# THE EFFECT OF PRODUCT PRICING ON THE GROWTH OF MICROINSURANCE BY INSURANCE UNERWRITERS IN KENYA

**CHACHE WILLYS OBUBA**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE AT THE SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.**

**JULY, 2014**

## DECLARATION

I hereby certify that this Research Project is my original work and has not been presented for examination in any other University.

Signature…… Date ……

**Chache Willys Obuba**

**D63/67748/2013**

I hereby certify that this project has been presented for examination with my approval as the University of Nairobi supervisor.

Signature…….. Date ……

**Mrs. Nyamute Winnie**

**Department of Finance and Accounting, School of Business, University of Nairobi**

# ACKNOWLEDGEMENT

I thank the almighty God for enabling me to reach this far and for the good health and his mercies as I continued with my course and research. My sincere appreciation goes to my Dad, Mr. Geoffrey Chache for the continuous support, encouragement and words of wisdom that kept me going even when the going got tough. I'd also like to appreciate my mum, Mrs Gladys Chache for her prayers and moral support throughout my research and studies.

Special thanks go to my Fiancé, Joan Bina, my sisters Judie Chache and Lisper Chache and my brother Yabesh Chache for the support and inspiration they accorded me during this research.

Lastly I'd like to express my sincere gratitude to my supervisor Mrs Winnie Nyamute for her guidance, positive attitude and critique that was indeed useful throughout the working of this project. I also give special thanks to my friends, Irene Irungu, Solomon Wambua, Dennis Maina and Mary Yvonne Mukora for their encouragement throughout my studies.

# DEDICATION

I dedicate this project to my parents, Mr and Mrs Chache and my Fiancée, Joan Bina for the continuous support they accorded to me. It has been a journey which you've walked by my side despite the numerous challenges I faced. Thanks a lot.

# TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

# LIST OF ABBREVIATIONS

AKI- Association of Kenya Insurers

CENFRI- Centre for Financial Regulation and Inclusion

IAIS- International Association of Insurance Supervision

IIBI- Institute of Islamic Banking and Insurance

IRA- Insurance Regulatory Authority

# ABSTRACT

This research study sets out to examine whether the growth of microinsurance in Kenya is affected by how insurance underwriters price their products. The research objective was to establish how product pricing affects the growth of microinsurance by insurance underwriters in Kenya.

The research adopted an experimental research design and was based on multiple linear regression analysis of secondary data. Data was collected from 7 insurance companies which underwrite microinsurance. The dependent variable used was the gross premium which was a proxy for the growth of microinsurance and the independent variables used were incurred expense ratio, incurred claims ratio and net income ratios which were proxies for product pricing. The coefficient of determination was used to check the fitness of the model. A t-test statistic was used to test the significance at 5%.

The findings of this research establish that there exists a relationship between the gross premium and the incurred expense ratio, incurred claims ratio and net income ratios. The study established that there was 87.9% variation in gross premium which could be explained by the independent variable thus deeming the regression model fit. There was a positive correlation between the expense ratio 0.555, claims ratio 0.239 and net income ratio 0.914 and the gross premium, which is significant at 5% implying that an increase in the above ratios will indicate an increase in the gross premium. This doesn't mean that there is an increase in the earned premiums but simply indicating an increase in the business underwritten. Further research should be done putting into consideration the earned premiums and using the growth ratio as the dependent variable.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

In the environment we live in, all activities are subject to risk of loss from unforeseen events. To alleviate this burden to individuals, what we now call insurance has existed since at least 215 BC with a common goal of pooling related risks and offering a cushion to the unforeseen circumstances. This concept has been practiced in various forms for over 1400 years (IIBI Report, 2001). Currently traditional insurance products are expensive and not readily available to the poor. This has led to the development of microinsurance. Microinsurance can be defined as the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved (Churchill, 2007). It has been considered as "the next revolution" in addressing risks and vulnerability in low-income countries (Morduch, 2006).

Low income households are also exposed to various risks in their day to day activities. One way of protecting themselves from those risks is by taking insurance covers. Microinsurance can play a major role in helping them to maintain financial confidence even in the face of significant vulnerability. It seeks to reach out to customers that are not yet served by the existing traditional insurance. Despite focusing on low income sector, microinsurance should be managed in accordance with the general accepted insurance principles and practices as it still falls under the broader insurance market (Insurance Regulatory Authority, 2014).

### 1.1.1 Product Pricing

A product is the cover issued to a policy holder in respect to the type of risk a person intends to insure. The products vary from one company to another. A non-life product usually offers cover to the policyholder in duration of one year or less. On the other hand, life products usually take more than one year. The various types of products include crop insurance, funeral cover, SME cover against business loss, education policy, micro-domestic package and medical policy. Product pricing is a key factor in the development of microinsurance. Pricing involves looking at the frequency and severity of insured risks and the expected average payout resulting from these risks (Association of Kenya Insurers, 2012). Its framework mainly focuses on actuarial control cycle which entails relying on historical data to predict future behavior for premium rate creation and an analysis on the administration expense, risk analysis and financing structure (Annals of Actuarial Science, 2014). Pricing is usually done by calculating the expected claims, administration cost, risk premium and profit margin of a product before it is released in the market (Association of Kenya Insurers, 2012).

Most companies face difficulties in pricing because of insufficient data on microinsurance. There is much less reliable data on the low-income target market and the group is also much less uniform. Therefore, it is very hard for insurance companies to accurately determine what price they should charge for the cover. The target market of low-income population has much less disposable income, and a small increase in the price will make it much less affordable thus reducing the demand (Adriaan, 2014). The microinsurance product risks are also unknown; therefore insurers would like to charge an additional margin in the premium to protect them against possible unforeseen losses. The cost of distribution is also much higher as a

percentage of the premium for low-premium policies. In order to make a profit, insurers rely on achieving large volumes of sales. Because it is difficult to predict the exact number of sales they will achieve, it is hard to price appropriately. If pricing is not done accurately, it will lead to low premium rates thus exposing the company to the likelihood of making losses when claims occur.

Competition is forcing insurers to adjust rates more frequently to retain existing customers and attract new ones. Yet many insurers take weeks, if not months, to implement a new rating structure, and the effective performance of these models rapidly deteriorates over time. Inevitably, insurance is changing its approach with regards to product pricing. As insurance becomes more and more of a commodity, insurance companies are trying to differentiate themselves from their competitors based on customer services, claims experience and financial strength, but mostly by price. Thus, to gain a competitive advantage, insurers are beginning to use price optimization to see how demand varies at different price levels and come up with recommend prices that will improve profit (Stuart, 2013).

Despite the challenges, it is of great importance that product pricing is done accurately so that the premium rates are competitive and of good value. If this is ignored, the company will be at risk of charging low premiums which will lead to liquidity constraints in the event of multiple claims arising (Dror and Armstrong, 2006).

### 1.1.2 Growth of Microinsurance

Microinsurance is an emerging trend in the financial market thus its regulation is not clearly provided in most jurisdictions. The Insurance Regulatory Authority (IRA) has recently developed a regulatory framework for microinsurance which will clearly

distinguish it as a form of insurance business rather than a subclass as previously perceived. It will improve the supervision of microinsurance leading to potential growth in the sector.

As much as it is important to develop microinsurance so as to tap the potential market of low income earners, most insurance companies face major challenges in coming up with suitable products for the target market. Downsizing of the traditional insurance products so that they suit low income earners is not the best approach of microinsurance. Downsized formal insurance sometimes ignores the more frequent and stressful shocks facing the poor as well as positive attributes of the informal strategies that poor people already use to cope with risk (Sebstad and Cohen, 2001).

Microinsurance growth can be measured by analysing the product awareness and the client's satisfaction. This can be done by analyzing the renewal ratio, coverage ratio or the growth ratio. The awareness and satisfaction performance indicators focus on how readily the target market enrols in the microinsurance programme and retain the coverage (Wipf and Garand, 2010).

