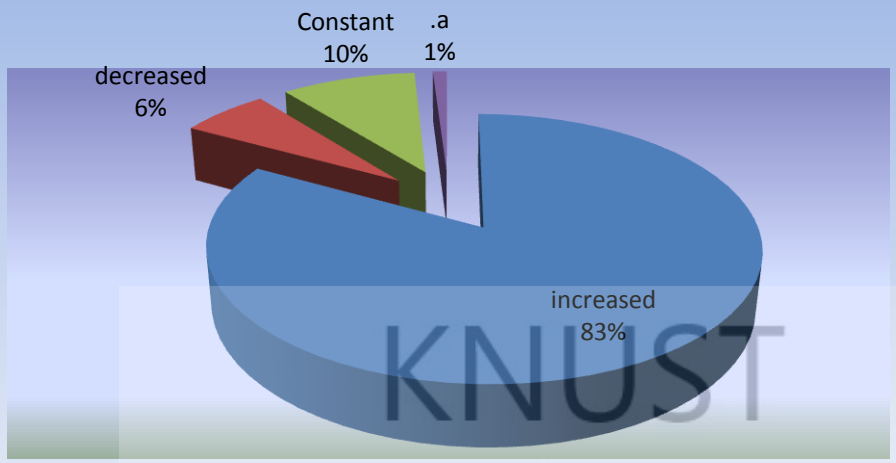


Chart 7: Expenses on Entertainment

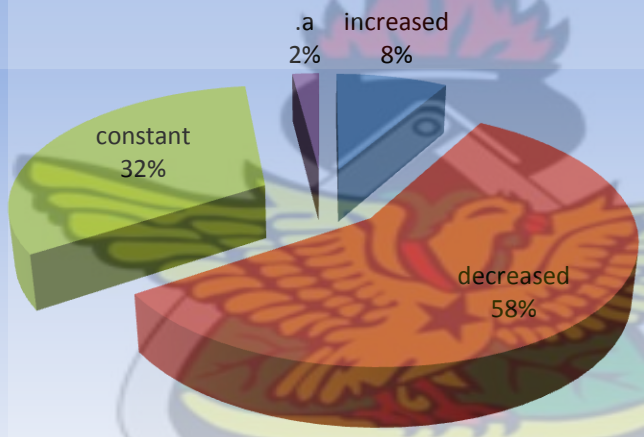
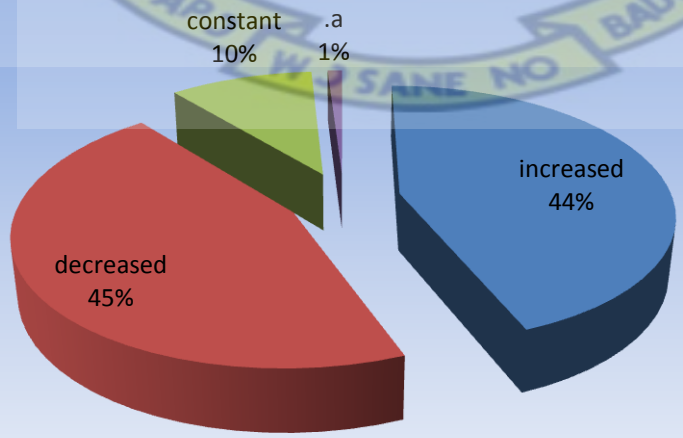
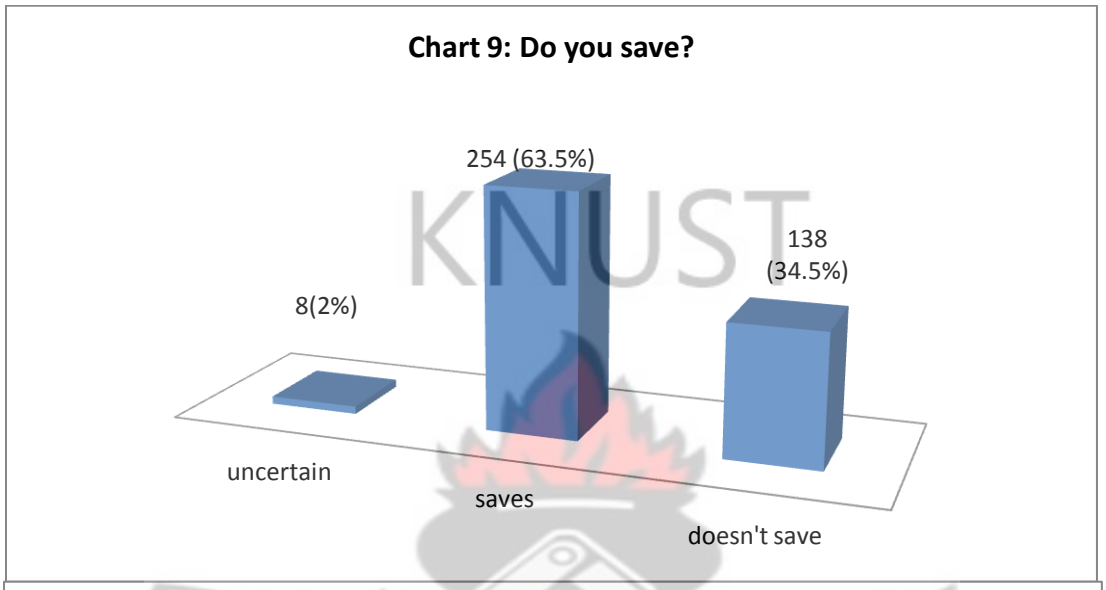


