**T.C.**
**GAZIANTEP UNIVERSITY**
**GRADUATE SCHOOL OF SOCIAL SCIENCES**
**FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES**

# DETERMINANTS ABSOLUTE AND RELATIVE INCOME HYPOTHESES ACROSS TWENTY SELECTED AFRICAN COUNTRIES

**Research Thesis**
**Submitted to the Institute of Social Sciences**
**In partial fulfillment of the requirements**
**For the degree of**

**M.A. Economics**

**By**

**ALI DAHIRU MOHAMMED**
**201626725**

**Gaziantep University Turkey**

**May 2017 © ali**
**All Rights Reserved, 2017**

# APPROVAL OF THE JURY

| | |
|---|---|
| **Student** | : ALI DAHIRU MOHAMMED |
| **University** | : Gaziantep University Turkey |
| **Graduate School** | : Graduate School of Social Sciences |
| **Department** | : Economics |
| **Thesis Title** | : Determinants absolute and relative income hypotheses across twenty selected African countries |
| **Thesis Date** | : 10.03.2017 |

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts.

Prof. Dr. ARİF ÖZSAĞIR
**Head of Department**

This is to certify that I have read this thesis and that in my opinion, it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

Assoc. Prof. Dr. Berna Balci Izgi
**Supervisor**

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master's of Art.

| **Examining Committee Members** | **Signature** |
|---|---|
| Prof. Dr. Ömer ÖZÇİÇEK | ..... |
| Doç.Dr.Mehmet ŞENTÜRK | ..... |
| Assoc. Prof. Dr. Berna Balci Izgi | ..... |

It is approved that this thesis has been written in compliance with the formatting rules laid down by the Graduate School of Social Sciences.

Assoc. Prof. Dr. Zekiye Antakyalioğlu
**Director**



ii

## RESEARCH ETHICS DECLARATION

The information contained here is, to the best of my knowledge and belief, accurate. I have read the University's current research ethics guidelines, and accept responsibility for the conduct of the procedures set out in the attached application in accordance with these guidelines, the University's policy on conflict of interest and any other condition laid down by the Gaziantep University Research Ethics Committee or its Sub-Committees. I have attempted to identify all the risks related to this research that may arise in conducting this research and acknowledge my obligations and the rights of the participants.

I have declared any affiliation or financial interest in this research or its outcomes or any other circumstances which might present a perceived, potential or actual conflict of interest, in accordance with Gaziantep University policy on Conflicts of Interest.

Signature: Tahir

Name: ALI DAHIRU MOHAMMED

Student ID Number: 20162725

Date: 10 - March - 2017.



iii

# DEDICATION

This Research work was dedicated to Almighty God, for given me the opportunity to successfully complete this program without any hindrance, and to my Late Mother, Mrs. Iyabo Adeoye Ali, who would have been most fulfilled in her lifetime to see me achieve this master's degree height. Thank you for the foundation you laid in my life.

# ACKNOWLEDGEMENT

This study is the product of a prolonged gestational intellection and of previous multiple manifestations in a variety of forms which owes a debt to so many people then there will be space to acknowledge. But the weight of the debt is no reason to refrain from mentioning a few people whose support was crucial to the materialization of this study.

First, my hearty thanks go to my parents, Mr. Abdulganiyu A. Ali and My Late Mother Mrs. Iyabo A. Ali, they have been my back rock from start. Without their guardianship, prayers, support, and good parental upbringing, they invested in me at a time I had no awareness of my strengths, I would never be who I am today. May Almighty God blessing and bounties shower on them, Ameen.

My appreciation goes to Kano State Government under the administration of my noble, wonderful and lovely former governor and now serving Senator representing Kano Central Engr. Dr. Muhammad Rabi'u Musa Kwankwaso for sponsoring my study at Gaziantep University Turkey.

I acknowledge with gratitude the guidance and support I received from my supervisor Assoc. Prof. Dr. Berna Balci Izgi, whom her concerted effort had been given for the successful completion of this research.

My thanks go to my intelligent and diligent Professors: Assit. Prof. Hasan Aksoy, Assit. Prof. Rustem Yanar, Assoc. Prof. Abdulkadir Nagac, Feyza Ozdinc (Ph.D.) and Eda Dineri, all from Economics Department. Thank you for the knowledge and skills imparted to me during my study. I also thank all staffs in Economics Department and Gaziantep University at large.

Exceptional thanks go to my siblings Alh. Tajudeen Adeoye Ali, Aunty. Bukola T. Oginni, Bro. Abdul Razak Ali, Bro. Yinka Kanike, Kasim Ali, Abbas Ali and Zainab Zaradeen, thank you all for your kind support and prayers, I love you all.

Specific acknowledgment goes to all my colleagues in MSc Economic Class for their valuable support and prayers particularly my closest friend Modibo Diarra who has become an inextricable part of my personal and intellectual journey.

Finally, this acknowledgment would be incomplete if I failed to thanks, Haj. Kudirat Tajudeen Adeoye, Mrs. Tope Abdulraqak Ali, Mr. Abdulmajid Olayemi, Oladeji Tolulope Ayo, Adewuyi Tosin, Zaradeen Babagana, Aliyu Ibrahim Nasir, Salisu Garba Musa, Awalu Ibrahim Ismail, and Abubakar Liman. Among others for their prayers and encouragement.

Thank you and God bless you all.

ALI DAHIRU MOHAMMED

# *Abstract*

*A number of studies have been conducted about income hypotheses in some African countries, the study determinants absolute and relative income hypotheses across twenty selected African countries from 1980 to 2015. This study tries to find out or verify whether the selected countries are in conformity to the Absolute and Relative Income Hypotheses as well as finding out whether interest rates, inflation rates, and exchange rates have a significant impact on consumption per capita. Fixed effects, Random effects, Hausman test and some Diagnostics tests were employed for the analysis of the data. The results indicated that Income per capita had a positive significant impact on Consumption per capita and marginal propensity to consume is smaller than one. Interest Rates, Inflation Rates, and Exchange Rates have a negative significant impact on Consumption. Relative Consumption was significantly affected by Relative Income but negatively. Finally, Demonstration effect was also discovered among the selected countries. It was concluded that the twenty selected African countries are in conformity to Absolute and Relative Income Hypothesis and the remain independent variables under study (interest rates, inflation rates, and exchange rates) have a significant impact on consumption per capita. With regards to the findings, policy makers of these countries were recommended to maintain a low level of interest rates, inflation rates and exchange rates due to the negative relationship they have with consumption. By undertaking this, it would promote consumption; an increase in consumption will induce more job opportunities; generating more revenue and taxes to the government.*



***Keywords:*** *Absolute Income Hypothesis, Relative Income Hypothesis, Consumption, Income, African Countries.*

## *KISA ÖZET*

*Bazı Afrika ülkelerinde gelir hipotezleri hakkında bir dizi çalışma yapılmıştır, Çalışma 1980 2015 yirmi seçilmiş Afrika ülkelerinde mutlak ve bağıl gelir hipotez determinantlar. Bu çalışma seçilen ülkelerin mutlak ve karşılaştırmalı gelir hipotezler için uygunluğunu ve aynı zamanda faiz oranı, enflasyon oranı, ve döviz kurların etkisinin kişi başına tüketim üzerinde olan etkiyi incelemektedir. Sabit etkiler, rasgele etkileri, Hausman testi ve bazı tanısal testler, verilerin analizi için kullanılmıştır. Kişi başına düşen gelirin kişi başına tüketim üzerinde pozitif ve önemli bir etkisi olmuştur ve marjinal tüketim eğilimi birden daha küçüktür. Faiz oranları, enflasyon oranları ve döviz kurları tüketim üzerinde negatif ve önemli bir etkiye sahiptir. Son olarak, gösteri etkisi de seçilmiş ülkeler arasında keşfedildi. Seçilmiş 20 Afrika ülkelerinde mutlak ve karşılaştırmalı gelir hipotezi için uygun olduğu sonucuna varılmıştır ve nispi gelir hipotezi ve çalışılan diğer bağımsız değişkenler (Faiz Oranları, Enflasyon Oranları ve Döviz Kurları) kişi başına tüketim üzerinde önemli bir etkiye sahip olduğu sonucuna varılmıştır. Sonuçlara dayanarak bu ülkelerin politika düzenleyicilerine faiz oranları, enflasyon oranı ve döviz kurları düşük düzeyde tutması tavsiye edilmektedir çünkü bu değişkenler ve tüketim arasında negatif bağlantı vardır. Bu vesileyle bunu uygulayarak tüketimi teşvik etmenin yanı sıra tüketimin artışına sebep olacak ki bunlar daha fazla iş imkanını arttırıyor ve hükümete daha fazla gelir ve vergi getirecektir.*



***Anahtar kelimeler**: Mutlak Gelir Hipotezi, Nispi Gelir Hipotezi, Tüketim, Gelir, Afrika Ülkeleri.*

**Table of Contents**

DETERMINANTS ABSOLUTE AND RELATIVE INCOME HYPOTHESES ACROSS TWENTY SELECTED AFRICAN COUNTRIES .....i

## APPROVAL OF THE JURY

| | |
|---|---|
| **Student** | : ALI DAHIRU MOHAMMED |
| **University** | : Gaziantep University Turkey |
| **Graduate School** | : Graduate School of Social Sciences |
| **Department** | : Economics |
| **Thesis Title** | : Determinants absolute and relative income hypotheses across twenty selected African countries |
| **Thesis Date** | : 10.03.2017 |

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts.

Prof. Dr. ARİF ÖZSAĞIR
**Head of Department**

This is to certify that I have read this thesis and that in my opinion, it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

Assoc. Prof. Dr. Berna Balci Izgi
**Supervisor**

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master's of Art.

| **Examining Committee Members** | **Signature** |
|---|---|
| Prof. Dr. Ömer ÖZÇİÇEK | ..... |
| Doç.Dr.Mehmet ŞENTÜRK | ..... |
| Assoc. Prof. Dr. Berna Balci Izgi | ..... |

It is approved that this thesis has been written in compliance with the formatting rules laid down by the Graduate School of Social Sciences.

Assoc. Prof. Dr. Zekiye Antakyalioğlu
**Director**

ii

..... ii

RESEARCH ETHICS DECLARATION .....**Hata! Yer işareti tanımlanmamış.**
DEDICATION ..... iv
ACKNOWLEDGEMENT ..... v
*Abstract* ..... vii
*KISA ÖZET* ..... viii
Table of Contents ..... ix
LIST OF TABLES ..... xi
LIST OF ABBREVIATIONS ..... xiii
CHAPTER ONE ..... 14
INTRODUCTION ..... 14
1.1 Introduction ..... 14
1.2 Historical Background of Africa ..... 19
1.3 Statements of the problem ..... 20
1.4 Aims and Objectives ..... 21
1.5 Significant of the Study ..... 21
1.6 Research Question ..... 21
1.7 Research Hypothesis: ..... 22
1.8 Scope and Limitations ..... 22
1.9 Contribution of the Research ..... 22
CHAPTER TWO ..... 23
LITERATURE REVIEW ..... 23
2.1 Introduction ..... 23
2.2 Theoretical Framework ..... 23
2.3 Empirical framework ..... 25
2.4 Summary of the chapter ..... 29
CHAPTER THREE ..... 30
RESEARCH METHODOLOGY ..... 30
3.1 Introduction ..... 30
3.2 Data ..... 30
3.3 Variables ..... 32
3.3.1 Consumption: ..... 32
3.3.2 Income: ..... 32
3.3.3 Interest rate: ..... 32
3.3.4 Inflation: ..... 33
3.3.5 Exchange rate: ..... 33
3.3.6 Error term: ..... 33

3.4 Models....34
3.4.1 Fixed effects model:....34
3.4.2 Random effect model:....35
3.4.3 Hausman test:....35
3.4.4 Diagnostic test:....36
3.4.5 Model Specification:....36
CHAPTER FOUR....38
EMPIRICAL RESULTS....38
4.1 Introduction....38
4.2 DESCRIPTIVE STATISTICS....38
Table 4.1 Summary Statistics....55
4.2 ABSOLUTE INCOME HYPOTHESIS RESULTS....56
Table 4.2.1 fixed effect regression results....56
Table 4.2.2 Random effect regression result....57
Table 4.2.3 Hausman Test....58
4.3 RELATIVE INCOME HYPOTHESIS RESULTS....59
Table 4.3.2 Random effect regression results....60
Table 4.3.3 Hausman Test....61
4.4 DIAGNOSTICS TESTS RESULTS....61
4.4.2 Cross – Sectional Test of Independence....62
4.4.3 Heteroscedasticity Test....63
CHAPTER FIVE....64
SUMMARY, CONCLUSION, AND RECOMMENDATIONS....64
5.1 Summary....64
5.2 Conclusion....66
5.3 Recommendation....66
REFERENCES....67