### 1.1.3 Product Pricing and Growth of Microinsurance

A reasonable approach to product pricing is to design products in such a way that they fit the needs of the target market. This can be done by doing research on the basic risks that the target market is facing and coming up with suitable products that help in mitigating the risks. An insurance company can't set its prices based on known costs for production and distribution like most businesses. Instead, an insurer needs to project the costs of future claims by examining historical data. The process is reliable only when the insurer uses a sufficient amount of accurate data. This is what is termed as product pricing. Potential microinsurance clients are exposed to a myriad of risks,

all of which cannot be feasibly insured (Roth et al, 2007). The products formed fail to meet consumer expectations (Brown and McCord, 2000). According to (Mbogo, 2010) microinsurance products in Kenya do not meet the consumers' needs adequately. This is because there is inadequate differentiation between products from different insurance companies, making it difficult for consumers to distinguish between competitor offerings in terms of product features (AKI, 2008). Product design also affects the quality of the product. Microinsurance clients may not afford to pay high prices on insurance products, but they need high quality products, in fact better-quality microinsurance product (faster settlement of claims, fewer exclusions and wider coverage) to attract them to insurance (Njuguna, 2012). Prahalad (2005) shows that the poor too are brand conscious. Low-income earners buy insurance if the products meet their needs and are fairly priced (Brown and McCord, 2000). Price charged should cover all claims and operating expenses and generate a profit for the company. In most cases, microinsurance policy premium is often lower than the cost incurred in administering the products, thus most companies avoid microinsurance or tend to overprice their product this limiting the uptake.

The main intention of having microinsurance products is to target the low income earners. This automatically means that the products the companies should develop must be cheap and at the same time cover the expected risks that the policyholders will be facing and meet the administration costs incurred while developing the product. Most products are usually bundled together such that one product can cover various types of risks (IRA Policy Paper, 2014). Insurers find it cheaper to underwrite group risks compared to individual risks.

When adequate pricing is done, the company will be able to meet the cost of issuing microinsurance products in the market. On the other hand the value of the product

will determine the reception of the target market. Microinsurance products should be economically viable to both the insurance company and to the target market. If the products are affordable, this will increase the uptake of the product thus increase the growth of the industry at large.

### 1.1.4 The Insurance Companies in Kenya

Insurance can be defined as an agreement where, for a stipulated payment called the premium, one party (the insurer) agrees to pay to the other (the policyholder or his designated beneficiary) a defined amount (the claim payment or benefit) upon the occurrence of a specific loss. This defined claim payment amount can be a fixed amount or can reimburse all or a part of the loss that occurred (Robert, 2005).

Insurance penetration in Kenya currently is the fourth highest in Africa after South Africa, Namibia and Mauritius. The industry continues to experience growth in premiums each year. The industry's gross written insurance premiums amounted to KES 43.2 billion by the end of the first quarter of 2014. This represented an increase from KES 36.8 billion recorded by the end of the same period in the previous year. The premium income reported under life insurance business amounted to KES 13.2 billion while general business premiums were KES 30 billion (IRA Report, 2013). According to Osero (2009), an estimated 32.6million people in Kenya live on less than 5 dollars per day. Of this group, it is further estimated that 9.6million adults earning between 2 dollars and 5 dollars per day are potential consumers of Microinsurance products.

Kenya is ranked among the top three African markets in terms of profitability for insurance companies seeking expansion opportunities according to a global rating firm, A.M Best. (Africa Non-life and Life Market Review, 2014). As much as there is

growth in the sector, there is still a very low penetration of insurance in the country. One of the major reasons is that most insurance companies develop products which are expensive thus targeting a certain class of people in the society. Makove (2011) also indicated that the current insurance regulatory framework in Kenya focuses on the traditional insurance with little recognition of microinsurance. Microinsurance schemes therefore have to comply with the onerous requirements of traditional insurance business.

A majority of Kenyans live in poverty and view insurance as for the rich and not a necessity. This perception has led to the underdevelopment of insurance sector in the country putting into consideration that majority of Kenyans are low income earners. One of the measures taken to curb this problem is development of microinsurance products. Just like traditional insurance, microinsurance uses the same concept of covering risk that may occur due to unforeseen circumstances. Microinsurance institutions and instruments have developed rapidly over the last decade, with policies covering tens of millions at the base of the economic pyramid. Ranging from simple policies providing life or health insurance to complex policies covering catastrophic risks for small landholders, it is a market with proven potential that demands closer attention (Patel, 2002). According to Gitau (2013) existing microinsurance initiatives use links with informal savings societies, insurance institutions, SACCOs and banks as well as the more traditional methods, such as insurance agents, to distribute products in this market. There have also recently been efforts to use mobile phone technology as a distribution channel, the success of which will emerge in the near future.

A study carried out by Cenfri identifies that some of the factors which contribute to the current state of perception of insurance and low penetration is majorly low

understanding and lack of relevant insurance products and the perception that insurance is a preserve for the rich. Most of the products are overpriced thus making the products expensive and unaffordable to the low income earners. If the products are priced appropriately, and the company minimizes the cost of issuing the products, the premium rates will be low thus making it affordable to the low income earners. Despite all these, microinsurance remains a form of financial inclusion and access both of which are necessary preconditions for increasing insurance penetration. By giving insurance access to the low-income and economically vulnerable households, the microinsurance agenda will support the Government's financial sector policy objectives as outlined in the Vision 2030.

## 1.2 Research Problem

Product pricing plays a vital role in the development of microinsurance. This is because it deals with determining the rate at which premiums will be charged. It's also an indicator of the product value. The target market is very keen on the cost of acquiring insurance. If the products are overpriced, consumers will tend to avoid insurance perceiving it as a luxury and not as a necessity. On the other hand, if the products are under-priced, the insurance companies will be exposed to substantial risk of insolvency. If the premium rates are not tracked and adjusted moving forward, it can result in low value for policyholders, and diminished uptake (McCord, 2012). If companies charge high premiums, this will ruin the perception of microinsurance since the target market is for low income earners. Price charged should cover all claims and operating expenses and generate profits. Low income earners buy insurance only if the products meet their needs and are fairly priced (Brown and McCord, 2000).

Biener (2011) did a study on pricing in microinsurance markets. The study mainly addressed the problems faced in pricing specific microinsurance products. To a large extent, the researcher noted that these problems are mainly caused by lack of suitable actuarial approaches and also constraints on data availability. Lack of precision in setting premiums may expose the microinsurer to substantial risk of insolvency which may be caused by under-pricing. The findings of the research confirmed that there are indeed significant problems in pricing risks in microinsurance markets. The study also found out that there is difficulty in estimating premiums for short term microinsurance products. The difficulties are caused by the stochasticity of the losses; both frequency and severity of the losses are random. When insurers are unable to price their products adequately, it may lead to overpricing which will reduce the purchasing rate of the target market, and at the same time when they under price, it will lead to liquidity or solvency constraints since the company will not be able to meet the expenses of administering the products.

The Kenya microinsurance policy paper (Insurance Regulatory Authority, 2014) summarizes the challenges faced in the design, distribution and administration of microinsurance products. All these factors should be put into consideration when a company wants to do adequate product pricing. The premiums contributed per product should be able to cover the risks involved in a particular product and the cost incurred. Smith (2011) did an analysis of the risk experience of the low income market as well as their perceptions and demand of insurance. According to their analysis, the major risks for the low income earners were sickness, drought, accident and loss of property. Despite the risks involved, only 1 % of adults say that they would cope with the financial risk by claiming from the insurance, compared to 25%

who preferred relying on the family members. This is majorly attributed by the perception of insurance, low understanding and lack of relevant insurance products.