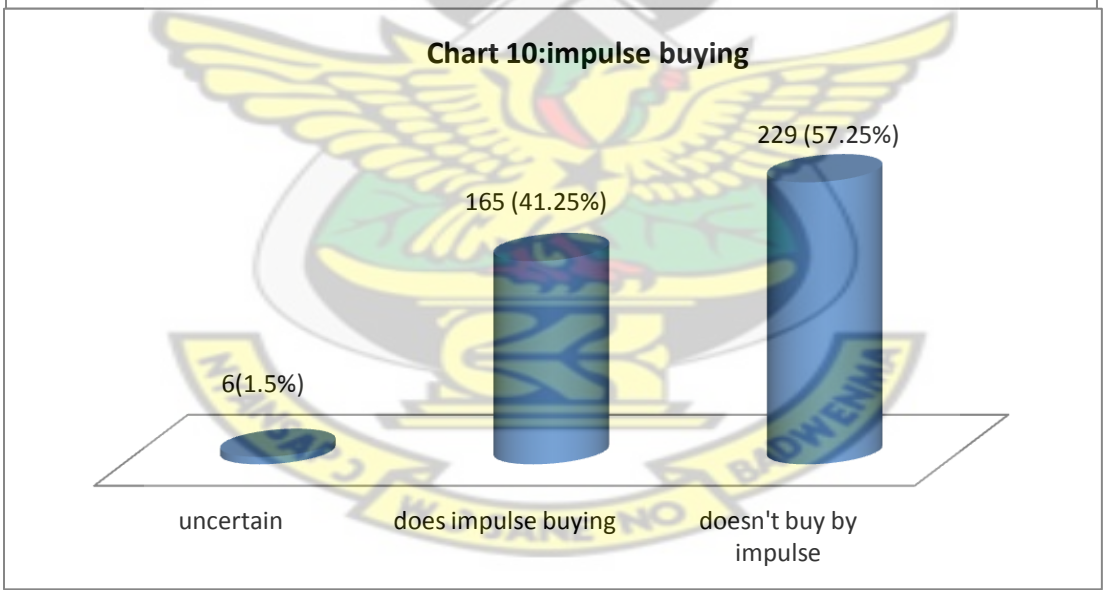
Chart 8: Expenses on dependents



APPENDIX 4

Descriptive Statistics Of Consumers' Attitude towards Consumption, Savings and Retirement.