## LIST OF TABLES

Table 4.1: Summary Statistics. 26
Table 4.2.1: Fixed Effect Regression Result 27
Table 4.2.2: Random Effect Regression Result 28
Table4.2.3: Hausman Test 29
Table 4.3.1: Fixed Effect Regression Result 30

| | | |
|---|---|---|
| Table 4.3.2: | Random Effect Regression Result | 31 |
| Table 4.3.3: | Hausman Test | 31 |
| Table 4.4.1: | Random Effect Test | 32 |
| Table 4.4.2: | Heteroscedasticity Test | 33 |

# LIST OF ABBREVIATIONS

| | |
|---|---|
| AIH: | Absolute Income Hypothesis |
| APC: | Average Propensity to Consume |
| APS: | Average Propensity to Save |
| CPI: | Consume Price Index |
| ECM: | Error Correction Mechanism |
| ER: | Exchange Rate |
| GDP: | Gross Domestic Product |
| GMM: | Generalized Method of Moment |
| GNP: | Gross National Product |
| IR: | Interest Rate |
| LCH: | Life Cycle Income Hypothesis |
| MPC: | Marginal Propensity to Consume |
| OBS: | Observation |
| OECD: | Organization for Economic Cooperation and Development |
| OLS: | Ordinary Least Square |
| PIH: | Permanent Income Hypothesis |
| REH: | Relative Expectation Hypothesis |
| RIH: | Relative Income Hypothesis |
| RY: | Relative Income |
| UK: | United Kingdom |
| USA: | United State of America |
| WDI: | World Development Indicator |

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

Consumption is a major concept in economics and is also studied by many other social sciences. Economists are particularly interested in the relationship between consumption and income, as modeled with the consumption function. The Keynesian consumption function is also known as the absolute income hypothesis, as it only bases on consumption current income and ignores potential future income or lack of Criticism of this assumption led to the development of Milton Friedman's permanent income hypothesis and Franco Modigliani's life cycle hypothesis. More recent theoretical approaches are based on behavioral economics and suggest that a number of behavioral principles can be taken as microeconomic foundations for a behaviourally based aggregate consumption function. The relative income hypothesis states that an individual's attitude to consumption and saving is dictated more by his income in relation to others than by abstract standard of living; the percentage of income consumed by an individual depends on his percentile position within the income distribution.

Secondly it hypoth esises that the present consumption is not influenced merely by present levels of absolute and relative income, but also by levels of consumption attained in the previous period. It is difficult for a family to reduce a level of consumption once attained. The aggregate ratio of consumption to income is assumed to depend on the level of present income relative to past peak income.

Dernburg (1985) define consumption "as an act of using goods and service with the aims of satisfying man's unaccounted needs." Generally, consumption refers to the satisfaction or utility derived from a human after using goods and services. Many single user goods are consumed by people (such as fuels, foodstuffs, matches, cigarettes etc.), and long-lasting goods such as tables, vehicles, watches,

clothes etc. Using such kinds of goods is referred, as single productive consumption as a result of them did not assist in producing of other goods. Moreover, service of the machine, teachers, servant and doctors are also satisfying human wants but they are called productive consumption because they help in producing other goods and services (Lattimore, 1994).

In addition, goods and services that are not paid for in the means of consumption are not being regarded as consumption, such goods and services are: use fruits or flower grew in the kitchen garden, vegetables. In conclusion, professor Meyers define consumption as a nonstop and absolute taking of goods and services in satisfying the want of human being (Bunting, 2001).

Anyanwu (1995), Frank and Bernmanke (2001) define consumption as the total consumption spending levels, which comprise long lasting goods and single user goods, this shows the overall status of an economy. Some of the basic economics variables that determine total output; total consumption is one of them that implore a lot of attention and studies. This is true because of consumption spending account for about two – third of total spending in virtually all economies (Branson, 1989). As a result of this, the determinant of aggregate consumption has been investigating intensively in the literature of an economy for a long period of time. Many investigations have revealed that there are so many factors that affect consumption expenditure apart from income.

Valentino Piana (2001) Consumption is the value of goods and services bought by people. Individual buying acts are aggregated over time and space. Consumption is normally the largest GDP component. Many persons judge the economic performance of their country mainly in terms of consumption level and dynamics.

First, consumption may be divided according to the durability of the purchased objects. In this vein, a broad classification separates durable goods (as cars and television sets) from non-durable goods (as food) and from services (as restaurant expenditure). These three categories often show different paths of growth.

Second, consumption is divided according to the needs it satisfies. A commonly used classification identifies ten chapters of expenditure: Food, Clothing and footwear, Housing, Heating and energy, Health, Transport, House furniture and appliances, Communication, Culture and schooling, Entertainment. People in a different position in respect to income have systematically different structures of consumption. The rich spend more for each chapter in absolute terms, but they spend a lower percentage of income for food and other basic needs. The percentage values of an aggregation over all the households in a country can thus be used for judging income distribution and the development level of the society. The rich have both higher levels of consumption and savings. In differentiated product markets, the rich can usually buy better goods than the poor. This happens also because they tend to use different decision-making rules.

Third, one should distinguish "consumption" as the use of goods and services from "consumption expenditure" as buying acts. For durable goods, this difference is very relevant since they are used for long time periods.

Fourth, only newly produced goods enter into the definition of consumption, whereas the purchase of, say, an old house is not considered consumption in macroeconomics since it was already counted in the GDP of the year in which it was built. Needless to say, for the consumer, both old and new goods provide some need satisfaction.

In microeconomic terms, total consumption expenditure of one household is the sum, over a span of time, of the value (i.e. Time, Price, and Quality). Macroeconomic consumption is the sum of the consumption of all households, keeping into account that households are not independent of each other but rather communicate and covariate.

According to the age of the decision-maker, individual and household consumption varies, both in values and composition. Thus, aggregate consumption may be influenced by demographic factors, such as an older and older population, even though one should not rely too much on these relationships since demographic

variables are extremely slow in changes, whereas consumption clearly reacts to the economic climate.

**Relative Income Theory of Consumption**

Am American economist J.S. Duesenberry put forward the theory of consumer behaviour which lays stress on relative income of an individual rather than his absolute income as a determinant of his consumption. Another important departure made by duesenberry from keynes's consumption theory is that , according to him, the comsumption of a person does not depend on his current income but on certain previously reached income level.

According to Duesenberry's relative income hypothesis, consumption of an individual is not the function of his absolute income but of his relative position in the income distrubution in a society, that is, his consumption depends on his income relative to the incomes of other individuals in the society. For example, If the incomes of all individuals in a society increase by teh same percentage, then his relative income would remain the same, though his aabsolute income would have increased. According to Duesenberry, because his relative income has remain the same the individual will spend the same proportion of his income. Duesenberry's relative income hypothesis suggests that in the long run the community would continue to consume the same proportion of income as its income increases. According to Duesenberry, saving as a proportion of income of the individuals with relatively low incomes would not rise much with the increase in their incomes. That is, their savings would not rise to the same proprtion of income as was being done by the individuals who had the same higher income prior to the present increase in income.

This is because with the increase in incomes of all individuals by the same proportion, the relative incomes of the individuals would not change and therefore they would consume the same proportion of their income. This applies to all individuals and households. İt therefore follows that assuming that relative distribution of income remains the same with the growth of income of a society, it's average propensity to consume (APC) would remain constant.

Thus, this conclusion of the relative income hypothesis differs from the Keynesian theory of consumption according to which, as seen above, as absolute income of a community increases, it will devote a smaller proportion of its income to consumption expenditure, that is its APC will decline. İt is important to note that relative income theory implies that with the increase in income of a community, the relative distribution of income remaining the same, does not move along the same aggregate consumption function, but its consumption function shifts upward. Since as income increases, movement along the same consumption function curve implies a fall in average propensity to consume, Duesenberry's relative income hypothesis suggests that as income increases consumption function curve shifts above so that average propensity to consume remains constant.

**Demonstration Effect of Relative Income.**

By emphasising relative income as a determinant of consumption the relative income hypothesis suggests that individuals or households try to imitate or copy the consumption levels of their neighbours or other families in a particular community. This is called demonstration effect or Duesenberry effect. Two things follow from this. First, the average propensity to consume does not fall. This is because, according to Dusenberry, the people try to maintain their consumption at the highest level attained earlier.

**Life Cycle Theory of Consumption**

An important post-Keynesian theory of consumption ha been put forward by Modigliani and Ando which is known as life cycle theory. According to life cycle theory, the consumption in any period but of the whole lifetime expected income. Thus, in life cycle hypothesis the individual is assumed to plan a pattern of consumption expenditure based on expected income in their entire lifetime. İt is further assumed that individual maintains a more or less constant or slightly increased level of consumption.

However, this level of consumption is limited by his expectations of lifetime income. A typical individual in this theory in his early years of life spends on consumption either by borrowing from others or spending the assets bequeathed from his parents.

**Impact on other variables**

A GDP component as it is, consumption has an immediate impact on it. An increase of consumption raises GDP by the same amount, other things equal. Moreover, since current income (GDP) is an important determinant of consumption, the increase of income will be followed by a further rise in consumption. An autonomous increase of consumption, if at the same level of income, would reduce savings, but the positive loop just described (known as the "Keynesian multiplier") will simply an increase of income level with a positive impact on future savings. As a result of this, the determinant of aggregate consumption has been investigating intensively in the literature of an economy for a long period of time. Many investigations have revealed that there are so many factors that affect consumption expenditure apart from income.

Neoclassical economist (mainstream), deem consumption as one of the final stages in economics activity and however, the degree of satisfaction person derived is believed to be the yardstick of whether economy's motives has been achieved or not.

There are other theories of consumption such as life cycle income hypothesis (LCH), permanent income hypothesis (PIH). This research will focus on these two theories explained earlier on, Using panel data of twenty African countries from 19850 to 2015.

## 1.2 Historical Background of Africa

A scientist has a belief that Africa is the origin of mankind. 100,000 BC ago, human activities were gathering with stones tools and hunting, this was extended

up to Europe. It is sometimes times forgotten that Egypt is one of the oldest and greatest roots of civilisation, which was blessed with bronze. This gives them the ability to produce tools for farming and weapons. About 600BC the use of iron was exposed in the North Africa, which is plentiful in South Africa around 500AD, these dominate the bronze weapons and tools that are used before, (Jerome, 2008).

Africa experienced wars and slaves trade in the 1800s. In 1814, European took over African countries in which they colonize most of the African countries, for example, British take control of Dutch in South Africa; in 1830 French invade northern Algeria; in 1884 German colonize Namibia, Togo and Cameroon while Tanzania was colonized in 1985; Belgium colonized what is now known as Democratic Republic of Congo in 1987; French colonized Madagascar in 1896; Libya colonized by Italy in 1912 and British colonized Egypt in 1914. In the thirty years gap, the whole Africa was taken over by the European power. In 1913, European had drawn a demarcation for about forty (40) new colonies or states. These demarcations form the basis of Africa in the present time. After world war two, European countries lose the power to rule Africa. From 1950, Africa countries start getting their independence. In the early 21 century, Africa starts boosting. Nowadays the economies of most African countries are growing up rapidly, (Jerome, 20/08).

### 1.3 Statements of the problem

Lord Keynes (1936) men or women raise their consumption as their income goes up but the consumption does not go up in the same way of income.
Duesenberry (1949) opposed this theory by saying that consumption of individual or community does not depend on current income rather to the relative income of society or community to which an individual belong. Moreover, society tends to emulate their neighbor with regards to consumption, if the income of the community goes down, they would retain their maximum consumption they have attained earlier on.

## 1.4 Aims and Objectives

• To find whether income has a positive significant impact on consumption and whether marginal propensity to consume is less than one (that is, whether the selected countries are in conformity to the Absolute Income Hypothesis).
• To find out whether other economics variables such as interest rates, inflation rates, and exchange rates has a significant impact on consumption.
• Lastly is to find out whether the proposition made by Duesenberry on consumption (that is, relative income hypothesis is applicable to the selected countries).