Poor claim settlement has also led to a negative perception of insurance. All these factor trickle down to how the products were priced and the value of the products. Gitau (2013) research findings on challenges facing development of microinsurance at CIC insurance group limited in Kenya specifically on product pricing was that transaction cost, collecting premiums where there is likely to be a lack of bank accounts, and assessing and paying out of small claims tend to be relatively high. Product pricing is a very important element to determine the premium rating so that the premiums collected will meet the incurred costs. Most studies have not focused on the concept of product pricing in relation to microinsurance development. This research study attempted to answer the question; does product pricing affect the growth of microinsurance by insurance underwriters in Kenya?

## 1.3 Research Objective

To establish how product pricing affects the growth of microinsurance by insurance underwriters in Kenya.

## 1.4 Value of the Study

The findings of the study will be valuable to various stakeholders in the industry. It will assist insurance companies to have an understanding on the importance of adequate pricing as a performance indicator in microinsurance. This will enable the insurance companies to assess the risk involved in venturing into microinsurance and the expected growth of microinsurance if they price their products adequately. It will

also show how efficient the delivery of microinsurance is and the viability of the program.

The research findings will be beneficial to the policy makers by providing an insight in product pricing thus assisting them in developing policies on product analysis and review. This will enable the regulatory entity to come up with guidelines that will issue a directive to the insurance industry on the requirements for commission of agents and brokers and the management expense incurred in microinsurance so that premiums paid for the product will cover all the costs incurred.

Investors will benefit from the research findings since microinsurance is an emerging market. It will bring out an understanding on how important product pricing is when developing the products and how to minimize the costs related in offering the products to the target market so as to maximize the returns. The findings will assist them to know the importance of product pricing in determining the product value thus making it a decisive factor that the target market will use before purchasing microinsurance products.

Since microinsurance is an emerging market, the study will provide a platform for further studies in regards to microinsurance development using different variables. Apart from product pricing, there are other major factors which affect the growth of microinsurance.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This chapter presents the literature review on microinsurance products and the effect of product pricing on microinsurance development in Kenya. It summarizes the information from other studies that have been carried out in the insurance field and also by professional organizations in regards to microinsurance penetration and development. The chapter presents theoretical orientation on product pricing and development of microinsurance, empirical studies supporting the study and the key areas addressed on the area of study. It also entails the theories have been used to understand the process through which customers form satisfaction judgments after product consumption which will definitely affect the perception of the product and its development. In addition, the chapter critically presents the review of the literature related to the study variables which includes; product pricing as the independent variable and microinsurance development as the dependant variable.

## 2.2 Theoretical Review

Various theories have been used to have an understanding on various factors which affect microinsurance development both directly and indirectly. Some of these theories touch on how customers form satisfaction judgments. Since microinsurance focuses on the low income earners, it can be perceived to target a specific market.

### 2.2.1 Game Theory

Myerson (1991) defines game theory as the study of mathematical models of conflict and cooperation between intelligent rational decision-makers. Game theory provides general mathematical techniques for analyzing situations in which two or more individuals make decisions that will influence one another's welfare. Smith, 2002 sets out an introduction to the concepts of game theory for general insurance actuaries and hints at where the theory might have some application. The paper introduces the model developed by Cournot (1838) to address the issue of competition between two suppliers to a market who need to make decisions on how much to produce. This might have provided a framework for exploring how different insurance firms may interact. However, in reality, most insurance companies execute their strategy by deciding what price to set, rather than deciding what quantity to produce, as assumed under the Cournot model.

In insurance, the double auction model can be applied in pricing thus determining the premium rates. This model is applies the game theory concept. The players are the private sector and the insurer. There are two different conditions for this game. When the risk coverage is fixed, they will negotiate about the premium. While when the premium is fixed, they will negotiate about the risk coverage. In this paper, the first condition will be discussed. Therefore, their strategy is premium. In this game, the insurer is the seller who sells the insurance product to the private sector. The private sector is the buyer of the insurance product. In this game, it is assumed that the insurer and the private sector simultaneously offer the premium. The premium from the insurer is $P_I$ and the premium from the private sector is$P_J$. If $P_I \geq P_J$, then the trade occurs at price P = $(P_I + P_J)/2$; if $P_J < P_I$, then no trade occurs. If the trade can occur,

there actually exists a bargaining game. The buyer and the seller will bargain over the premium. The premium usually is finalized in the middle of $P_I$ and$P_J$. To simplify this problem, it is assumed that P = ($P_I$ + $P_J$)/2.

### 2.2.2 Financial Pricing Theory

A possibly more appropriate theoretical construct to analyse the issue of whether commissions are passed through to buyers is insurance financial pricing theory (Myers and Cohn, 1987). Financial theory posits that insurers operating in competitive insurance and financial markets will collect premiums sufficient to cover the expected losses and expenses from issuing insurance policies as well as a profit loading sufficient to cover the cost of capital (i.e., the economic cost of bearing risk). Expenses that are passed along in this model include all commissions, administrative expenses, and taxes, including corporate income taxes. Thus, under financial pricing theory, the pass-through rate for all types of commissions would be 100%, and insurers on average would earn a fair competitive rate of return equal to the cost of capital. The financial pricing result centres on the hypothesis that insurance markets are competitive, such that insurers do not on average earn profits in excess of the cost of capital. Most economists who have evaluated insurance markets have concluded that property-casualty insurance markets are competitively structured. Thus, the prediction of this theory is that the entire cost of the commissions would be passed through to buyers. The amount of the commission that actually is passed along to buyers depends upon whether conditions in the insurance market more closely resemble those assumed in the micro-economic tax incidence literature, where commissions represent deadweight costs and there are some monopoly profits earned by insurers, or those assumed in the financial pricing literature, where commissions

are expenses for services rendered and insurance markets are competitive (Cummins and Doherty, 2005).

### 2.2.3 Winner's Curse Theory

This theory is a concept of the auction theory. Auction theory suggests that bidders should "shade" their bids to allow for the impact of winner's curse. Rothwell, et al., (2009) applied the winner's curse concept of auction theory to setting the price of an insurance policy. This suggests that firms bid to underwrite a customer's risk by quoting a premium. However, the true cost of that policy is unknown as it is not possible to predict precisely what will be the claims cost. In this event, insurers will determine the price they will bid by considering their expectation of what is the cost of claims. The winner's curse theory suggests that an insurer who bids the lowest price and wins the business is likely to have underestimated the cost and therefore is likely to be cursed by less profit than expected. The winner's curse model assumes that insurers are identical, independent and compete for the same risks at the same level of profitability. Therefore the consumer has no preference for an insurer and will always pick the organization that provides the cheapest price. The price submitted by the insurer is based on their perception of the risk driven from their own data. This brings in uncertainty in that the premium will be based on certain distributional assumptions (Warren,et al., 2012).

### 2.2.4 Assimilation Theory

This theory is based on Festinger's (1957) dissonance theory. Dissonance theory posits that consumers make some kind of cognitive comparison between expectations about the product and the perceived product performance. This view of the consumer

post-usage evaluation was introduced into the satisfaction literature in the form of assimilation theory. According to Anderson, 1973, consumers seek to avoid dissonance by adjusting perceptions about a given product to bring it more in line with expectations. Consumers can also reduce the tension resulting from a discrepancy between expectations and product performance either by distorting expectations so that they coincide with perceived product performance or by raising the level of satisfaction by minimizing the relative importance of the disconfirmation experienced. Payton, et al., (2003) criticized this theory by arguing that it has a number of shortcomings. First, the approach assumes that there is a relationship between expectation and satisfaction but does not specify how disconfirmation of an expectation leads to either satisfaction or dissatisfaction. Second, the theory also assumes that consumers are motivated enough to adjust either their expectations or their perceptions about the performance of the product. A number of researchers have found that controlling for actual product performance can lead to a positive relationship between expectation and satisfaction. Therefore, it would appear that dissatisfaction could never occur unless the evaluative processes were to begin with negative consumer expectations.