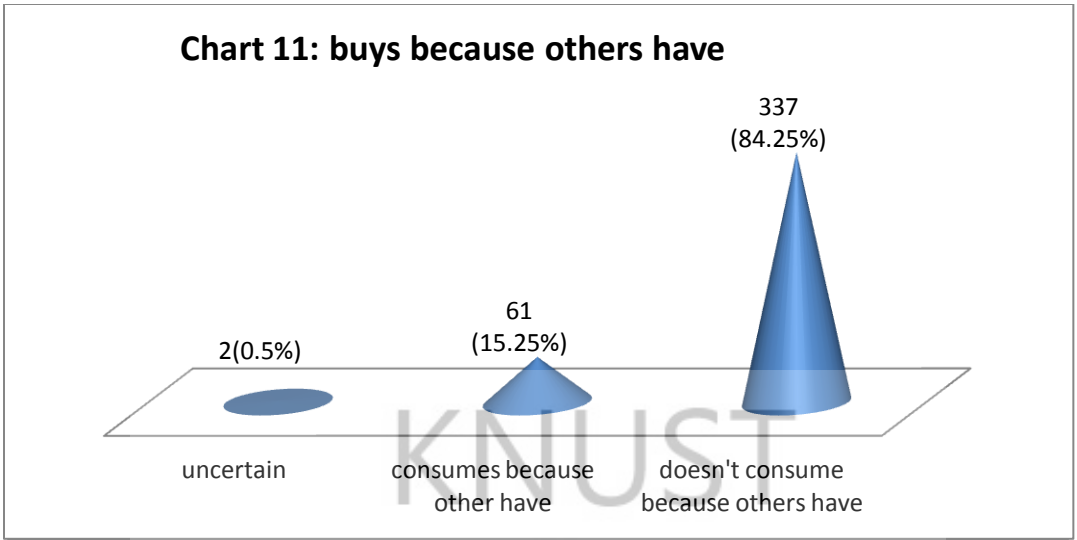


Chart 11: buys because others have
337
(84.25%)
61
(15.25%)
2(0.5%)
uncertain
consumes because other have
doesn't consume because others have

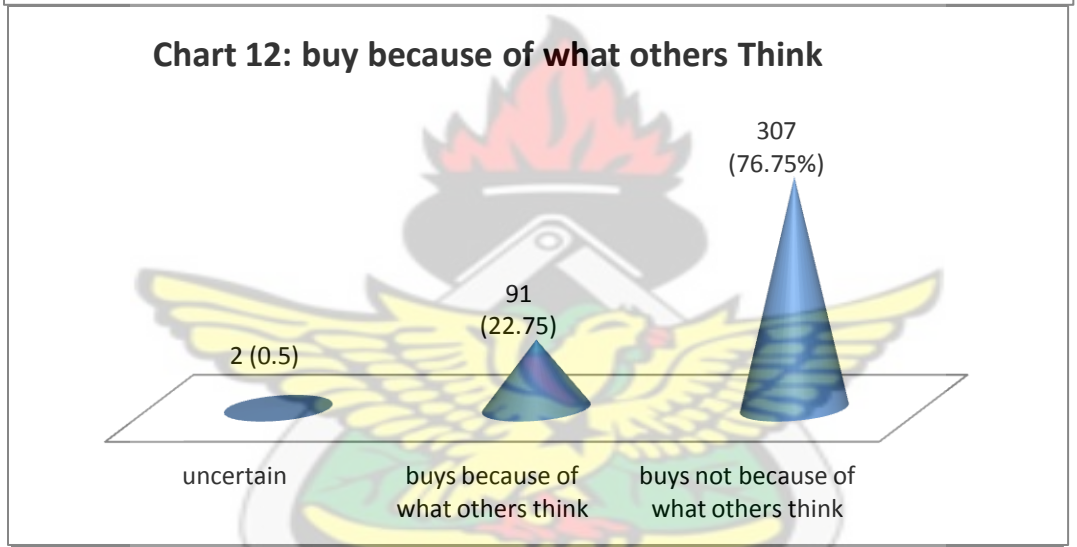


Chart 12: buy because of what others Think
307
(76.75%)
91
(22.75)
2 (0.5)
uncertain
buys because of what others think
buys not because of what others think