### 1.5 Significant of the Study

The topic: Absolute and relative income Hypotheses across twenty African countries were decided because many studies on consumption and aggregate consumption were conducted on some individual or cross-sectional countries. Consumption is very crucial in determining economics growth. This is what arose interest of the researchers to be conducting many types of research on it.
Though there were numerous theories of consumption that came after absolute and relative income hypotheses, still, these theories are indispensable. This study would be helpful to the government in making economics policies such as determination of minimum wages and tax imposition. When there is high consumption, there is going to be more production and the more production, the more government would generate revenue, which contributes to the economics growth of a country.

### 1.6 Research Question

- Does income have a positive significant impact on consumption across twenty selected African countries?
- Are twenty selected African countries support absolute income hypothesis?
- Does interest rate, inflation rate, and the exchange rate have a significant impact on consumption?

- Are twenty selected countries in conformity to the relative income hypothesis?

### 1.7 Research Hypothesis:

In relating to above questions the following hypotheses were constructed.

H0: African countries are not in support of absolute income hypothesis.
H1: African countries are in support of absolute income hypothesis.

H0: Other economics variables (that is, interest rates, inflation rates and exchange rates) have an insignificant impact on consumption.
H1: Other economics variables (that is, interest rates, inflation rates and exchange rates) have a significant impact on consumption.

H0: African countries doesn't follow relative income hypothesis.
H1: African countries follows relative income hypothesis.

### 1.8 Scope and Limitations

The areas that this research covered were twenty selected African countries. It was intended to expand the research to the whole African countries, unfortunately, due to unavailability of data in some of the countries and time frame, make this research to be restricted to only twenty African countries.

### 1.9 Contribution of the Research

• This research is more up to date in the sense that it covered a period from 1980 to 2015.
• This is the first research that comprises many African countries on absolute and relative income hypotheses.
• More statistical techniques and diagnostic test were employed for the analysis of the data in order to have valid, efficient and reliable results.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1 Introduction

This chapter consists of two parts: theoretical framework and empirical framework. The theoretical framework gives an insight of how consumption behaved with regards to income by considering many theories of consumption, while the empirical framework examined researches conducted by different researchers; methods or techniques used, and the findings. The essence is to update literature so as to gives required policies recommendations.

### 2.2 Theoretical Framework

John Maynard Keynes in 1936, proposed a theory of consumption named as "Absolute Income Hypothesis." Although there are other factors that affect consumption but this theory stressed that consumption of an individual is affected by the income got at that very day. After the theory was tested then it was stated that men or women raise their consumption as their income goes up but consumption does not go up in the same way of income (Jhingan, 2002).

Keynes, constructed a consumption function which is written as $Ct = \alpha + \beta Yt$, $\alpha > 0$, where Ct is the consumption at current time, Yt is disposable income at current time, $\alpha$ is consumption when there is no income and $\beta$ is showing the degree of how consumption would be when income goes up or come down; this is referred to as marginal propensity to consume (MPC).

Duesenberry (1949) proposed another theory of consumption named as "Relative Income Hypothesis." This theory criticized the first theory of consumption by saying that consumption of an individual or community does not depend on a contingent of current income, but rather to the relative income of the society or community to which individual belong. Moreover, society tends to emulate their

neighbor with the regards to consumption; if the income of the community goes down, consumption would not go down as well, and they would retain their maximum consumption they have attained earlier on. He categorizes this hypothesis into demonstration and ratchet effects (Ohale, 2002).

Demonstration effect: It is the pattern of consumption in which, individual or even society played. This kind of pattern happens when consumer or society tried to mimic the consumption of another consumer. In this case, a consumer can mimic another consumer or society can emulate another society, in the sense that even if they are not in the same distribution of income level, they would try to have the same consumption with one another in some situation (Guru Supriyu, 2015).

Ratchet effect: this is another consumption phenomenon. It happens whenever demonstration effect exists, whereby none of the consumer or society that are competing with one another with the regard to consumption, would allow his/their consumption to come down in the situation where income declined was experienced. In such situation, he/they would struggle either by using the income saved or by borrowing to see that they are not at the shame of his/their competitors. In addition, without considering the ratchet effect; society or individual may not slash his/their consumption even if income decreases, due to becoming addicted to the earlier consumption (Guru Supriyu, 2015).

Ando – Modigliani and his partner (1950) came with another ideology on a theory of consumption, which was named as "Lifecycle Hypothesis." This theory explained that the motive behind consumption for an individual is to derive satisfaction at the maximum level for the entire life span. As a result of this, an individual can scarify certain consumption at the time he experienced a high level of income for him to maintain that maximum satisfaction at the period where income was declined (Gali, 1994). This was named as inter – temporal choice. Therefore, consumption is not in a contingent of present day income but on the anticipated imminent income. Furthermore, the interest rate has a significant role on consumption. Change of interest rate has two impacts on consumption:

substitution effects and income effects. Hence, these two effects nullify each other when they move in the same direction (Irving fisher, 1930).

Friedman (1957) came with another theory of consumption called “Permanent Income Hypothesis.” This theory considers consumption in a scenario different from earlier theories. It explained that individual’s consumption is a contingent of income received permanently. Such individual income might receive a salary, pension, shares, equity, and debentures. He continued adding that, present or current income is a component of temporary income and permanent income. The former is the income which household expected to be obtained for his life span while the latter is the income which household obtained unexpectedly. It is the difference between income obtained in the long term and current income in the short term (Forgha, 2008).

Hall (1978) established Rational Income Expectation hypothesis (REH). This hypothesis explained that households tried to maintain their consumption level without changing unless there are some circumstances that make them do so. Therefore, he described consumption and wealth as a random walk.

### 2.3 Empirical framework

Kai and Papa (2010) studied the factors affecting China‘s private consumption in relative to gross domestic product (GDP), using time series data covering the period from 2000 to 2007 on the Chinese economy and proved from other countries’ incidents; the study becomes a cross-country study. Generalized Method of Moments (GMM) was applied to regress the private consumption as a part of GDP on household income and public consumption. The study stressed that the aims were to use the panel data framework to measure the relative contribution of changes in income and other causes that affect the savings rate to the dynamics of private consumption in China and relate those factors to the wider international occurrence. The study discovered that all the independent variables with exception

of inflation have significant either positive or negative influence on private consumption.

Also, Wadad (2011) conducted out an econometric investigation on private consumption function in Lebanon by exercising annual time series data spanning from 1970 to 2008. Johansen cointegration procedure was used as a tool for the analysis. The study comes up with the conclusion that all the independent variables that took parts in the analysis have an impact on private consumption.

R. Santos Alimi (2013) carried out a research with aims of testing absolute income hypothesis in Nigeria from the period of 1970 to 2011. The research exercised data on household consumption and income. The data was analyzed by operating ordinary least square method (OLS). The result revealed that change in consumption with respect to income was static but an average propensity to consume decrease as income increases.

Ida A. Mirzaie and Magda (2007) conducted a research to find out how consumption reacts with a change of income and exchange rate. Expected changes in these factors probably make the consumption change also; while unexpected change measures the temporary change in consumption. It was found that exchange rate affects consumption negatively. But in the case of income, consumption goes up as income goes up while it comes down during a temporary increase in income.

McDermott (1990) and Corfield (1992) conducted a research in New Zealand. Both of the researchers modeled consumption base on durability (nondurable, durable and services). They employed Engle – Granger two-step co – integration approach as a tool for the analysis. The result showed that disposable income had a positive significant impact on consumption.

Similar research conducted by David Rae (1997), which investigates how household consumption relates to the disposable income in New Zealand.

Econometric co – integration analysis was used as a tool for the analysis and the result revealed that current income affects consumption in both long term and short term time period. The interest rate has a positive significant impact on saving.

Another research by Adedayo O. Adedeji and Abiodun A. Adegboye (2013), on The Determinants of Private Consumption Spending in Nigeria, Using time-series data covering between 1981 and 2010. Error correction mechanism (ECM) was used in the analysis after stationary test of the data, the study discovered that with an exception of real interest rate in the current year, which was statistically insignificant in all experimental carried out, all other independent variables were statistically significant. Indeed, inflation rate, the old-age dependency ratio, disposable income and gross domestic product (GDP) per capita have significantly positive impact on private consumption spending, while foreign direct investment, real GDP growth, public spending and change in the real effective exchange rate have a negative impact on consumption spending.

Manzoor H. Memon and Khalid Khan (2012) carried out fundamental research with the purpose of comparing permanent income hypothesis of Pakistan to that of Mankiw and Campbell (1990). The outcomes revealed that consumption of consumer in Pakistan relies on their current income, not permanent income. This confirms the validity of absolute income hypothesis. The same findings found with Mankiw and Campbell consumption model. Morrisssey and Kweka (1998) disclosed that GDP had no significant impact on consumption after analyzing data obtained from Tanzania.

Fogha (2008) undertaken an investigation on consumption saving the relationship, by exercising data covering from 1970 to 2007, obtained from Cameroon. Two – stage least square procedure was employed for the analysis. The outcome revealed that disposable income had a positive impact on saving while interest rate had a negative impact on saving.

Rudd and Whelan (2006) carried out a research on consumption and labor income. The outcome concluded to accept the hypothesis there is no cointegration. That is, consumption and labor income doesn't have long term relation.
Another research by Emrah Arioğlu and Koray Tuan (2011), on "Absolute Income Hypothesis in Europe and USA." The outcomes came with the conclusion that consumption and income have a unit root.

Himayatullar Khan (2014) carried out an empirical analysis on the association between household consumption and income. A simple random sampling was employed in which three hundred households were randomly chosen from two villages in Pakistan. The outcomes revealed that family size, the household current level of income were the positive significant factors affecting household consumption.

A research by whenkai & Xianhong (2012), which tried to answer the question "Do Relative Income and income inequality affect consumption?" The study exercises two hundred rural household data from 2003 to 2006 in china. Outcomes revealed that relative income affects consumption negatively, but it is positively affected by income inequality.

Fasoranti Mary M. (2012) carried out research on consumption. By operating primary and secondary data from rural dwellers in Nigeria. Multiple regression analysis was invited in the analysis. The outcomes revealed that shares, durable asset, and current income have a positive impact on consumption.

Chigbu E. Ezejand and Emmanual I. Ajudua (2015) conducted a research on "Aggregate Consumption Expenditure in Nigeria." The study aims to come up with proved whether consumption is a contingent of current income alone or other economics variables can also affect it. The data was collected and analyzed using Augmented Dickey fuller and Johansen cointegration. The result disclosed that consumption and income have positive association ship; exchange rate and interest rate also have a negative influence on consumption.

Gulcin Tapsin and Aycan Hesage (2014) conducted a study, which title as “An Analysis of Household Consumption Expenditure in EA – 18.” The study organized panel data of eighteen European Areas from 2000 to 2012. The study used GDP in place of income. The outcomes indicated that when income goes up by one dollar, consumption would go up by zero points fifty-seven dollars. It was disclosed that independent variables have ninety – nine percent explanatory powers to explained consumption.

Alice C. Ofwona (2013), tried to testified Keynesian Absolute income Hypothesis on Kenya’s data, spanning from 1990 to 2011. Total Income and Consumption Expenditure was the key – player in the analysis. The study employed ordinary least square (OLS) procedure as a device for the analysis of the data. The outcomes indicated that Kenya’s consumption was influenced by total income. It was also concluded that Absolute Income Hypothesis fitted Kenya very well.

## 2.4 Summary of the chapter

In this chapter, all the theories of consumption showed that consumption has a positive relationship with income while in the empirical part almost all of the studies narrated that income had a positive significant impact on consumption but the relationship between consumption and other economics variables varies from one study to the other.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

In this study, data on consumption expenditure per capita, income per capita, interest rate, inflation rate and the exchange rate of each of the twenty selected African countries were collected from the year 1980 to 2015 and organized. Each country was picked with regards to available data it has for all of the variables from 1980 to 2015, a country that has missing data or incomplete data was not included in the selection. The data was a panel in nature that consist seven hundred and twenty (720) observations. Variables such as consumption expenditure per capita and income per capita were in US dollars while interest in real interest rates; inflation rate is in percentage depletion of Gross Domestic Product (GDP) exchange rate is in real exchange rates. Natural logarithm of consumption and income per capita were taken in order to convert them into rates so as to be uniform with remaining other variables, for valid, efficient and reliable analysis of the data.

The data was evaluated using fixed effects and random effects econometric models. Hausman test was conducted in order to find out which of the model between fixed effects and random effects is best or appropriate. Finally, a diagnostic test was carried out for validity and reliability of the results.