### 2.2.5 Contrast Theory

Dawes (1972) defines contrast theory as the tendency to magnify the discrepancy between one's own attitudes and the attitudes represented by opinion statements. This theory presents an alternative view of the consumer evaluation process after using the product than was presented in assimilation theory in that post-usage evaluations lead to results in opposite predictions for the effects of expectations on satisfaction. This theory predicts that product performance below expectations will be rated poorer than

it is in reality (Oliver and DeSarbo, 1988). While assimilation theory suggests that consumers will seek to minimize the inconsistency between expectation and performance, contrast theory holds that a surprise effect occurs leading to the inconsistency being exaggerated. According to the contrast theory, any inconsistency of experience from expectations will be exaggerated in the direction of discrepancy. If the firm raises expectations in his advertising, and then a customer's experience is only slightly less than that promised, the product would be rejected as totally un-satisfactory. Conversely, under-promising in advertising and over-delivering will cause positive disconfirmation also to be exaggerated.

## 2.3 Factors Affecting Growth of Microinsurance

The growth of microinsurance has been hindered by several factors both from the insurers' perspective and the target market. Microinsurance tends to reach a certain class of people who have been neglected by the traditional insurance due to the cost of acquiring such products. Convincing the target market the importance of insurance tends to be difficult because they don't see it as a necessity.

### 2.3.1 Product Pricing

A reasonable approach to product pricing is to design products in such a way that they fit the needs of the target market. This can be done by doing research on the basic risks that the target market is facing and coming up with suitable products that help in mitigating the risks. Lack of historical data and the unpredictable nature of the target market makes it difficult to price microinsurance products. Most of the low income earners do not have consistent and steady income that may enable them to pay

premiums adequately. This makes it difficult to estimate premium contribution in respect to expected claims and leads to challenges in reserving.

### 2.3.2 Target Market

The main intention of having microinsurance products is to target the low income earners. This means that the products the companies should develop must be cheap and at the same time cover the expected risks that the policyholders will be facing and meet the administration costs incurred while developing the product. The cost of distribution has proved to be a major challenge since it may be much higher compared to the returns made after issuing the product. Most products are usually bundled together such that one product can cover various types of risks (Insurance Regulatory Authority Policy Paper, 2014). Insurers find it cheaper to underwrite group risks compared to individual risks. Microinsurance products should be economically viable to both the insurance company and to the target market. If the products are affordable, this will increase the uptake of the product thus developing the industry at large.

### 2.3.3 Insurance Perception

A study carried out by Cenfri identifies several factors which contribute to the perception of insurance thus limiting the growth in the sector. Low penetration of insurance service especially in the low end market is due to lack of trust in the insurance companies which is characterized by the non- payment of claims or the lengthy process of claim settlement. Low engagement and awareness of the insurance companies especially in regards to the informal market affects the growth of microinsurance. The study also reveals that some cultural and religious beliefs discourage people from taking insurance covers. From the policy makers point of

view, the government has not adequately supported insurance uptake by allowing tax exemptions and providing supporting fiscal measures.

## 2.4 Empirical Review

There are key issues that currently influence microinsurance development in Kenya and around the world. Most underwriters lack the necessary capacity to develop, underwrite the products and process the claims necessary to accommodate the unique features of microinsurance. According to the Kenyan microinsurance policy paper, insurance companies are struggling to keep the transaction and administrative cost low which has a major impact on the pricing of products. The majority of the potential market for microinsurance is employed in the informal sector with inconsistent incomes that are difficult to sustain the consistent premium payments.

Ramesh and Nishant (2006) study concentrated on the factors affecting demand for health insurance in a microinsurance scheme in India. Their research focused on the field of demand for health insurance in respect to low income earners. They attempted to analyse factors which determine health insurance purchase decision by using a model having continuous, categorical and interval variables and estimating the model in two stages, buying decision of insurance due to the cost of product and the extent of health insurance purchase. They used primary data which was collected through questionnaires. The data was collected on different economic variables like income, gender and education and information related to variables like healthcare expenditure and hospitalization. The study used an econometrics analysis to find the factors that affect health insurance purchase decisions.

In their estimation procedure, they did an analysis on both the health insurance purchase decision and the factors that affect the extent of insurance purchase. According to their study, the dependent variable was the extent of insurance purchase and the independent variables were income, health expenditure, age, child, hospitalization costs, coverage of illness, coverage of service and industry expenditure. All the independent variables can be merged to form the expenses incurred and the income. The model that was used by the researcher was a multi linear regression model of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Y- Extent of insurance purchase

$X_1$- Income

$X_2$- Health expenditure

$X_3$- Coverage of illness

$\varepsilon$-the error term

$\beta_0$- is the mean of the responses at x = 0

The research findings was that income was a major determinant of health insurance purchase decision. Health expenditure also had a positive association with health insurance purchase decision. A test was done to see whether the independent variable had a problem of multicollinearity. The inverse of the correlation matrix was used in detecting multicollinearity.

Ekundayo (2012) analysed the impact of risk pricing on profit maximization of insurance companies in Nigeria. In the study, the researcher used both primary and secondary data. Primary data was obtained through administering a questionnaire to randomly selected non-life insurance underwriters and insurance brokers. Secondary

data was obtained from 30 insurance companies. Both descriptive and regression analysis were used in the analysis. The study observed that operation expenses of insurance companies in Nigeria is strongly correlated to profitability and should be properly managed. Operation expenses are part of the costs that are supposed to be considered when pricing a microinsurance product so that a company may make positive returns from their products. If the cost of production is high, the premium rates charged will be high thus making the product expensive for the intended target market.

Njuguna (2012) analysed the Risk Management Practices, a survey of Microinsurance service providers in Kenya. The study used a descriptive research design as it sought to determine the micro-insurance risk management practices of insurance companies in Kenya. According to Burns (2000) a descriptive research design utilizes elements of both quantitative and qualitative research methodologies to offer description of the state of affairs as it exists at present. In this study primary data was collected by use of questionnaires. An analysis was done on the risks involved in product design, adverse selection, moral hazard, pricing, and correlation of risks, regulatory, fraud, premium default, inadequate distribution channels and low penetration. In data analysis percentages, means and standard deviations were calculated to help in describing the data. Pearson Correlations and Chi-Tests were also calculated to determine the level of association between the variables of interest. Visual binning was applied to determine the most severe risks facing micro-insurance providers and the effectiveness of the risk management strategies postulated in the study. According to the findings, insurance companies conduct constant micro-insurance price reviews/revisions so as to reduce the risk of cost incurred being higher than the price charged or the policy being too expensive to be afforded by the low-end market.

Radeva (2012) focused on performance measurement and long term balance between financial and social performance in health microinsurance in India. The research was based on investigating the delivery models of health microinsurance and how they relate to performance measurement. The performance measures was analysed according to 16 key performance indicators created by the microinsurance industry. The researcher analysed the product value by calculating the incurred expense ratio, incurred claim ratio and net income ratio. On product awareness and client satisfaction, the researcher calculated renewal ratio, coverage ratio and growth ratio.

Gitau (2013) research focused on the challenges facing development of micro insurance at CIC insurance group limited in Kenya. In the study both primary and secondary data was collected and were qualitative in nature. Content analysis was used to analyse the data. The findings indicated that the data obtained was compared with existing literature in order to determine areas of agreement and disagreement. The research finding specifically on product pricing was that transaction cost, collecting premiums where there is likely to be a lack of bank accounts, and assessing and paying out of small claims tend to be relatively high. For the company to meet the increasing cost, the premium rates must be higher thus limiting the access to low income earners. This makes the development of microinsurance low because the target market cannot afford high prices yet they need high quality products for their needs.