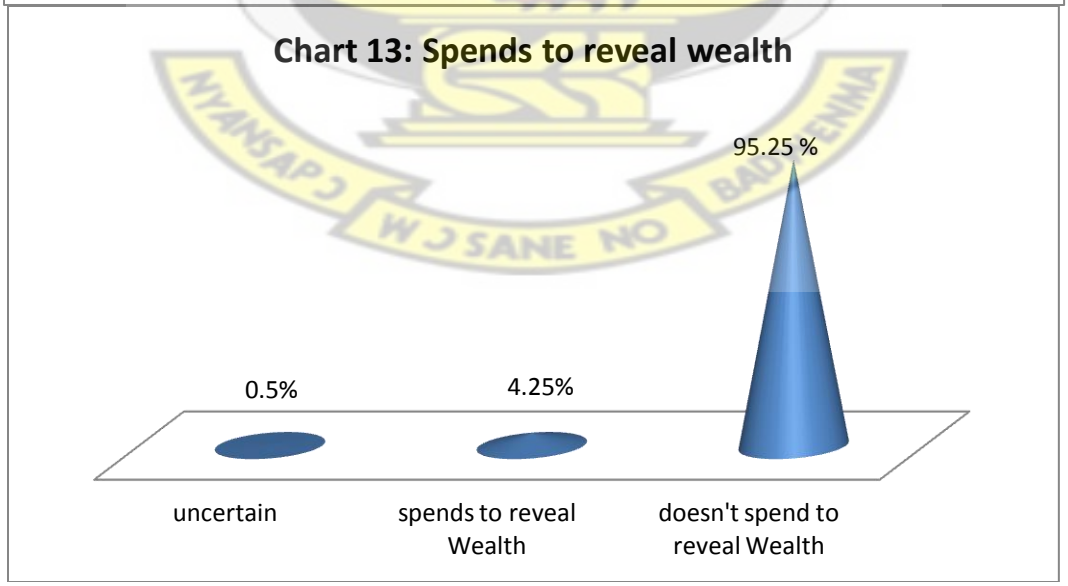


Chart 13: Spends to reveal wealth
95.25 %
0.5%
4.25%
uncertain
spends to reveal Wealth
doesn't spend to reveal Wealth