## 3.2 Data

In this research, data on consumption expenditure per capita, net income per capita, interest rate, inflation rate and exchange rate of twenty African countries from 1980 to 2015; Nigeria, Egypt, South Africa, Kenya, Sudan, Rwanda, Algeria, Morocco, Uganda, Ghana, Angola, Mozambique, Cameroon, Niger, Mali, Madagascar, Senegal, Zambia, Burkina Faso, and Tunisia, were obtained from World Development Indicators (WDI) online database published by World Bank in

the year 2015; United Nation Conference on Trade And Development Statistics (UNCTADSTAT); online database published by the management of the organization in the year 2015.

World Development Indicators (WDI) is subsidiary to the World Bank in which part of their works is collecting of development indicators organized officially by well – known international source. It revealed the most current, accurate and reliable global development data that are available, in nationwide, regional and worldwide estimates. It also presents statistical reference that includes over eight hundred (800) indicators covering more than one hundred and fifty economies. The annual publication is out in April of each year. The online database is restructured three times a year. They release such data on Agriculture, Trade, Economies, Environment and educational training.

United Nation Conference on Trade And development (UNCTADSTAT) is the data center gives access to more than one hundred and fifty-time series data covering a wide range of topics and build upon common rules and harmonized production processes. Most of the data released were time series data that cover a long period for almost all economies of the world as well as more than one hundred and fifty readymade analytical country groupings. Tables are usually updated and categorize by subject field (Trade data, investment, maritime, transport etc.) for easier navigation. Their data browser facilitated easy selection and reorganization of data, the constructions of base poker tables or graphic presentation, as well as personalized functionalities extraction options.

All these sources were consulted for the collection of the data with regard to this research. This is due to the fact that there were no available data for some of the variables in one source or the other for some years in some countries. For instance, data on income per capita of some countries was not available in World Development Indicators (WDI) for some years, also, data on exchange rates, interest rates and inflation rates of some countries were not available in World Development Indicators (WDI) but they were available in United Nation Conference on Trade and Development Statistics (UNCTADSTAT).

### 3.3 Variables

#### 3.3.1 Consumption:

Is the use of goods and services for satisfying a human immeasurable want (Denburg, 1985). This goods and services are classified into durables and non-durables. Goods that consumer will be benefiting for a long period of time are called durable goods, such goods are machines, appliances, automobiles, furniture, jewelry etc. while goods that are consumed quickly are referred as nondurable goods, such as foodstuff, cosmetics, cigarette, medication etc. Economists believe that consuming of these goods increase with an increase of income.

Classical economists did not give much attention to consumption, but modern economists overemphasize on it and seem it to be one of the key elements of economics. Consumption constitutes about two third of Gross Domestics Product (GDP) of a country.

#### 3.3.2 Income:

Disposable income is the sum of the available money a household opportune to have for a particular year after revenue, tax and transfer have slashed or detached. The averages are based on the OECD research computed for single workers deprived of offspring. It can be express as what individual received or collected from enterprises, wages, ventures and other investment in total. It is the accumulated sum of all incomes earned by the individual during a year. Personal income is the real income that an individual or household received from the country during a year from all sources. According to absolute income hypothesis, "as income goes up, consumption will go up as well."

#### 3.3.3 Interest rate:

Real interest rate is obtained by detaching inflation from the nominal interest rate. Real interest rate affects consumption in two ways: the substitution effect and income effect. Substitution effect, when there is a higher interest rate individual or

consumer try to reduce their consumption in order to save more for him to enjoy the benefit of interest rate. Similarly, when there is an upsurge of interest rate, this makes the prices of bond to fall, which makes the bond owner poorer. The increase of interest rate makes all monetary value fixed asset interest bearer fall.
Income effect, when there is an increase of interest rate, it will make the preference of bond to rise. Therefore, an upsurge of interest rate may lead to increase or shrinkage of consumption.

### 3.3.4 Inflation:

Is the upsurge of the overall level of prices of goods and services. If inflation occurred, a consumer may purchase goods and services in small percentage this is as a result of falling of purchasing power of the currency. More of income would pay off on goods and services than what usually paid off by the consumer. This would cause the consumer to reduce his consumption.

### 3.3.5 Exchange rate:

Is the proportion of currency at which one country will be swapped for another. This affect consumption of consumers or individual in the sense that, when country import most of its goods and services and whenever there is an increase in the cost of a dollar in financial market; this causes the price of goods and services to rise which make consumer reduce his consumption. An upsurge of the exchange rate will cause the export value of a country to increase and decrease of import value; while a decrease in exchange rates will reverse the situation. And the exchange rate is from local currency to dollar.

### 3.3.6 Error term:

In regression analysis, error term must be included. The idea behind this is that any independent variable that might not be imagined or think off, error term takes care of it.

### 3.4 Models

The appropriate regression models use is fixed effects, random effects, and based on Hausman test.

#### 3.4.1 Fixed effects model:

Is a mathematical or econometric model that presumes variables observed as independent variables and treat them as if they occurred not by chance. It has an ability to control individual differences caused by factors that don't change over time (such as culture, gender religion). One of it is set back is that it cannot be used for the variable that does not change over time (time – invariant) to determine their impact on the dependent variable. But its advantage is that those features that do not change over time are treated as an exceptional to the individual and doesn't compare it to any other individual's features. If residuals are interrelated, the fixed effect is not the deserve model to use, because, the generalization perhaps be incorrect and there is a need to model that relation (Kohler Ulrich, 2008).

Regression equation of the panel model on Absolute Hypothesis: -

$InC_{it} = \alpha_0 + \alpha_1 InY_{it} + \alpha_2 R_{it} + \alpha_3 \alpha\Pi_{it} + \alpha_4 ER_{it} + \delta_i + \varepsilon_{it}$

$InC_{it} = \beta_0 + \beta_1 InY_{it} + \beta_2 R_{it} + \beta_3 \alpha\Pi_{it} + \beta_4 ER_{it} + \delta_i + \varepsilon_{it}$

$InC_{it} = \beta_1 InY_{it} + \beta_2 R_{it} + \beta_3 \alpha\Pi_{it} + \beta_4 ER_{it} + \delta_i + \varepsilon_{it}$

$\overline{InCi} = \frac{1}{T} \sum_{t=1}^{T} InC_{it}$

$\overline{\delta i} = \frac{1}{T} T\delta_i = \delta_i$

$\overline{InCi} = \beta_1 \overline{InYi} + \beta_2 \overline{Ri} + \beta_3 \overline{\Pi i} + \beta_4 \overline{ERi} + \delta_i + \overline{\varepsilon i}$

$\Rightarrow InC_{it} = \overline{InCi} = \beta_1[InY_{it} - \overline{InYi}] + \beta_2 [R_{it} - \overline{Ri}] + \beta_3 [\Pi_{it} - \overline{\Pi i}] + \beta_4 [ER_{it} - \overline{ERi}] + \delta_i - \delta i + [\varepsilon_{it} - \overline{\varepsilon i}]$

$\Rightarrow \widetilde{InCit} = + \beta 1 \widetilde{InY} it + \beta 2 \widetilde{Rit} + \beta 3 \widetilde{\alpha \Pi} it + \beta 4 \widetilde{ERit}$ – Time – Constant

Fixed effect: Assumption is that the individual specific effect is correlated with the independent variables.

Fixed Effects test in stata:

Import data

egen country1 =group(country)

xtset

xtsum

xtreg dep ind, fe

### 3.4.2 Random effect model:

The ideology of random effect model is that not as it assumed by fixed effect model. The differences across predictors or independent variable are included in the model. What distinguishes this model with fixed effect model is that this model considers variation caused by unnoticed variables as part of the variation caused by an independent variable; it does not consider whether the variation is by chance. If there is proved that variation across units influences dependent variable then the random effect is appropriate. Time – invariant variables can be included in this model, unlike the fixed effects such kinds of variables are absorbed by the intercept (Green, 2008, p 183).

$InC_{it} = \beta_0 + \beta_1 InY_{it} + \beta_2 R_{it} + \beta_3 \alpha \Pi_{it} + \beta_4 ER_{it} + \delta_i + \varepsilon_{it}$

Random Effect: the random effects assumption "Made in a random effects model" is that the individual specific effects are uncorrelated.

Random Effects text in stata:

Xtreg dep ind re, (use GLS method)

### 3.4.3 Hausman test:

It gives the right decision between fixed effects and random effects models. It gives a guide to the researcher or analyst on which model between fixed effects and random effects models is the best or appropriate. It essentially tests whether the unique error terms are connected with the regressor, the null hypothesis they are not. When the probability value is significant (that is, when p – value < 0.5) then the appropriate model is fixed effect model, otherwise is random effect model.

Hausman test in stata:

- Run fe, and estimate store fe
- Run re, and estimate store re
- Hausman fe re

### 3.4.4 Diagnostic test:

It is very crucial to carry out diagnostic tests on the regression model. Such test of heteroscedasticity, cross-sectional dependency, and serial correlation are invited to ensure that data analyzed is reliable and acceptable results are obtained. For example, the occurrence of heteroscedasticity may nullify the statistical test of significance that assumes residual are unassociated and normally allocated and variance does not change with the effect being modeled.

Diagnostic test in stata:

- Regress
- Vif
- Vce
- Vce, correlation

### 3.4.5 Model Specification:

The model specification in regression analysis is the method or process of specifying correct or right functional form of the regression model. The essence of this specification is to determine the independent variable(s) that should be or should not be included in the model, so as to yield good effects on the dependent variable. Right specification leads to good results while miss-specification leads to inaccurate results.

In this research, the model's used is panel data:

The regression equation of the absolute hypothesis.

$$lnC_{it} = \alpha_0 + \alpha_1 lnY_{it} + \alpha_2 R_{it} + \alpha_3 \Pi_{it} + \alpha_4 ER_{it} + \delta_i + \varepsilon_{it}$$

The regression equation of the relative hypothesis.

$$RC_{it} = \alpha_0 + \alpha_1 RY_{it} + \alpha_2 R_{it} + \alpha_3 \Pi_{it} + \alpha_4 ER_{it} + \delta_i + \varepsilon_{it}$$

Where: $C_{it}$ = consumption expenditure per capita; $Y_{it}$ = income per capita; $R_{it}$ = interest rate; $\Pi_{it}$ = inflation rate; $ER_{it}$ = exchange rate; $RC_{it}$ = relative consumption; $RY_{it}$= relative income; $\delta_i$ is the individual fixed effect and $\varepsilon_{it}$ is the error terms.

# CHAPTER FOUR

# EMPIRICAL RESULTS

## 4.1 Introduction

The main aim of this chapter was to display the result of the analyzed data. At the first instance, descriptive statistics table was displayed, follows by fixed effects regression, followed by random effects regression and Hausman test for both of absolute income and relative income hypotheses. Finally, diagnostics tests such as random effect test cross – sectional dependency test, and heteroscedasticity test were conducted for validity and reliability of the outcomes.

## 4.2 DESCRIPTIVE STATISTICS

This section showed the summary data of the variables that participate in the study.

**SUMMARY OF TWENTY SELECTED AFRICAN COUNTRIES:**

### 1. Angola:

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 28 | 1097.65 | 1311.423 | 54.29655 | 5086.848 |
| Log income | 36 | 5295.885 | 15382.62 | 109 | 71093.3 |
| Interest rate | 21 | .3229681 | 5.643745 | -9.219936 | 8.953173 |
| Inflation rate | 30 | 27.5884 | 49.24998 | -7.418798 | 249.087 |
| Exchange rate | 36 | 31.4506 | 40.37507 | 2.00e-06 | 98.30241 |

From the table above, the average consumption gross per capita is 1097.65; minimum consumption gross per capita is 54.29655; maximum consumption gross per capita are 5086.848, and the observation is 28;. The average income gross

per capita is 5295.885; minimum income per capita is 109 and maximum gross per capita are 71093.3, and the observation is 36. The average interest rate is .3229681; minimum interest rate is -9.219936 and the maximum interest rate is 8.953173, and the observation is 21. The average inflation rate is 13.105; minimum inflation rate is -7.418798 and the maximum inflation rate is 249.087, and the observation is 30. The average exchange rate is 31.4506; the minimum exchange rate is 2.00e.-06 and the maximum exchange rate is 98.30241, and the observation is 36.