Oino (2013) researched on multiple linear regression approach to modeling determinants of profitability of life Insurance companies in Kenya. The research main objective was to establish the relationship between the profitability of life insurance companies and the selected internal factors of the companies. The research also analysed the assumptions of multi linear regression model. The findings were that

there was a correlation between return on asset which was the dependent variable and the company size, volume of capital, underwriting risk and liquidity which were the independent variables. From the study, it is clearly indicated that the model can be used to measure the profitability of insurance companies. Each independent variable had an effect on the return on assets. Since microinsurance development is a performance indicator of the insurance industry, the model would be a viable method to apply in this study.

## 2.5 Summary of Literature Review

The research findings of the various studies discussed in this chapter are an indication that there are many factors which hinder microinsurance development. The game theory, financial pricing theory and the winners curse theory focus mainly on the premium rates charged and the cost of commissions issued to insurance intermediaries. All these costs are usually considered when pricing a product such that the premium rates charged will cover all the incurred costs and at the same time benefit the company profit wise. Assimilation and contrast theory on the other hand focuses on the behaviour of consumers on the prices of products and their taste and preference which will determine the uptake of the microinsurance products. The growth of microinsurance is determined by the uptake of the products.

Product value which is an indication of the premiums to be paid has proved to be a key factor which affects the growth of microinsurance. Njuguna (2012) findings were that the rate at which the premiums are charged per product is a key element in the consumption of the products. The research findings have shown that the insurance companies face difficulties in compensating the insured and also meeting the

administrative costs incurred. On the other hand, Gitau (2013) indicated that most of the products are overpriced thus limiting the growth of microinsurance. Many studies on microinsurance have a general overview on the performance of microinsurance and the risks that a company faces in issuing such a product. Ekundayo (2012) looked into the methodology of pricing the products and the value of the product but not how the prices affect the uptake of microinsurance. This research intends to fill the gap on factors affecting the growth of microinsurance and it will concentrate specifically on product pricing, which is a determinant of the premiums charged and the product value and how it affects the uptake of microinsurance products. The growth ratio in this study will be used as a measure of microinsurance development in Kenya.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter brings out the study design and methodology. These are the steps taken in the data collection and analysis. The section contains the study instruments which were incorporated in the study. In addition to that, the sampling design and the data collection procedures were important components of the study and are also contained in this chapter. This section of the study describes the study design that was used, the target population and the sampling method, procedure of data collection and analysis at large. The chapter explains the method that was used in collecting and analyzing data to be able to answer the study questions and attain the objective of the study.

## 3.2 Research Design

An experimental research design was adopted for the purpose of this study. An experimental research design is a study design used to test cause and effect relationships between variables. The study looked at the relationship between the growth of microinsurance which was measured by the gross written premium, the dependent variable and product pricing which was measured by the incurred expense ratio, incurred claim ratio and the net income ratio, independent variables. The study looked at the usefulness of the model in explaining the growth of microinsurance by assessing the calculated ratios. The usefulness of the overall model was determined by coefficient of determination, $R^2$ and the analysis of variance (ANOVA).

## 3.3 Population

The target population for this study was 7 insurance companies in Kenya registered and licenced by the Insurance Regulatory Authority which offer microinsurance products. Data from the 7 companies was considered in analysis.

## 3.5 Data Collection

The study adopted secondary data collection for all the related variables. Data was collected from the financial statements of the insurance companies, the financial condition reports that are prepared annually by actuaries for submission purpose to the regulator and also from the underwriting and claims reports of the insurance companies. This was the best source of collecting the data since the information is for publication purposes and submission to the regulatory entities thus making it a legal requirement. This increased data validity and reliability. For the dependent variable, data on the gross premium was collected, while incurred claims, incurred expenses, net income and earned premiums were collected to calculate the ratios used in the independent variables.

## 3.6 Data Analysis

The data collected was edited, coded and tabulated into manageable summaries. This study used a quantitative method of data analysis which was conducted using descriptive statistics. In this study, I adopted the methodology by (Ramesh and Nishant, 2006) which is a multi linear regression model, but reduced the number of independent variables to three. It was a probabilistic model that includes more than one independent variable.

To measure the effect of product pricing on the growth of microinsurance by insurance underwriters in Kenya, the study considered the product value and the product awareness. The product value entailed an analysis of the incurred expense ratio, which is a ratio of the incurred expenses and earned premiums, Incurred claim ratio, which is a ratio of the incurred claims and earned premiums and the net income ratio, which is a ratio of the net income and earned premiums. All these ratios formed part of the independent variable (X).

The growth of microinsurance was measured by the gross written premium. The model clearly indicated how the X variables influenced the outcome of Y and also the correlation between the X variables.

$$Y= \beta_0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\varepsilon$$

Y- Gross written premium was used as a proxy for growth of microinsurance

$X_1, X_2, X_3$ was used as a proxy for product pricing

$X_1$- Incurred expense ratio

$X_2$- Incurred claim ratio

$X_3$-Net income ratio

$\varepsilon$-the error term

$\beta_0$- is the mean of the responses at x = 0

$\beta_1, \beta_2, \beta_3$ were used to measure the effect of each independent variable

The relevant ratios were calculated from the data collected so as to get the independent variables. The coefficient of determination $R^2$ was used to show how the model fits the data, and thereby representing a measure of the usefulness of the model in predicting Y only if the sample contains substantially more data points than the

number of $\beta$ parameters in the model. The numerical value of $R^2$was used to check the fitness of the model to the data. Analysis of variance was used to test the hypothesis of all the $\beta$ parameters except$\beta_0$.

A t test statistic was applied so as to determine whether each individual independent variable was significant in explaining the growth of microinsurance by insurance underwriters in Kenya. A 5% level of significance was used. Since the growth of microinsurance is a performance indicator of the insurance industry, the model was viable method to apply in this study keeping in mind the assumptions of multicollinearity, normality and linearity. All the assumptions were tested statistically using Statistical Package for the Social Sciences (SPSS).

# CHAPTER FOUR

# DATA ANALYSIS AND FINDINGS

## 4.1 Introduction

This chapter presents information to determine the effect of product pricing on the growth of microinsurance by insurance underwriters in Kenya. Data collected from the insurance companies was analysed using multi linear regression technique. The research period for this study was from 2011 to 2013. This chapter focuses on the results of data analysis, results and discussion of findings. Data analysis results were presented using tables.

## 4.2 Descriptive Analysis

Table 1 is a summary of descriptive analysis of the data collected in terms of the descriptive variables which are the gross premium, expense ratio, claims ratio and net income ratio. The average for each variable is provided by the mean. The maximum and minimum values are also provided. Also presented is the standard deviation of each descriptive variable.

**Table 1: Descriptive Statistics**

| | *N* | *Range* | *Minimum* | *Maximum* | *Mean* | *Std. Deviation* |
|---|---|---|---|---|---|---|
| *gross premium* | *144* | *7387501.00* | *10186.00* | *7397687.00* | *1.2614E6* | *2.20644E6* |
| *expense ratio* | *144* | *1.2968* | *.0045* | *1.3013* | *.331169* | *.2712085* |
| *claims ratio* | *144* | *3.3198* | *.0130* | *3.3328* | *.627519* | *.7378167* |
| *net income* | *144* | *5.1561* | *-.1633* | *4.9928* | *1.001249* | *1.2165349* |
| *Valid N (list wise)* | *144* | | | | | |

*Source: SPSS Output*

## 4.3 Correlation Analysis

In this section, we look at the relationship between the dependent variable, which is the gross premium and the independent variables, which are the expense ratio, claims ratio and the net income ratio. Table 2 shows the correlation between the variables.