Chart 15: Expenditure reveals wealth

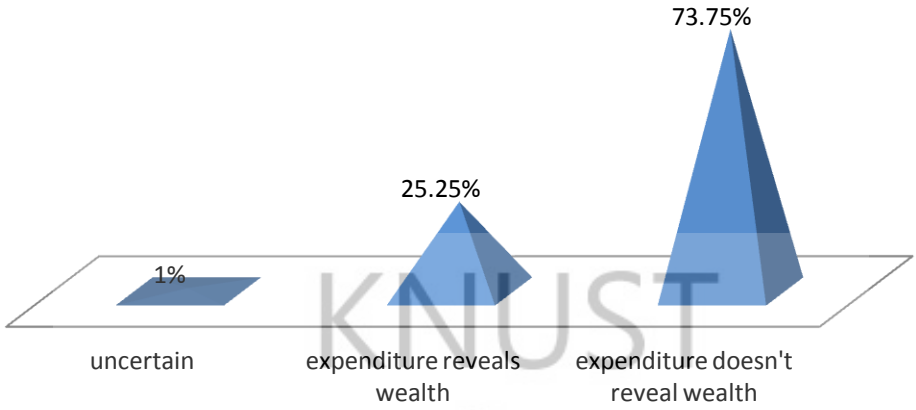


Chart 16: Purchase because friends have

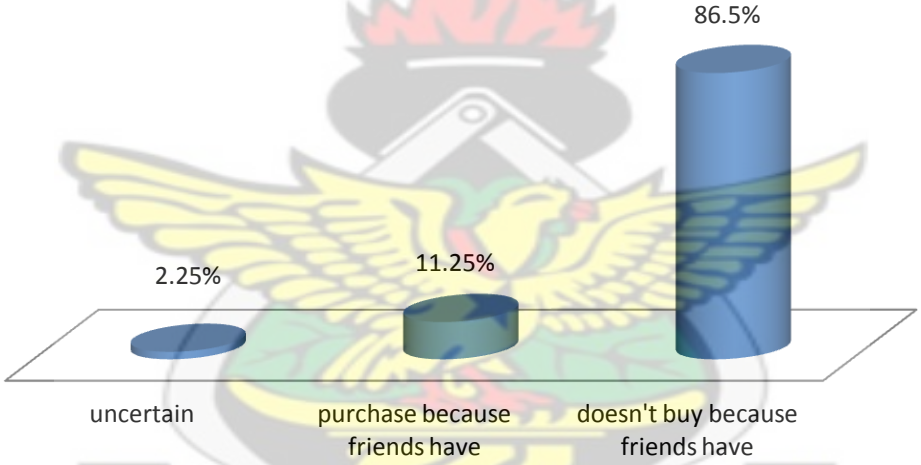


Chart 17: purchase because family member have

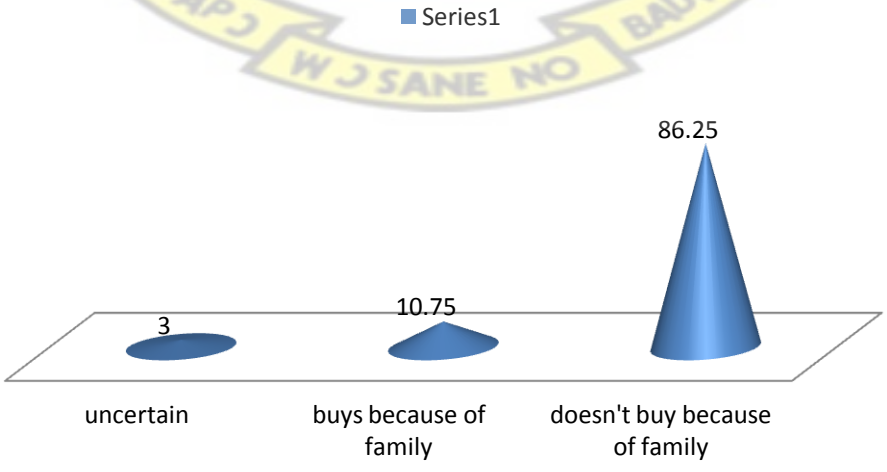


Chart 18:Purchase because neighbours have

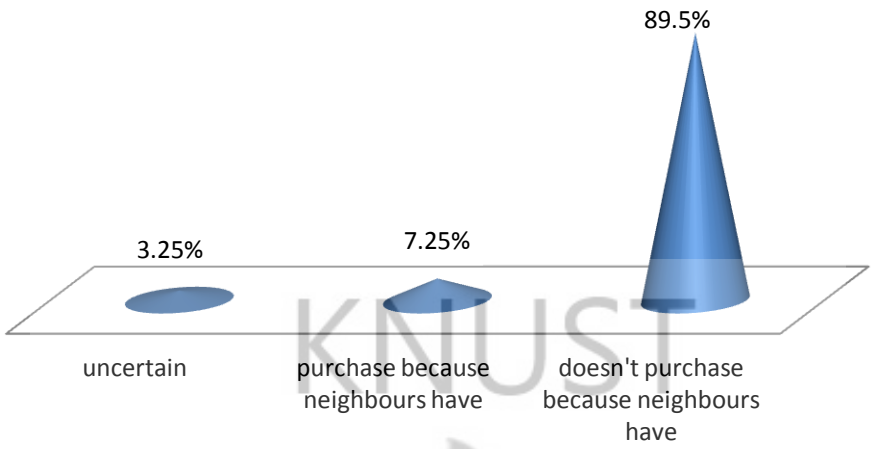
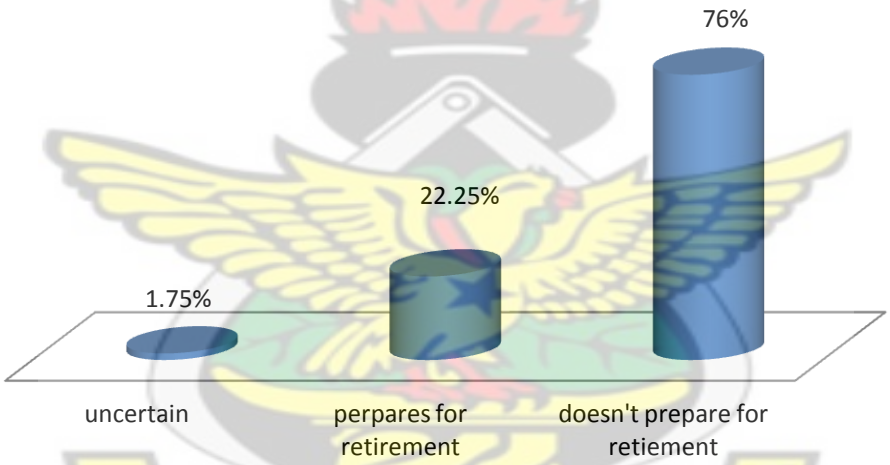