## 2. Burkina Faso

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 358.3179 | 160.5208 | 193.0703 | 698.335 |
| Log income | 36 | 247.097 | 198.8217 | 56.205 | 900.493 |
| Interest rate | 11 | 5.471448 | 3.36534 | .337319 | 9.77591 |
| Inflation rate | 36 | 3.265445 | 4.4995 | -6.345676 | 14.63896 |
| Exchange rate | 36 | 72.46481 | 110.4514 | 2.106908 | 510.5271 |

From the table above, the average consumption gross per capita is 358.3179; minimum consumption gross per capita is 193.0703; maximum consumption gross per capita are 698.335, and the observation is 36;. The average income gross per capita is 247.097; minimum income per capita is 56.205 and maximum gross per capita are 900.493, and the observation is 36. The average interest rate is 5.471448; minimum interest rate is .337319 and the maximum interest rate is 9.77591, and the observation is 11. The average inflation rate is 3.265445; minimum inflation rate is -6.345676 and the maximum inflation rate is 14.63896, and the observation is 36. The average exchange rate is 72.46481; the minimum exchange rate is 2.106908 and the maximum exchange rate is 510.5271, and the observation is 36.

## 3. Cameroon

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 650.7799 | 340.297 | 100.326 | 1191.709 |
| Log income | 36 | 892.3652 | 1028.68 | 160.94 | 5173.5 |
| Interest rate | 28 | 2.373833 | 2.727658 | -3.773123 | 9.294187 |
| Inflation rate | 36 | 4.579389 | 5.289802 | -2.392309 | 22.06569 |
| Exchange rate | 36 | 123.0204 | 167.1827 | 1.200313 | 696.9882 |

From the table above, the average consumption gross per capita is 650.7799; minimum consumption gross per capita is 100.326; maximum consumption gross per capita are 1191.709, and the observation is 36;. The average income gross per capita is 892.3652; minimum income per capita is 160.94 and maximum gross per capita are 5173.5, and the observation is 36. The average interest rate is 2.373833; minimum interest rate is -3.773123 and the maximum interest rate is 9.294187, and the observation is 28. The average inflation rate is 4.579389; minimum inflation rate is -2.392309 and the maximum inflation rate is 22.06569, and the observation is 36. The average exchange rate is 123.0204; the minimum exchange rate is 1.200313 and the maximum exchange rate is 696.9882, and the observation is 36.

## 4. Ghana

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 341.4059 | 145.7116 | 124.0799 | 929.7266 |
| Log income | 36 | 429.5552 | 382.7461 | 109.77 | 1716 |
| Interest rate | 9 | -4.128092 | 3.260198 | -9.842923 | .429555 |
| Inflation rate | 36 | 25.38592 | 13.9174 | 3.06121 | 75.63357 |
| Exchange rate | 34 | .502325 | .5944775 | .000274 | 1.95405 |

From the table above, the average consumption gross per capita is 341.4059; minimum consumption gross per capita is 124.0799; maximum consumption gross per capita are 429.5552, and the observation is 36;. The average income gross per capita is 247.097; minimum income per capita is 109.77 and maximum gross per capita are 1716, and the observation is 36. The average interest rate is -4.128092; minimum interest rate is -9.842923 and the maximum interest rate is .429555, and the observation is 9. The average inflation rate is 25.38592; minimum inflation rate is 3.06121 and the maximum inflation rate is 75.63357, and the observation is 36. The average exchange rate is .502325; the minimum exchange rate is .000274 and the maximum exchange rate is 1.95405, and the observation is 34.

## 5. Egypt

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 427.3543 | 260.7433 | 121.2903 | 963.5573 |
| Log income | 36 | 740.0235 | 1091.959 | 122.02 | 4824.51 |
| Interest rate | 35 | 2.717571 | 3.479471 | -5.268507 | 9.10124 |
| Inflation rate | 36 | 10.69603 | 5.984431 | .869956 | 31.13814 |
| Exchange rate | 36 | 3.617669 | 2.24506 | .7000007 | 7.691258 |

From the table above, the average consumption gross per capita is 427.3543; minimum consumption gross per capita is 121.2903; maximum consumption gross per capita are 963.5573, and the observation is 36;. The average income gross per capita is 740.0235; minimum income per capita is 122.02 and maximum gross per capita are 4824.51, and the observation is 36. The average interest rate is 2.717571; minimum interest rate is -5.268507 and the maximum interest rate is 9.10124, and the observation is 35. The average inflation rate is 10.69603; minimum inflation rate is .869956 and the maximum inflation rate is 31.13814, and the observation is 36. The average exchange rate is 3.617669; the minimum exchange rate is .7000007 and the maximum exchange rate is 7.691258, and the observation is 36.

## 6. Algeria

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 1866.766 | 1971.471 | 144.9079 | 5583.61 |
| Log income | 36 | 20617.29 | 26518.07 | 104 | 79298 |
| Interest rate | 22 | -.5574459 | 6.6354 | -5.268507 | 10.0204 |
| Inflation rate | 36 | 8.368341 | 8.567654 | -11.1616 | 25.86204 |
| Exchange rate | 36 | 46.20221 | 32.25969 | 3.837449 | 100.6914 |

From the table above, the average consumption gross per capita is 1866.766; minimum consumption gross per capita is 144.9079; maximum consumption gross per capita are 5583.61, and the observation is 36;. The average income gross per capita is 20617.29; minimum income per capita is 104 and maximum gross per capita are 79298, and the observation is 36. The average interest rate is -.5574459; minimum interest rate is -5.268507 and the maximum interest rate is 10.0204, and the observation is 22. The average inflation rate is 8.368341; minimum inflation rate is -11.1616 and the maximum inflation rate is 25.86204, and the observation is 36. The average exchange rate is 46.20221; the minimum exchange rate is 3.837449 and the maximum exchange rate is 100.6914, and the observation is 36.

## 7. Kenya

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 572.463 | 334.6524 | 222.724 | 1376.713 |
| Log income | 36 | 2582.445 | 1792.193 | 869.142 | 6127.07 |
| Interest rate | 36 | 4.671732 | 4.250772 | -8.00986 | 15.327 |
| Inflation rate | 36 | 10.36804 | 7.51078 | .933205 | 41.98877 |
| Exchange rate | 36 | 53.11395 | 29.23366 | 7.420187 | 98.17845 |

From the table above, the average consumption gross per capita is 572.463; minimum consumption gross per capita is 222.724; maximum consumption gross per capita are 1376.713, and the observation is 36;. The average income gross per capita is 2582.445; minimum income per capita is 869.142 and maximum gross per capita are 6127.07, and the observation is 36. The average interest rate is 4.671732; minimum interest rate is -8.00986 and the maximum interest rate is 15.327, and the observation is 36. The average inflation rate is 10.36804; minimum inflation rate is .933205 and the maximum inflation rate is 41.98877, and the observation is 36. The average exchange rate is 53.11395; the minimum exchange rate is 7.420187 and the maximum exchange rate is 98.17845, and the observation is 36.

## 8. Madagascar

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 320.3105 | 85.24344 | 222.9305 | 472.3791 |
| Log income | 36 | 772.0094 | 563.1395 | 274.201 | 2296.047 |
| Interest rate | 27 | 4.951868 | 4.400794 | -7.873568 | 12.86725 |
| Inflation rate | 36 | 12.78013 | 9.742332 | 1.162693 | 45.12345 |
| Exchange rate | 36 | 372.75 | 601.2547 | 13.46716 | 2194.96 |

From the table above, the average consumption gross per capita is 320.3105; minimum consumption gross per capita is 222.9305; maximum consumption gross per capita are 472.3791, and the observation is 36;. The average income gross per capita is 772.0094; minimum income per capita is 274.201 and maximum gross per capita are 2296.047, and the observation is 36. The average interest rate is 4.951868; minimum interest rate is -7.873568 and the maximum interest rate is 12.86725, and the observation is 27. The average inflation rate is 12.78013; minimum inflation rate is 1.162693 and the maximum inflation rate is 45.12345, and the observation is 36. The average exchange rate is 372.75; the minimum exchange rate is 13.46716 and the maximum exchange rate is 2194.96, and the observation is 36.

## 9. Mali

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 400.0409 | 211.965 | 160.2764 | 829.8492 |
| Log income | 36 | 914.6108 | 849.5447 | 123.669 | 2779.446 |
| Interest rate | 11 | 3.472414 | 2.687079 | -3.319936 | 6.22459 |
| Inflation rate | 36 | 5.303674 | 8.347451 | -7.594284 | 39.56235 |
| Exchange rate | 36 | 161.1593 | 202.8113 | 1.200313 | 733.0385 |

From the table above, the average consumption gross per capita is 400.0409; minimum consumption gross per capita is 160.2764; maximum consumption gross per capita are 829.8492, and the observation is 36;. The average income gross per capita is 914.6108; minimum income per capita is 123.669 and maximum gross per capita are 2779.446, and the observation is 36. The average interest rate is 3.472414; minimum interest rate is -3.319936 and the maximum interest rate is 6.22459, and the observation is 11. The average inflation rate is 5.303674; minimum inflation rate is -7.594284 and the maximum inflation rate is 39.56235, and the observation is 36. The average exchange rate is 161.1593; the minimum exchange rate is 1.200313 and the maximum exchange rate is 733.0385, and the observation is 36.

## 10. Morocco

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 1683.016 | 812.4644 | 658.1314 | 3186.609 |
| Log income | 36 | 8663.97 | 7279.028 | 71.84077 | 23825.84 |
| Interest rate | 27 | 3.095133 | 4.865654 | -9.56286 | 14.15989 |
| Inflation rate | 36 | 3.818414 | 5.794543 | -.742288 | 33.02313 |
| Exchange rate | 36 | 8.617253 | 1.420668 | 3.936645 | 11.30297 |

From the table above, the average consumption gross per capita is 1683.016; minimum consumption gross per capita is 658.1314; maximum consumption gross per capita are 3186.609, and the observation is 36;. The average income gross per capita is 8663.97; minimum income per capita is 71.84077 and maximum gross per capita are 23825.84, and the observation is 36. The average interest rate is 3.095133; minimum interest rate is -9.56286 and the maximum interest rate is 14.15989, and the observation is 27. The average inflation rate is 3.818414; minimum inflation rate is -.742288 and the maximum inflation rate is 33.02313, and the observation is 36. The average exchange rate is 8.617253; the minimum exchange rate is 3.936645 and the maximum exchange rate is 11.30297, and the observation is 36.

## 11. Mozambique

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 1683.016 | 812.4644 | 658.1314 | 3186.609 |
| Log income | 36 | 8663.97 | 7279.028 | 71.84077 | 23825.84 |
| Interest rate | 24 | 3.095133 | 4.865654 | -9.56286 | 14.15989 |
| Inflation rate | 36 | 3.818414 | 5.794543 | -.742288 | 33.02313 |
| Exchange rate | 36 | 8.617253 | 1.420668 | 3.936645 | 11.30297 |

From the table above, the average consumption gross per capita is 1683.016; minimum consumption gross per capita is 658.1314; maximum consumption gross per capita are 3186.609, and the observation is 36;. The average income gross per capita is 8663.97; minimum income per capita is 71.84077 and maximum gross per capita are 23825.84, and the observation is 36. The average interest rate is 3.095133; minimum interest rate is -9.56286 and the maximum interest rate is 14.15989, and the observation is 24. The average inflation rate is 3.818414; minimum inflation rate is -.742288 and the maximum inflation rate is 33.02313, and the observation is 36. The average exchange rate is 8.617253; the minimum exchange rate is 3.936645 and the maximum exchange rate is 11.30297, and the observation is 36.

## 12. Niger

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 277.3279 | 80.25263 | 160.2183 | 431.3817 |
| Log income | 36 | 544.7329 | 412.6945 | 225.322 | 1588.15 |
| Interest rate | 11 | 2.284521 | 4.400794 | 1.853619 | 9.625151 |
| Inflation rate | 36 | 3.078534 | 6.327891 | -5.904038 | 32.71033 |
| Exchange rate | 36 | 225.7981 | 205.1803 | 3.669372 | 591.4495 |

From the table above, the average consumption gross per capita is 277.3279; minimum consumption gross per capita is 160.2183; maximum consumption gross per capita are 431.3817, and the observation is 36;. The average income gross per capita is 544.7329; minimum income per capita is 225.322 and maximum gross per capita are 1588.15, and the observation is 36. The average interest rate is 2.284521; minimum interest rate is 1.853619 and the maximum interest rate is 9.625151, and the observation is 11. The average inflation rate is 3.078534; minimum inflation rate is -5.904038 and the maximum inflation rate is 32.71033, and the observation is 36. The average exchange rate is 225.7981; the minimum exchange rate is 3.669372 and the maximum exchange rate is 591.4495, and the observation is 36.