## Table 2: Correlations

| | | *gross premium* | *expense ratio* | *claims ratio* | *net income* |
|---|---|---|---|---|---|
| *gross premium* | *Pearson Correlation* | *1* | *.555*** | *.239*** | *.914*** |
| | *Sig. (2-tailed)* | | *.000* | *.004* | *.000* |
| | *N* | *144* | *144* | *144* | *144* |
| *expense ratio* | *Pearson Correlation* | *.555*** | *1* | *-.024* | *.679*** |
| | *Sig. (2-tailed)* | *.000* | | *.778* | *.000* |
| | *N* | *144* | *144* | *144* | *144* |
| *claims ratio* | *Pearson Correlation* | *.239*** | *-.024* | *1* | *.049* |
| | *Sig. (2-tailed)* | *.004* | *.778* | | *.562* |
| | *N* | *144* | *144* | *144* | *144* |
| *net income* | *Pearson Correlation* | *.914*** | *.679*** | *.049* | *1* |
| | *Sig. (2-tailed)* | *.000* | *.000* | *.562* | |
| | *N* | *144* | *144* | *144* | *144* |

*Source: SPSS Output*

***. Correlation is significant at the 0.01 level (2-tailed).*

The study found out that there exist a positive correlation coefficient between gross premium and expense ratio of 0.555 which is significant at 5% implying that an increase in expense ratio results to an increase in gross premium. There was also a positive correlation between the gross premium and claims ratio of 0.239, and the gross premium and net income ratio of 0.914 which is significant, implying that an

increase in the claims ratio and the net income ratio will also result to an increase in the gross premium.

## 4.4 Regression Analysis

In this section, the fitness of the model is determined by an analysis of the numerical value of $R^2$. I also looked at the usefulness of the model in explaining the growth of microinsurance by assessing whether the combination of expense ratio, claims ratio and net income ratio has an effect on the gross premium. Table 3 below contains the model summary.

## Table 3: Model Summary

| *Model* | *R* | *R Square* | *Adjusted R Square* | *Std. Error of the Estimate* |
|---|---|---|---|---|
| *1* | *.938*[a] | *.879* | *.876* | *7.75601E5* |

*Source: SPSS Output*

a. *Predictors: (Constant), net income, claims ratio, expense ratio*

b. Dependent Variable: gross premium

$R^2$ =0.879 implying that 87.9% variation in gross premium can be explained by net income, claims ratio, expense ratio, thus deeming the model fit.

The regression output ANOVA is presented in Table 4.

## 4.4.1 Test of Significance

**Table 4: ANOVA**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 6.120E14 | 3 | 2.040E14 | 339.100 | .000[a] |
| | Residual | 8.422E13 | 140 | 6.016E11 | | |
| | Total | 6.962E14 | 143 | | | |

*Source: SPSS Output*

a. *Predictors: (Constant), net income, claims ratio, expense ratio*

*b. Dependent Variable: gross premium*

Based on the ANOVA, we can conclude that the regression model is significant since the p value is less than 5%

## Table 5: Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Tolerance | VIF |
| (Constant) | -587841.542 | 117204.782 | | -5.016 | .000 | | |
| expense ratio | -829738.654 | 326855.410 | -.102 | -2.539 | .012 | .535 | 1.868 |
| claims ratio | 565640.793 | 88276.164 | .189 | 6.408 | .000 | .992 | 1.008 |
| net income | 1766833.166 | 72933.592 | .974 | 24.225 | .000 | .534 | 1.871 |

*Source: SPSS Output*

The resultant model is:

$$\textit{Gross Premium} = -587841.542 - 829738.654X_1 + 565640.793X_2 + 1766833.166X_3$$

Where $X_1$ is the Incurred expense ratio, $X_2$- Incurred claim ratio and $X_3$-Net income ratio. Based on the table 5 above, all the three independent variables are highly significant in predicting the gross premium since their corresponding p values are less than 5%

## 4.2 Testing Multiple Linear Regression Assumptions

This section discusses the results of exploratory data analysis which is essentially the tests of the multiple linear regression assumptions and the treatment of the data where these assumptions are violated.

### 4.2.1 Testing for Multicollinearity

Multicollinearity occurs when there is an exact (or nearly exact) linear relation among two or more of the input variables. Multicollinearity is a matter of degree, not a matter of presence or absence. The higher the degree of multicollinearity, the greater the likelihood of the disturbing consequences of multicollinearity

## Table 6: Collinearity Diagnostics

| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | |
|---|---|---|---|---|---|---|---|
| | | | | (Constant) | expense ratio | claims ratio | net income ratio |
| 1 | 1 | 2.926 | 1.000 | .03 | .02 | .04 | .03 |
| | 2 | .650 | 2.121 | .01 | .04 | .56 | .11 |
| | 3 | .291 | 3.173 | .54 | .01 | .33 | .33 |
| | 4 | .133 | 4.695 | .42 | .93 | .08 | .54 |

*Source: SPSS Output*

*a. Dependent Variable: gross premium*

An eigenvalue close to zero indicates linear dependence amongst the observations. From Table 6 above, there is a clear indication that several eigenvalues are close to 0, indicating that the predictors are highly inter correlated and that small changes in the data values may lead to large changes in the estimates of the coefficients. There is linear dependence amongst the variables

## Table 7: Residual Statistics

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | -602327.0000 | 7.8095E6 | 1.2614E6 | 2.06868E6 | 144 |
| Residual | -1.74677E6 | 2.66649E6 | .00000 | 7.67422E5 | 144 |
| Std. Predicted Value | -.901 | 3.165 | .000 | 1.000 | 144 |
| Std. Residual | -2.252 | 3.438 | .000 | .989 | 144 |