Chart 19: Prepares for retirement



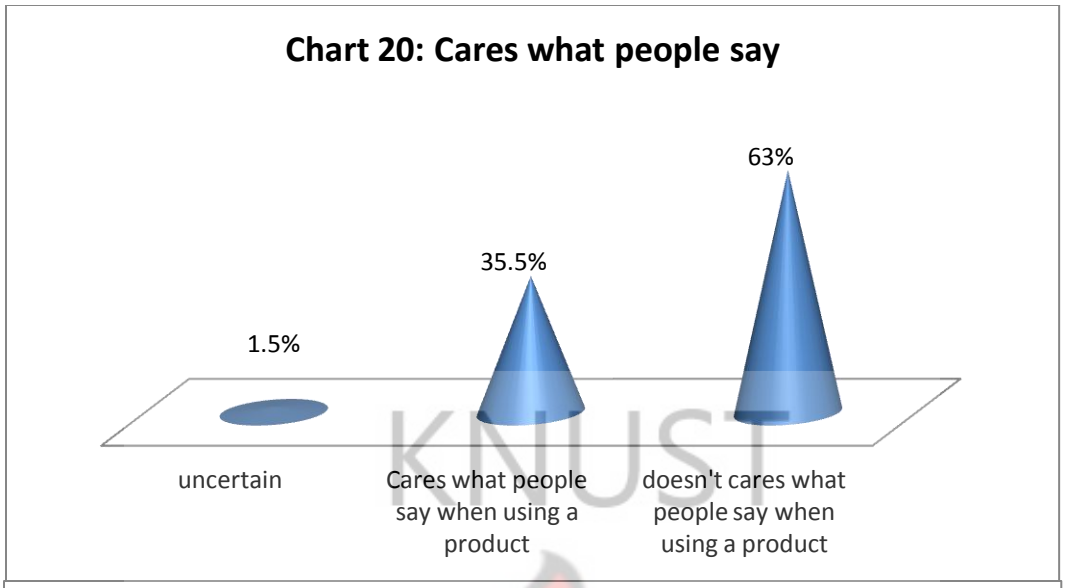


Chart 20: Cares what people say
63%
35.5%
1.5%
uncertain
Cares what people say when using a product
doesn't cares what people say when using a product


Chart 21: Purchase because you need them
92.5%
6%
1.5%
uncertain
purchase because You Need Them
doesn't purchase because You Need Them

APPENDIX 5

Real GDP, household consumption expenditure and interest rate from 1970 to 2010

Years	Real GDP (Y)	Household final consumption expenditure	Interest rate(IR)	ln C	ln Y
1970	566126.3	661020.4	2.4	13.24657	13.40154
1971	575630.3	698032.3	-1.4	13.26322	13.45602
1972	540097.1	680523.9	-1.9	13.1995	13.43062
1973	601116.4	718258.2	-9.9	13.30654	13.48458
1974	661478.9	767477	-10.3	13.40223	13.55086
1975	551911.6	672067.1	-16.8	13.22114	13.41811
1976	529282.8	648341.8	-30.8	13.17928	13.38217
1977	528769.9	663085.8	-50.1	13.17831	13.40466
1978	587607.6	719288.6	-34.4	13.28381	13.48602
1979	585911.8	701211.6	-26.5	13.28092	13.46057
1980	605975.6	704442.8	-24.4	13.3146	13.46516
1981	554562.1	679827.1	-44.8	13.22593	13.42959
1982	481859.3	632770.9	-9.6	13.08541	13.35786
1983	490623	603880.8	-48.6	13.10343	13.31113
1984	558153.1	656101.8	-10.4	13.23239	13.39407
1985	595787	689431.7	0.4	13.29764	13.44362
1986	615736.8	725369.4	-15.3	13.33057	13.49444
1987	656946.6	760150.1	-9.8	13.39536	13.54127