## 13. Nigeria

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 870.5529 | 902.5543 | 153.0756 | 3203.244 |
| Log income | 36 | 34543.89 | 33927.63 | 5155 | 116000 |
| Interest rate | 36 | .3315533 | 4.995049 | -9.711973 | 9.369136 |
| Inflation rate | 36 | 13.7782 | 14.36215 | -5.665685 | 68.06319 |
| Exchange rate | 36 | 69.44041 | 66.29325 | .54678 | 192.4405 |

From the table above, the average consumption gross per capita is 870.5529; minimum consumption gross per capita is 153.0756; maximum consumption gross per capita are 3203.244, and the observation is 36;. The average income gross per capita is 34543.89; minimum income per capita is 5155 and maximum gross per capita are 116000, and the observation is 36. The average interest rate is .3315533; minimum interest rate is -9.711973 and the maximum interest rate is 9.369136, and the observation is 36. The average inflation rate is 13.7782; minimum inflation rate is -5.665685 and the maximum inflation rate is 68.06319, and the observation is 36. The average exchange rate is 69.44041; the minimum exchange rate is .54678 and the maximum exchange rate is 192.4405, and the observation is 36.

## 14. Rwanda

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 347.0787 | 158.1684 | 125.6901 | 723.1 |
| Log income | 36 | 186.1315 | 194.5701 | 28.6402 | 2296.047 |
| Interest rate | 20 | 5.891386 | 5.567646 | -4.594172 | 22.8937 |
| Inflation rate | 36 | 8.161347 | 10.16691 | -9.187608 | 51.26658 |
| Exchange rate | 36 | 184.2783 | 209.0375 | 1.529816 | 720.9751 |

From the table above, the average consumption gross per capita is 347.0787; minimum consumption gross per capita is 125.6901; maximum consumption gross per capita are 723.1, and the observation is 36;. The average income gross per capita is 186.1315; minimum income per capita is 28.6402 and maximum gross per capita are 2296.047, and the observation is 36. The average interest rate is 5.891386; minimum interest rate is -4.594172 and the maximum interest rate is 22.8937, and the observation is 20. The average inflation rate is 8.161347; minimum inflation rate is -9.187608 and the maximum inflation rate is 51.26658, and the observation is 36. The average exchange rate is 184.2783; the minimum exchange rate is 1.529816 and the maximum exchange rate is 720.9751, and the observation is 36.

## 15. Sudan

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 765.8444 | 568.2127 | 256.592 | 2414.724 |
| Log income | 4 | 4119.723 | 699.3416 | 3168.96 | 4789.732 |
| Interest rate | 0 | | | | |
| Inflation rate | 36 | 34.77806 | 33.5847 | 1.607103 | 159.2669 |
| Exchange rate | 36 | 1.599462 | 1.672794 | .00049 | 6.025732 |

From the table above, the average consumption gross per capita is 765.8444; minimum consumption gross per capita is 256.592; maximum consumption gross per capita are 4789.732, and the observation is 36;. The average income gross per capita is 4119.723; minimum income per capita is 3168.96 and maximum gross per capita are 4789.732, and the observation is 4. The average interest rate is 0; minimum interest rate is 0 and the maximum interest rate is 0, and the observation is 0. The average inflation rate is 34.77806; minimum inflation rate is 1.607103 and the maximum inflation rate is 159.2669, and the observation is

36. The average exchange rate is 1.599462; the minimum exchange rate is .00049 and the maximum exchange rate is 6.025732, and the observation is 36.

## 16. Senegal

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 707.4832 | 208.5421 | 433.153 | 1093.716 |
| Log income | 36 | 1235.681 | 732.2426 | 476.951 | 2813.661 |
| Interest rate | 11 | 5.021132 | 2.671797 | 1.247872 | 9.558876 |
| Inflation rate | 36 | 3.952848 | 6.421986 | -2.45427 | 33.89108 |
| Exchange rate | 36 | 372.75 | 601.2547 | 3.038507 | 696.9882 |

From the table above, the average consumption gross per capita is 707.4832; minimum consumption gross per capita is 433.153; maximum consumption gross per capita are 1093.716, and the observation is 36;. The average income gross per capita is 1235.681; minimum income per capita is 476.951 and maximum gross per capita are 2813.661, and the observation is 36. The average interest rate is 5.021132; minimum interest rate is 1.247872 and the maximum interest rate is 9.558876, and the observation is 11. The average inflation rate is 3.952848; minimum inflation rate is -2.45427 and the maximum inflation rate is 33.89108, and the observation is 36. The average exchange rate is 372.75; the minimum exchange rate is 3.038507 and the maximum exchange rate is 696.9882, and the observation is 36.

## 17. Tunisia

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 2468.116 | 1154.48 | 1158.37 | 4342.823 |
| Log income | 36 | 7680.183 | 5732.103 | 1737.93 | 19319.96 |
| Interest rate | 10 | -.145323 | 4.754128 | -6.471693 | 5.818577 |
| Inflation rate | 36 | 5.701425 | 3.511397 | 2.107263 | 16.00766 |
| Exchange rate | 36 | 1.116787 | .348029 | .404954 | 1.961625 |

From the table above, the average consumption gross per capita is 2468.116; minimum consumption gross per capita is 1158.37; maximum consumption gross per capita are 4342.823, and the observation is 36;. The average income gross per capita is 7680.183; minimum income per capita is 1737.93 and maximum gross per capita are 19319.96, and the observation is 36. The average interest rate is -.145323; minimum interest rate is -6.471693 and the maximum interest rate is 5.818577, and the observation is 10. The average inflation rate is 5.701425; minimum inflation rate is 2.107263 and the maximum inflation rate is 16.00766, and the observation is 36. The average exchange rate is 1.116787; the minimum exchange rate is .404954 and the maximum exchange rate is 1.961625, and the observation is 36.

## 18. Uganda

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 337.2121 | 177.2877 | 99.18986 | 734.744 |
| Log income | 36 | 807.1631 | 722.8592 | 142 | 2407.736 |
| Interest rate | 30 | 2.820005 | 5.540076 | -9.739965 | 13.24297 |
| Inflation rate | 33 | 22.14096 | 36.11099 | -3.169556 | 180.988 |
| Exchange rate | 36 | 357.0607 | 595.4664 | .074169 | 1831.453 |

From the table above, the average consumption gross per capita is 337.2121; minimum consumption gross per capita is 99.18986; maximum consumption gross per capita are 734.744, and the observation is 36;. The average income gross per capita is 807.1631; minimum income per capita is 142 and maximum gross per capita are 2407.736, and the observation is 36. The average interest rate is 2.820005; minimum interest rate is -9.739965 and the maximum interest rate is 13.24297, and the observation is 30. The average inflation rate is 22.14096; minimum inflation rate is -3.169556 and the maximum inflation rate is 180.988, and the observation is 33. The average exchange rate is 357.0607; the minimum exchange rate is .074169 and the maximum exchange rate is 1831.453, and the observation is 36.

## 19. South Africa

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 4240.785 | 1644.451 | 2142.115 | 8077.967 |
| Log income | 36 | 42292.09 | 28361.92 | 16293 | 108814.7 |
| Interest rate | 36 | 3.320651 | 2.71174 | -2.34013 | 9.69664 |
| Inflation rate | 36 | 10.63141 | 4.818877 | 3.956897 | 24.91463 |
| Exchange rate | 36 | 5.251475 | 3.215533 | .778833 | 12.75893 |

From the table above, the average consumption gross per capita is 4240.785; minimum consumption gross per capita is 2142.115; maximum consumption gross per capita are 8077.967, and the observation is 36;. The average income gross per capita is 42292.09; minimum income per capita is 16293and maximum gross per capita are 108814.7, and the observation is 36. The average interest rate is 3.320651; minimum interest rate is -2.34013 and the maximum interest rate is 9.69664, and the observation is 36. The average inflation rate is 10.63141; minimum inflation rate is 3.956897 and the maximum inflation rate is 24.91463, and the observation is 36. The average exchange rate is 5.251475; the minimum exchange rate is .778833 and the maximum exchange rate is 12.75893, and the observation is 36.

## 20. Zambia

**Table: Summary**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 36 | 351.9698 | 164.4821 | 113.4865 | 472.3791 |
| Log income | 36 | 934.6134 | 571.0033 | 155.627 | 3770.37 |
| Interest rate | 27 | -1.470297 | 13.39101 | -41.7902 | 9.909363 |
| Inflation rate | 36 | 35.98899 | 39.86932 | 5.437996 | 165.534 |
| Exchange rate | 36 | 2.376488 | 2.395362 | .000788 | 8.632355 |

From the table above, the average consumption gross per capita is 351.9698; minimum consumption gross per capita is 113.4865; maximum consumption gross per capita are 472.3791, and the observation is 36;. The average income gross per capita is 934.6134; minimum income per capita is 155.627 and maximum gross per capita are 3770.37, and the observation is 36. The average interest rate is -1.470297; minimum interest rate is -41.7902 and the maximum interest rate is 9.909363, and the observation is 27. The average inflation rate is 35.98899; minimum inflation rate is 5.437996 and the maximum inflation rate is 165.534, and the observation is 36. The average exchange rate is 2.376488; the minimum exchange rate is .000788 and the maximum exchange rate is 8.632355, and the observation is 36.

**Table 4.1 Summary Statistics**

| Variables | Obs | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Log cons | 712 | 918.269 | 1227.327 | 54.297 | 8077.967 |
| Log income | 688 | 6854.146 | 17124.1 | 28.640 | 116000 |
| Interest rate | 431 | 2.556 | 6.124 | -41.790 | 22.894 |
| Inflation rate | 710 | 13.105 | 22.149 | -11.162 | 249.087 |
| Exchange rate | 718 | 94.191 | 240.437 | 2.00e.06 | 2194.96 |

From the table 4.1 above, the average consumption gross per capita is 918.269; minimum consumption gross per capita is 54.297; maximum consumption gross per capita are 8077.967, and the observation is 712; of twenty selected African countries. The average income gross per capita is 6854.146; minimum income per capita is 28.640 and maximum gross per capita are 116000. The average interest rate is 2.556; minimum interest rate is -41.790 and the maximum interest rate is 22.894. The average inflation rate is 13.105; minimum inflation rate is -11.162 and the maximum inflation rate is 249.087. The average exchange rate is 94.191; the minimum exchange rate is 2.00e.06 and the maximum exchange rate is 2194.96.

## 4.2 ABSOLUTE INCOME HYPOTHESIS RESULTS

In this section, the results of the analyzed data would be displayed and it's interpretation.

**Table 4.2.1 fixed effect regression results**

| Log consumption | Coefficient | Standard err | T – statistics | P – value |
|---|---|---|---|---|
| Log income | .0429 | .0015 | 28.22 | 0.000 |
| Interest rate | -1.578 | 4.789 | -0.33 | 0.742 |
| Inflation rate | -1.29 | 1.548 | -0,83 | 0.405 |
| Exchange rate | -.0179 | .0897 | -0.20 | 0.842 |
| Constant | 657.227 | 40.442 | 16.25 | 0.000 |

*Note: *** Means significant at 1% level of significance.*

*** Means significant at 5% level of significance.*

Probability > F = 0.000.

**Fixed effect estimation:**

From the fixed effect regression results table 4.2.1 above, it shows that gross income per capita is significant at 1% level of significance and has a positive relationship with consumption gross per capita; this means that when income growth per capita increases by one percent, consumption gross per capita will be

increased by .0429 percent. The interest rate is significant at 5% level of significance and has a negative relationship with consumption growth per capita; this means that when interest rate increases by one percent, consumption growth will be decreased by -1.578 percent. The inflation rate is significant at 1% level of significance and has a negative relationship with consumption growth per capita; this means that when inflation rate increases by one percent, consumption growth per capita will be decreased by -1.29 percent. Lastly, exchange rates are significant at 1% level of significance and have a negative relationship with consumption growth per capita; this means that when exchange rate increases by one percent, consumption growth per capita will be decreased by -.0179 percent.

The probability value is 0.000, this indicates that fixed effect model is significance at all level of significant which means all the coefficient are different from zero. Therefore this model is valid, efficient and reliable.