*Source: SPSS Output*

*a. Dependent Variable: gross premium*

### 4.2.2 Test for Normality

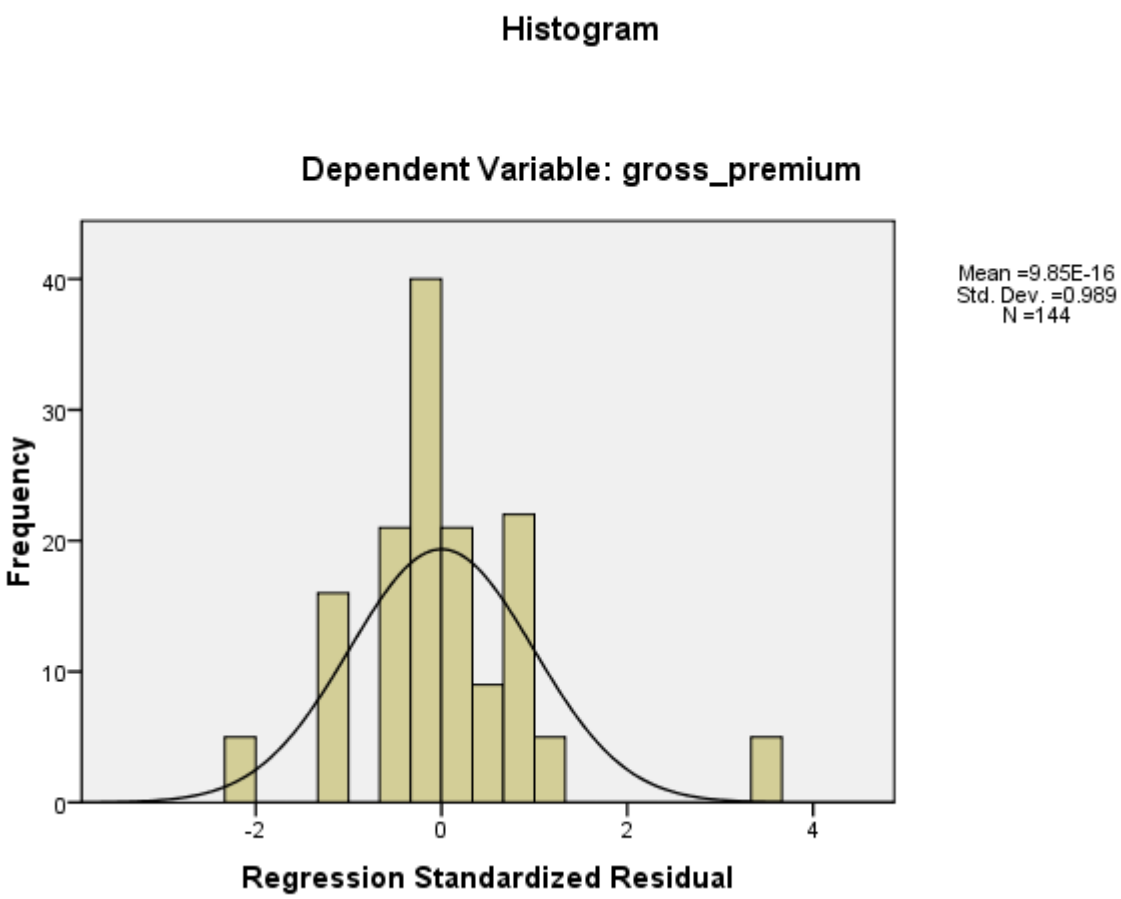


**Figure 1: Plot of Residuals**

When the residuals are normally distributed with a mean of zero, we tend to get a bell shaped histogram. Figure 1 above clearly indicates that the residuals are normally distributed around the mean of zero.

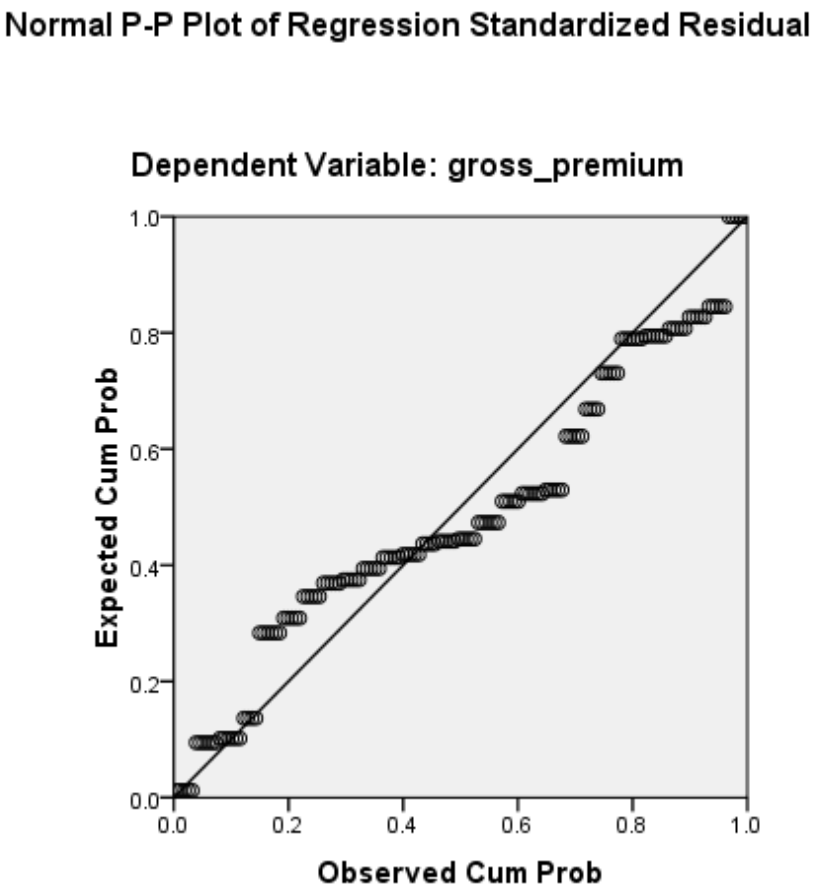


**Figure 2: P-P Plot**

The probability plot in figure 2 above indicates a linear relationship between the dependent variable, gross premium and the independent variables, expense ratio, claims ratio and net income ratio. It should be noted that positive skewed data fall below the straight line whereas the negatively skewed data rise above the straight line.

## 4.5 Summary and Interpretation of Findings

From the research findings, it is clear that there exists a positive correlation coefficient between the dependent variable and the independent variables. This is an indication that the independent variables affect the dependent variable positively. An increase in the incurred claims ratio, incurred expense ratio and net income ratio will lead to an increase in the gross premium. This can be explained by the fact that if the gross premium increases, it means that the company is underwriting more business, which will lead to an increase in the expenses incurred while issuing the products, an increase in the expected claims due to the increase in clientele and also an increase in the net income.

The fitness of the model was determined by analysing the numerical value of$R^2$. The value of $R^2$ was 0.879 implying that there 87.9% variation in gross premium can be explained by the net income ratio, claims ratio and incurred expense ratio thus deeming the model fit. Based on the analysis of variance, the p value was less than 5% and was used as a test of significance.

The study also tested the multiple linear regression assumptions which included multicollinearity, collinearity and normality. There was linear dependence amongst the observations since several eigen values were close to zero, thus indicating that the predictors are highly inter correlated and that small changes in the data values may lead to large changes in the estimates of the coefficient. The bell shaped histogram indicated that the residuals were normally distributed around the mean of zero. The probability plot also showed a linear relationship between the independent variables and the dependent variable

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presents the summary of findings, interpretations, conclusions and recommendations drawn from the analysis of the data collected on microinsurance. The intention of the study was to establish the effect of product pricing on the growth of microinsurance by insurance underwriters in Kenya for a period from 2011 to 2013.

## 5.2 Summary of Findings and Discussions

The study found out that there exists a relationship between the gross premium which was a proxy for the growth of microinsurance and the incurred expense ratio, incurred claims ratio and net income ratios which were proxies for product pricing. The study established that there was a positive correlation between the expense ratio, claims ratio and net income ratio and the gross premium.

An increase in the above ratios indicated that there was an increase in the gross premium. This is realistic because when the gross premium increases, it means that the insurance companies are underwriting more business. This will automatically lead to an increase in the expenses incurred in issuing the products, an increase in the number of claims expected or even incurred since the company now covers a wider clientele and also an increase in the net income.

From the above literature, we have seen that an increase in the gross premium on the microinsurance products indicates that there is a high purchase of the product. This is an indication that there is product awareness and there is growth of microinsurance. The model has proven to be a useful tool for measuring microinsurance growth and can be used by companies in planning to venture in microinsurance.

## 5.3 Conclusions

This study intended to establish whether there is a relationship between product pricing and the growth of microinsurance in Kenya. The intention was to look at the product value vis a vis the product awareness. The proxies intended to represent product pricing clearly indicates that it's a major determinant on the consumption of microinsurance products. Growth can only be ascertained if the microinsurance products a company offers are appreciated and are consumed by the target market.

The model used proved to be viable and in line with the previous studies done in regards to measuring performance of microinsurance. There is consistency with the empirical studies since they indicate a positive correlation between the dependent and independent variables in measuring performance of microinsurance.

The net income ratio was the key performance indicator since it measures how viable or profitable microinsurance is. One of the most important indicators is the microinsurer's net financial result or net income since this reflects a summary of all activities in the period reviewed. The incurred claims ratio and incurred expense ratio outlined the total cost incurred by a company when issuing a microinsurance product.

## 5.4 Limitations of the Study

Microinsurance being an emerging market in the insurance sector in Kenya, the study faced various limitations. Most of the companies were not willing to give out the data in regards to microinsurance products due to fear of competition from other insurance companies. This posed a major challenge based on the data validity and reliability.