1988	689408.6	802932.7	-5.8	13.44359	13.59603
1989	706630.6	843768.8	8.2	13.46826	13.64563
1990	731214.5	871856.3	-21.3	13.50246	13.67838
1991	758832	917906.3	-3.1	13.53954	13.72985
1992	791152.9	953515.7	3.4	13.58125	13.76791
1993	806815.7	999761.2	6.3	13.60085	13.81527
1994	783050.8	1032445	6.8	13.57095	13.84744
1995	819862.6	1073985	-48.1	13.61689	13.88689
1996	823276.5	1123347	-5.8	13.62105	13.93182
1997	980891.8	1170508	-0.6	13.79622	13.97295
1998	997874	1225448	-22.5	13.81338	14.01882
1999	1248416	1279718	-6.8	14.03739	14.06215
2000	1105981	1333537	-4	13.91624	14.10335
2001	1028187	1394067	9.2	13.84331	14.14774
2002	1189127	1460893	5.6	13.98873	14.19456
2003	1236622	1537212	4.3	14.02789	14.24548
2004	1390886	1619499	12.2	14.14545	14.29763
2005	1494019	1719840	15.5	14.21698	14.35774
2006	1459158	1798123	12.5	14.19337	14.40225
2007	1534073	1914275	13.5	14.24344	14.46485
2008	1700258	2075660	17	14.34629	14.54579
2009	1761987	2172340	18	14.38195	14.59132
2010	1930785	2316152	13.5	14.47344	14.65542

APPENDIX 6

Regression Results for Permanent Income Hypothesis

Dependent Variable: LN_C

Method: Fully Modified Least Squares (FMOLS)

Date: 05/02/13 Time: 11:18

Sample (adjusted): 1972 2010

Included observations: 39 after adjustments

Cointegrating equation deterministics: C

Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth

= 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_Y	0.904889	0.104648	8.646958	0.0000
LN_C(-1)	0.073564	0.110175	0.667696	0.5087
IR	0.000415	0.000512	0.811991	0.4223
C	0.121036	0.349643	0.346170	0.7313

R-squared	0.984623	Mean dependent var	13.62579
Adjusted R-squared	0.983305	S.D. dependent var	0.405062
S.E. of regression	0.052337	Sum squared resid	0.095871
Durbin-Watson stat	1.639674	Long-run variance	0.001919

APPENDIX 7

Regression Results for Respondents Above 60 years

```
. fit monthlyincome   male basic SHS tertiary prepare saves support Dependents+
  Public lengthofcontribution incomeb4retirement

      Source |       SS       df       MS              Number of obs =     295
-------------+------------------------------           F( 11,   283) =   18.23
       Model |  5802802.32    11  527527.483            Prob > F      =  0.0000
    Residual |  8187942.76   283  28932.6599            R-squared     =  0.4148
-------------+------------------------------           Adj R-squared =  0.3920
       Total |  13990745.1   294  47587.5683            Root MSE      =   170.1

------------------------------------------------------------------------------
monthlyinc~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        male |   45.53023   23.45051     1.94   0.053    -.6293377    91.68979
       basic |   47.35254   44.96445     1.05   0.293    -41.15467    135.8598
         SHS |   87.97291   42.05052     2.09   0.037     5.201429    170.7444
    tertiary |   190.0442   43.79457     4.34   0.000     103.8397    276.2486
     prepare |   65.44461   22.24783     2.94   0.004     21.65238    109.2368
       saves |   59.71369   22.61518     2.64   0.009     15.19838     104.229
     support |  -10.83616   21.66358    -0.50   0.617    -53.47836    31.80605
  Dependents |   11.36217    8.05685     1.41   0.160    -4.496788    27.22113
      Public |   25.45323   28.48004     0.89   0.372    -30.60637    81.51283
lengthofco~n |   .5639789   .1100013     5.13   0.000     .3474543    .7805034
incomeb4re~t |   .0767382   .0140338     5.47   0.000     .0491143    .1043621
       _cons |  -221.0738   67.63513    -3.27   0.001    -354.2056   -87.94204
------------------------------------------------------------------------------
```

.