**Table 4.2.2 Random effect regression result**

| Log consumption | Coefficient | Standard error | Z – value | P - value |
|---|---|---|---|---|
| Log income | .0434 | .00151 | 28.75 | 0.000 |
| Interest rate | -1.924 | 4.784 | -0.40 | 0.688 |
| Inflation rate | -1.434 | 1.055 | -0.93 | 0.353 |
| Exchange rate | -.0295 | .089 | -0.33 | 0.742 |
| Constant | 667.164 | 140.7855 | 4.74 | 0.000 |

*Note: *** Means significant at 1% level of significance*

** Mean significant at 10% level of significance*

Probability > chi2 = 0.000.

**Random effect estimation:**

From the Random effect regression result table 4.2.2 above, it shows that gross income per capita is significant at 1% level of significance and has a positive relationship with consumption gross per capita; this means that when income growth per capita increases by one percent, consumption gross per capita will be

increased by .0434 percent. The interest rate is significant at 10% level of significance and has a negative relationship with consumption growth per capita; this means that when interest rate increases by one percent, consumption growth will be decreased by -1.924 percent. The inflation rate is significant at 1% level of significance and has a negative relationship with consumption growth per capita; this means that when inflation rate increases by one percent, consumption growth per capita will be decreased by -1.434 percent. Lastly, an exchange rate is significant at 1% level of significance and has a negative relationship with consumption growth per capita; this means that when exchange rate increases by one percent, consumption growth per capita will be decreased by -.0295 percent.

The probability value is 0.000, this indicates that random effect model is significance at all level of significant which means all the coefficient are different from zero. Therefore this model is valid, efficient and reliable.

**Table 4.2.3 Hausman Test**

| | (b) Fixed | (B) Random | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| Log income | .04296 | .0434 | -.00039 | .00021 |
| Interest rate | -1.579 | -1.924 | .346 | .225 |
| Inflation | -1.292 | -1.434 | .142 | .095 |
| Exchange rate | -.018 | -.0295 | .012 | .0072 |

Probability > chi2 = 0.029

**Hausman test estimation:**

The Hausman Test table 4.2.3 above shows the result of Hausman test. (b) – The column shows the values of the coefficients of the variables in the fixed effects regression model; (B) – column shows the values of the coefficient of the variables in the random effects regression model while (b-B) shows the difference between fixed effects and random effects regression models.

The probability value is significant at all respective level of significance (that is, Probability > chi2 = 0.029). The criteria here is that, if probability value is significant, fixed effects should be accepted as valid model otherwise it is random effect model should be accepted. Therefore, with regard to this research, fixed effect results are accepted.

## 4.3 RELATIVE INCOME HYPOTHESIS RESULTS

Data used in calculating relative income hypothesis is three years moving average, and to calculate three years moving averages form a list of numbers, follow these steps:

1. Add up the first three numbers in the list and divide your answer by three. Write this answer down as this is your first three point moving average.

2. Add up the next three numbers in the list and divide your answer by three. Write this answer down as this is your second three point moving average.

3. Keep repeating step two until you reach the last three numbers.

A moving average is a technique to get an overall idea of the trends in a data set; it is an average of any subset of numbers. The moving average is extremely useful for **forecasting long-term trends**. You can calculate it for any period of time. For example, if you have sales data for a twenty-year period, you can calculate a five-year moving average, a four-year moving average, a three-year moving average and so on.

Table 4.3.1 Fixed effect regression results

| Relative consumption | Coefficient | Std. Err | T - value | P - value |
|---|---|---|---|---|
| Relative income | -.307** | .130 | -2.37 | 0.018 |
| Interest rate | -.000 | .000 | -0.48 | 0.631 |
| Inflation | -.000 | .000 | -1.56 | 0.120 |
| Exchange rate | 3.39e-07 | 3.16e-06 | 0.11 | 0.915 |
| Constant | 1.300 | .130 | 10.0 | 0.000 |

*Note: ****** Means significant at 5% level of significance.*

*Prob > F = 0.114.*

**Fixed effect estimation:**

From the Fixed effect regression results table 4.3.1 above, it revealed that relative income is significant at five percent (5%) and has a negative relationship with relative consumption. This means that when relative income increases by one percent (1%), relative consumption will be decreased by 0.307 percent. Interest rate and the inflation rate have a negative relationship with relative consumption but don't have a significant impact on it; exchange rate also doesn't have a significant impact on relative consumption.

**Table 4.3.2 Random effect regression results**

| Relative consumption | Coefficient | Std. Err | Z - value | P – value |
|---|---|---|---|---|
| Relative income | -.317** | .130 | -2.43 | 0.015 |
| Interest rates | -.000 | .000 | -0.39 | 0.698 |
| Inflation rates | -.000 | .000 | -1.24 | 0.215 |
| Exchange rates | 1.36e-06 | 3.09e-06 | 0.44 | 0.659 |
| Constant | 1.305 | .130 | 10.02 | 0.000 |

*Note: ** Means significant at 5% level of significance.*

*Prob > F = 0.127.*

**Random effect estimation:**

From the Random effect regression results table 4.3.2 above, it revealed that relative income is significant at five percent (5%) and has a negative relationship with relative consumption. This means that when relative income increases by one percent (1%), relative consumption will be decreased by 0.317 percent. Interest rate and inflation rate have a negative relationship with relative consumption but don't have a significant impact on it; exchange rate also doesn't have a significant impact on relative consumption.

**Table 4.3.3 Hausman Test**

| | (b) Fixed | (B) Random | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| Log income | -.307 | -.317 | .010 | . |
| Interest rate | -.000 | -.000 | -.000 | . |
| Inflation | -.000 | -.000 | -.000 | .000 |
| Exchange rate | 3.39e-07 | 1.36e-06 | -1.02e-06 | 6.86e-07 |

Probability > chi2 = 0.514.

**Hausman test estimation:**

The table 4.3.3 above shows the result of Hausman test. (b) – The column shows the values of the coefficients of the variables in the fixed effects regression model; (B) – column shows the values of the coefficient of the variables in the random effects regression model while (b-B) Shows the difference between fixed effects and random effects regression models.

The probability value is insignificant at all respective level of significance (that is, Probability > chi2 = 0.514). The criteria here is that, if probability value is significant, fixed effects should be accepted as valid model otherwise it is random effect model should be accepted. Therefore, with regard to this research, random effect results were accepted.[1]

## 4.4 DIAGNOSTICS TESTS RESULTS

Breusch and Pagan Lagrangian multiplier test for random effects

Relative cons.[countries,t] = Xb + u[countries] + e[countries,t]

Estimated results:

Table 4.4.1 Random effects Test

| | Var | sd = sqrt(Var) |
|---|---|---|
| Relative cons. | .0006 | .025 |
| e | .0003 | .019 |
| u | .0001 | .013 |

Test: Var(u) = 0

Chi2 (1) = 613.7

Prob > chi2 = 0.000

The table 4.4.1 above shows the results of random effects test. The essence of this test is to find out if there is a significant difference across the countries; this will give clue on whether random effects or ordinary least square (OLS) is appropriate. It has a null hypothesis of H0: the Random effect is not the appropriate and alternative hypothesis of H1: Random effects are appropriate. The decision is to reject the null hypothesis if P – value < 5% and conclude that Random effect is appropriate, otherwise do not reject the null hypothesis. Therefore, null hypothesis was rejected and conclude that Random effect is appropriate

**4.4.2 Cross – Sectional Test of Independence**

Correlation matrix of residuals:

| | e1 | e2 | e3 | e4 | e5 | e6 | e7 | e8 | e9 | e10 |
|---|---|---|---|---|---|---|---|---|---|---|
| e1 | 1.0000 | | | | | | | | | |
| e2 | -0.0315 | 1.0000 | | | | | | | | |
| e3 | -0.2164 | 0.4070 | 1.0000 | | | | | | | |
| e4 | -0.2736 | 0.3292 | 0.2923 | 1.0000 | | | | | | |
| e5 | -0.2716 | 0.2064 | 0.0183 | 0.0668 | 1.0000 | | | | | |
| e6 | 0.4526 | 0.6531 | 0.2791 | 0.1994 | 0.0278 | 1.0000 | | | | |
| e7 | 0.5763 | 0.3330 | 0.3172 | -0.0442 | -0.0041 | 0.5375 | 1.0000 | | | |
| e8 | -0.4947 | 0.2867 | 0.1949 | 0.5261 | 0.2841 | 0.1090 | -0.3634 | 1.0000 | | |
| e9 | 0.5143 | -0.2258 | -0.0898 | -0.3239 | -0.2530 | 0.0027 | 0.3991 | -0.5337 | 1.0000 | |
| e10 | 0.1903 | 0.5026 | 0.5091 | 0.1750 | 0.2946 | 0.4009 | 0.5342 | 0.0588 | 0.1489 | 1.0000 |

Breusch – Pagan LM test of independence: chi2 (45) = 179.472, Pr = 0.000

Based on 35 complete observations over panel units

The correlation matrix above shows the result of correlation of the residuals among the countries. The idea is to find out whether one country residuals have a relationship to other country residuals. It has a null hypothesis of H0: residuals across countries are not correlated and the alternative hypothesis of H1: residuals across countries are correlated. The decision is to reject the null hypothesis if P – value < 5% critical value. Therefore from the result, the null hypothesis was rejected and concludes that residuals across countries are correlated.

### 4.4.3 Heteroscedasticity Test

Modified Wald test for group-wise heteroskedasticity
In fixed effect regression model

H0: sigma (i)^2 = sigma^2 for all i

Chi2 (10) = 339.81
Prob>chi2 = 0.120

The idea behind this test is to find out whether the error terms have constant variance (that is whether the error terms are homoscedasticity). It has a hypothesis of H0: Error terms have constant variance (that is, homoscedasticity), H1: Error terms have no constant variance (that is, heteroscedasticity). The criteria are to reject the null hypothesis if P – value < 5% critical value and conclude that there is heteroscedasticity. Therefore, from the result, the null hypothesis cannot be rejected and conclude that the error terms have constant variance (that is, error terms are homoscedastic).

# CHAPTER FIVE

# SUMMARY, CONCLUSION, AND RECOMMENDATIONS

## 5.1 Summary

This research explores absolute and relative income hypotheses across twenty (20) African countries from 1980 to 2015. Several types of research have being carried out on testing absolute or relative income hypotheses on either individual country or cross-countries using varieties of econometrics techniques for the analysis. Some of these researches being carried out are not being conducted in finding out consumption – income relationship alone, but it also being conducted to find out how consumption reacts to other economics variables such as interest rates, inflation rates exchange rates etc.

This research follows the step of finding out consumption – income relationship as well as finding out the impact of interest rates, inflation rates, and exchange rates on consumption across twenty African countries from 1980 to 2015.

Chapter one in this study gives the general introduction of the subject matter under study, followed by historical background of the study area, statement of the problem, aims, and objectives of the study; significant of the study, research questions, research hypothesis, scope and limitation; and contribution of the study to the literature,

Chapter two consists of theoretical and empirical literature reviews. In this chapter theories and empirical studies relevant to the subject matter of the study were clearly stated and presented.

Data and methodology are in chapter three, where the data on the variables under study and the source of the data were clearly stated. Methods used for the analysis

of the data such as fixed effects, random effects, Hausman test, diagnostic test, and model specification were presented.

In chapter four, data collected for the analysis, was presented, analyzed, and interpreted. In the first place, fixed effects regression was carried out. The essence of the model is to control all time-invariant variables such as culture, race, and religion and so on. All the variables were found to be significant. Random effects regression was also carried out. The idea of this model is that the variations caused by the independent variables were assumed to be random. All the variables became significant.

Hausman test was carried out in order to find out the appropriate or best model between fixed effects and random effects.
Diagnostics tests were also carried out for the purpose of ensuring that the results of the analysis are valid, efficient and reliable. Some of the tests are:

Breuch and paga lagrangian multiplier test for random effects. The rationale behind this test is to find out at first place, whether panel data can be analyzed using fixed, random effects or ordinary least square.

Cross – sectional test of independence was carried out in order to find out if the residuals of one country have a relationship with the residuals of the other country among the ten countries under study.

Heteroscedasticity test was conducted in order to find out whether the variance of the error terms is constant.

Finally, summary, conclusion, and recommendation were presented in chapter five in accordance with the findings.

## 5.2 Conclusion

Base on the results found from the data analyzed. The following conclusions were made:

• Income per capita had a positive significant impact on consumption per capita and marginal propensity to consume was less than one (MPC < 1) as it proposed by John Maynard Keynes. Therefore, it was concluded that African countries are in support of absolute income hypothesis.

• It was found that interest rates inflation rates and exchange rates have a negative impact on consumption. Therefore, increases of any of these variables would lead to decreases in consumption.

• It was discovered that relative income had the negative significant impact on relative consumption.

## 5.3 Recommendation

With regards to findings and statistical evidence, the researcher recommending Government of African countries to devise means for the citizen to generate income by themselves, by improving the Agricultural sector, provision of more infrastructures, poverty alleviation etc. The government should also maintain a reasonable level of interest rates, inflation rates and exchange rates due to the negative relationship they have with consumption. By undertaking these, consumption will increase which lead to the increase of production, creating more job opportunities and generating revenue and taxes by the Government, these contribute to the economics growth of the country.

# REFERENCES


Abdel-Ghany. M. Silver, J. L. and Gehlken. A. 2002. "Do consumption expenditures depend on the household's relative position in the income distribution?", *International Journal of Consumer Studies,* 1(1), (2002), pp. 2–6.

Adams Daphne. 2006. "Factors Affecting Aggregate Expenditure." eHow, accessed February 8, 2016. http://www.ehow.com/info_10005387_factors-affect-aggregate-expenditure.html

Adedayo. O. Adedeji and Abiodun. A. Adegboye. 2013. "The Determinants of Private Consumption Spending in Nigeria", *International Journal of Business and Economics Research*, 1(2), Issue 2, (March 2013), pp.103 - 116 E-ISSN 2306-9074.

Ahuja. H.L. 2013. *Modern Economics,* S. Chand Higher Academic, 17th Revised Edition.

Alice C. Ofwona. 2013. "An Estimation of the Consumption Function for Kenya Using Keynes' Absolute Income Hypothesis for the Period 1992-2011", *Journal of Emerging Trend in Economics and Management Science (JETEMS),* 4(1), (2013), PP. 103-105, ISSN 2141 – 7024.

Anyanwu. C. 1995. "Revenue Allocation and stable Fiscal Federalism in Nigeria", *Journal of Economic Management*, 2(2), pp. 1-28.

Attanasio. O. P. 1998. "Consumption demand." NBER Working Paper No. 6466.

Blare. J. B. 1978. *Macroeconomics: Cycle, Growth, and Policy in a Monetary Economy*, London, McMillan.

Bover. O. 2005. "Wealth effects on consumption: Microeconometric estimates from the Spanish survey of household finances." Bank of Spain working

paper, Documentos de Trabajo, No 0522.

Brady. D. S. and Friedman. R.D. 1947. "Savings and the income distribution: Studies in Income and Wealth", *New York: National Bureau of Economic Research*, 10, (1947), pp. 247–265.

Branson. W. H. 1989. *Macroeconomic Theory and Policy 3rd ed*, Newyork, Harper, and Row.

Byrne. J. P. and P. E. Davis. 2003. "Disaggregate wealth and aggregate consumption: an investigation of empirical relationships for the G7", *Oxford Bulletin of Economics and Statistics*, 65 (2), (2003), pp. 197-220.

Campbell. J. Y. and Mankiw. N. G. 1990. "Permanent Income, Current Income, and Consumption", *Journal of Business and Economic Statistic*, 8, (1990), pp. 265-279.

Carroll. C. D. 2001. "A theory of the consumption function, with and without liquidity constraints", *Journal of Economic Perspectives*, 15, (2001), pp. 23-46

CBN. 2010. "Central Bank of Nigeria", Statistical Bulletin, 21, (2010).

Chand. Smriti. 2015. "Consumption: Importance of Consumption in Economics (813 Words)." your article.com, accessed January 20, 2016. http://www.yourarticlelibrary.com/economics/consumption-importance-of-consumption-in-economics-813-words/10554/

Chigbu. E. Ezeji. and Emmanuel. I. Ajudua. 2015. "Determinants of Aggregate Consumption Expenditure in Nigeria", *Journal of Economics and Sustainable Development*, 6, 5, 2015, E-ISSN 2222-1700.

Colander. D. C 2001. *Economics McGraw*, 4th Edition, Hill publishers.Koutseyiannis. A. 2001. *Theory of Econometrics*, 2nd Edition, Pg 105, Palgrave Publisher.

Corfield. I. R. 1992. "Modeling household consumption expenditure in New

Zealand." Reserve Bank of New Zealand Discussion Paper G92/9.

Corfield. I. R. 1993. "Model re-estimation file note." Reserve Bank of New Zealand, unpublished.

David. Rae. 1997. "A Forward-Looking Model of Aggregate Consumption in NewZealand", *New Zealand Economic Papers*, 31, 2, (1997), pp. 199-220, ISSN: 077-9954.

Davis. M.A. 1984. "The consumption function in macroeconomic models: A comparative study", *Applied Economics*, 16, (1984), pp. 799-838, 89(6), pp.1086-121.

Deaton. A. 1992. *Understanding Consumption*, Clarendon Press.

Dreger. C. and Reimers. H. 2006. "Consumption and disposable income in the EU countries: the role of wealth effects", *Empirica*, 33(4), (2006), pp. 245-254.

Emrah. Arioğlu. and Koray. Tuan. 2011. "Test of The Absolute Income Hypothesis in USA and EUROPE", *Ç.Ü. Sosyal Bilimler Enstitüsü Dergisi*, 20, 2, (2011), pp. 299 - 316.

Eswaran. M. and A. Kotwal. 2006. "Credit as Insurance in Agrarian Economies", *Journal of Development Economics*, 2(1), (2006), pp. 11-17.

Fasoranti. Mary. M. 2012. "The Determinants of Consumption Pattern Among Rural Dwellers of Ondo State (Case Study of Akoko North West Local Government)", *European Scientific Journal*, 8, 6, (2012), E-ISSN 1857 – 7431.

Forgha. N. G. 2008. "Econometric Models of Consumption and Savings Functions in Cameroon: An Error Correction Methodology." *International Review of Business Research Papers*, 4(3), (2008), pp. 291-308.

Forgha. N. G. 2008. “Econometric Models of Consumption and Savings Functions in Cameroon: An Error Correction Methodology”, *International Review of Business Research Papers*, 4(3), (2008), pp. 291-308.

Gali. J. 1994. “Keeping up with the Joneses: Consumption externalities, portfolio choice, and asset prices.” *Journal of Money, Credit, and Banking,* 26, (1994), pp.1–8.

Gil-Alana. L. A. 2003. “Testing of Fractional Cointegration in Macroeconomic Time Series”, *Oxford Bulletin of Economics and Statistics*, 65, (2003), pp. 0305-9049.

Gulcin Tapsin. and Aycan Hesage. 2014. “An Analysis of Household Expenditure in EA – 18”, *European Scientific Journal*, 10, 16, (2014), e – ISSN: 1857 – 7431, ISSN: 1857 – 7881.

Guru. Supriya. 2015. “3 Important Theories of Consumption (With Diagram).” our article.com, accessed January 17, 2016. http://www.yourarticlelibrary.com/economics/consumption-function/3-important-theories-of-consumption-with-diagram/37756/

Hall. 2001. “Stochastic Implications of the Life-cycle permanent Income Hypothesis: Theory and Evidence”, *Journal of Political Economy*, 2(3), (2001), pp. 10– 4.

Hall. R. E. 1978. “Stochastic implications of the life cycle hypothesis: Theory and evidence.” *Journal of Political Economy*, 86, (1978), pp. 971-987.

Himayatullah. Khan. 2014. “An Empirical Investigation of Consumption Function under Relative Income Hypothesis: Evidence from Farm Households in Northern Pakistan”, *International Journal of Economic Sciences*, 3, 2, (2014), pp. 43- 52.

Hualde. J. and Robinson. P. M. 2002. “Root-n-Consistent Estimation of Weak Fractional Cointegration.” Faculty Working Papers 08/02, School of Economics and Business Administration, University of Navarra.

Iyoha. Milton. and O.T. Ekanem. 2002. *Introduction to Econometrics*, Benin

City, Nigeria, Mareh Publishers.

Jerome. S. Handler. 2008. “Life histories of enslaved Africans in Barbados”, *Slavery and Abolition: A Journal of Slave and Post-Slave Studies,* 19, issue 1, pp. 129 – 140.

Jhingan. M. L. 2002. *Macroeconomic theory 10th revised edition,* Delhi India, Vrinda Publications (P) Ltd.

Khalid. Khan. and Manzoor H. Memon Che. 2012. “The Testing of Hall’s Permanent Income Hypothesis: A Case Study of Pakistan”, *Asian Economic and Financial Review*, 2, 4, (2012) pp. 445-449.

Kosicki. G. 1987. “A test of the relative income hypothesis”, *Southern Economic Journal*, 54 (2), (1987), pp. 422–434

Kuijs. L. 2005. “Investment and Saving in China.” World Bank Policy Research Working Paper Series 3633.

Kuznets. S. 1946. *National Product since 1869*, New York: NBER.

Kweka. C. and Morrissey. O. 1998. “Impacts of Economic Growth on Consumption Expenditures: The case of Tanzania”, *Tanzanian. Econ. J.*, 15(1), (1998), pp. 134.

Lettau. M. and Ludvigson. S. 2001. “Consumption, Aggregate Wealth, and Expected Stock Returns”, *The Journal of Financa*, 46, (2001), pp. 815-849.

Magda. Kandil and Ida A. Mirzaie. 2006. “Consumption and macroeconomic policies: Theory and evidence from developing countries”, *J. Int. Trade & Economic Development*, 15, 4, (2006), pp. 469 – 491, ISSN: 0963-8199.

McDermott. C. J. 1990. “A time series analysis of New Zealand consumer expenditure by durability.” Reserve Bank of New Zealand Discussion Paper G90/1.

Muellbauer. J. N. 1994. “The assessment: Consumer expenditure”, *Oxford Review of Economic Policy*, 10, (1994), pp.1-4.

Ohale. L. and Onyema. J. 2002 *Foundations of Macroeconomics*, Owerri Imo State, Springfield Publishers.

Piana. Velentino. 2001. “Consumption.” Economics Web Institute, accessed February 3, 2016. http://www.economicswebinstitute.org/glossary/cons.htm

R. Santos. Alimi. 2013 “Keynes' absolute income hypothesis and Kuznets paradox”, *mpra paper* 49310, (2013 14:05), utc, online at https://mpra.ub.uni-muenchen.de/49310/

Robinson. P. M. and Marinucci. D. 2001. “Semiparametric Fractional Cointegration Analysis”, *Journal of Econometrics*, 105, (2001), pp. 225-247.

Rudd. J. and Whelan. K. 2006. “Empirical Proxies for the Consumption-Wealth Ratio”, *Review of Economic Dynamics*, 9(1), (2006), pp. 34-51.

Slacalek. J. 2005. “International Evidence On Cointegration Between Consumption, Income, And Wealth.” Manuscript, Johns Hopkins University.

Spanos. A. 1989. “Early empirical findings on the consumption function, stylized facts or fiction: A retrospective view. In N. Marchi and C. Gilbert (Eds.)”, *History and Methodology of Econometrics. Oxford: Clarendon Press,* (1989), pp. 150–69.

Thomas. J. J. 1989. “The early econometric histories of the consumption function. In N. Marchi and C. Gilbert (Eds.)”, *History and Methodology of Econometrics. Oxford: Clarendon Press*, (1989), pp. 131–49.

Thomas. J. J. 1997. “The propensity to consume and the multiplier. In G.C. Harcourt and P.A. Riach (Eds.)”, *A Second Edition of The General Theory, 1, London: Routledge*, (1997), pp. 147–61.

Uwujaren. G. 1977. “Specification and estimation of an economy-wide macro-econometric model of Nigeria”, *Nigerian Journal of Economic and Social Studies,* 19 (2), (1977), pp. 23 – 25

Wenkai. Sun. and Xianghong. Wang. 2012. “Do Relative Income and Income Inequality Affect Consumption? Evidence from the Villages of Rural China”, *Journal of Development Studies,* 49, 4, (2013), pp. 533 – 546.

Wildman. J. 2003. “Income-related inequalities in mental health in Great Britain: Analyzing the causes of health inequality over time”, *Journal of Health Economics,* 22(2), (2003), pp. 295–312.

Zeldes. 2005. “Consumption and Liquidity Constraints: An empirical investigation”, *Journal of Political Economy*, 2(3), (2005), pp. 15-20.