The Insurance Regulatory Authority is currently developing a regulatory framework on microinsurance. This has slowed down the growth of the microinsurance sector because there is no standard template of reporting microinsurance business as a subclass on its own thus leading to most companies reporting microinsurance data as part of the miscellaneous products. This made it difficult to extract accurate data. Most insurance companies lack independent data in regards to operating and investment income specifically for microinsurance thus posing difficulties in establishing accurate net income ratio.

The sample selected majorly focused on companies which offer general insurance products and only one life product leading to a bias. The study did not put into consideration the life products. This had an effect on the independent variables since they were all ratios with respect to earned premiums and in life products it's not applicable.

The model used coefficient of determination $R^2$ to measure data validity. The numerical value of $R^2$ was 87.9% which is relatively high. This does not guarantee that the model fits the data well, because as Anscombe's quartet shows, a high $R^2$ can occur in the presence of misspecification of the functional form of a relationship or in the presence of outliers that distort the true relationship.

The study focused on all the microinsurance products and did not categorize the products. This may have a positive or negative influence on the findings since different products incur different costs when issuing and also have different income depending on their nature and how lucrative they are.

## 5.5 Recommendations

There is need for further research so as to establish other factors which may affect the growth of microinsurance. Policies need to be in place so as to increase the capacity of insurance companies to develop more microinsurance products and to ensure that pricing is done appropriately. This will assist in the increase in penetration of microinsurance.

### 5.5.1 Policy Recommendations

While developing microinsurance regulation, the Insurance Regulatory Authority should develop a template for the submission of microinsurance data. This should be done as a separate class of business and not under miscellaneous. The regulator should also issue guidelines on product development and product pricing specifically for microinsurance products. This will assist the insurance companies in developing viable products for the target market. IRA should also consider licensing insurance companies and intermediaries whose line of business is microinsurance.

Insurance companies should avoid downsizing traditional insurance products so as to fit microinsurance needs. It's advisable for the companies to develop new products specifically for microinsurance by pricing appropriately. They should ensure that the products are clearly defined and that there are appropriate levels for review and approval of material aspects of pricing.

### 5.5.2 Suggestions for Further Research

The topic provided research opportunities on microinsurance. Future studies can be done in regards to the same, and a researcher can use the incurred claims ratio, incurred expense ratio and the net income ratio as independent variables to see how it will affect growth ratio or the coverage ratio.

A researcher may also find an opportunity in categorizing specific products, how they are priced and the penetration level. One can look into the micro-pensions related products, index products and micro-health insurance products. This will give a clearer view on how specific microinsurance products perform depending on how viable they are.

The multi linear regression model can be used to measure performance of microinsurance, but for measuring the data validity, a researcher may opt to use adjusted $R^2$, which penalizes the use of additional explanatory variables in accordance with the amount that they are likely to spuriously increase the $R^2$.

Research may be done specifically on short term microinsurance products or focus on the long term microinsurance products. This can be attained by sampling an even distribution of life insurance companies and general insurance companies. A researcher may opt to study only one line of business instead of both.

Apart from product pricing, one may look into contagion risk as an element of microinsurance penetration in Kenya. This will basically put into consideration the general perception of insurance in the Kenyan market, and how it affects the purchase of microinsurance products.

# REFERENCES


Adaptation to Climate Change and Insurance (ACCI). (2012). Index-Based Weather Insurance -. Nairobi.

Agrotosh, C. and Mookerjee, D. (2014). Crop Insurance: tackling poverty, one insurance policy at a time. Annals of actuarial.

Allianz group. (2010). Learning to insure the poor. Germany: Allianz SE, Nicolai Tewes Königinstraße 28 80802 Munich.

Smith,A., Chamberlain,D., Smit,H., Ncube, S. and Chelwa, G. (2010). Kenya microinsurance landscape, Market and regulatory analysis.

Smith, A. (2011). Beyond sales:. Beyond sales: New Frontiers in Microinsurance Distribution.

Association of Kenya Insurers. (2012). Vol. 8.6.

Bajaj, M., & Vijh, A. (1995). Trading Behaviour and the unbiousedness of market reaction to dividend announcements. Journal of finance, 255-279.

Barnett J.B, & Olivier. (2007). “Weather Index Insurance for Agricultural and Rural.

Battacharya, S. (1979). Imperfect information, dividend policyand "the bird in the hand" fallacy. Bell Journal of Economics, 259-270.

Biener, C. (2011). Pricing in Microinsurance Markets. Working Papers on Risk Management and Insurance No. 106.

Brown, S. J., & Warner, J. B. (1980). Measuring Securities Price Performance. Journal of Finance Economics, 205-258.

Churchill, C. (2006). Protecting the Poor, Amicroinsurance Compendium. Germany: International Labour Office, CH-1211 Geneva 22, Switzerland.

David C, Nail D. (2005). The Economics of Insurance Intermediaries.

Denis, G. & Wipf, J. (2006). Pricing Micro-insurance Products. Mumbai.

Divecha, A., & Dale, M. (1983). Market Responses to Dividend Increases and Changes in Payout Ratios. Journal of Financial and Quantitative Analysis , 163-173.

Easton, S. A., & Sinclair, N. A. (1989). "The Impact of Unexpected Earnings and Dividends on. Accounting & Finance, 1-19.

Easton, S., & Sinclair, N. (1989). The impact of unexpected earnings and dividends on abnomal returns to equity. Accounting and finance , 1-19.

Eling, C. B. (2012). An Analysis of Problems and Potential Solutions. Insurability in Microinsurance Markets.

Gitau, F. W. (2013). Challenges facing development of Microinsurance at CIC Insurance group limited in Kenya. Nairobi.

Gordon, M. (1963). Optimal Investment and Financing Policy. The Journal of Finance , 264-272.

Gordon, M. J. (1959). "Dividend, Earning, and Stock Prices". The Review of Economics and Statistics, 99-105.

Hongbin, C. (2010). Microinsurance trust and economic development..

Insurance Regulatory Authority. (2014). The Kenya Microinsurance policy paper. Nairobi.

International Association of Insurance Supervision. (2007). Issues of regulation and supervision of microinsurance.

International Microinsurance conference in Ghana. (2012). National Insurance Commission (NIC) of Ghana. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

Wipf, J. & Garand, S. (2010). Performance indicators for Microinsurance 2nd Edition. Grand-Duchy of Luxembourg.

Kim B. Staking, J. C., & Merrill, C. (2009). Insurance theory and challenges facing the development of microinsurance markets. 5th Annual international microinsurance conference. Dakar, Senegal.

Kiragu, S. M. (2014). Assessment of challenges facing insurance companies in building competitive advantage in Kenya. A survey of insurance firms. International Journal of Social Sciences and Entrepreneurship.

Lee, B. S. (1995). The Response of Stock Prices to Permanent and Temporary Shocks to Dividends. Journal of Financial and Quantitative Analysis, 1-22.

Litner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings and taxes. American economic review , 97-113.

Litner, J. (1962). ). Dividends, Earnings, Leverage, Stock prices, and the supply of Capital to coporations. . Review of economics and Statistics , 243-269.

Lonie, A., Abeyratna, G., Power, D., & Sinclair, C. (1996). The stock market reaction to dividend announcements: A UK study of complex market signals. Journal of Economic studies , 32-52.

Mbogo, S. (2010). Insurance Companies Seek New Strategies to Attract Customers.

McCord, M. (2012). Microinsurance product development for microfinance providers. International Fund for Agricultural Development (IFAD).

Michael J. McCord, R. S.-J. (2012). the landscape of microinsurance in Africa . Munich Re Foundation and GIZ-Program Promoting Financial Sector Dialogue in Africa.

Matul, C. T.and Michal, J. (2011). Improving client value from microinsurance Insights from India, Kenya and the Philippines.

Miller, M. H. (1961). Dividend Policy, Growth and The Valuation of Shares. The Journal of Business, 411-433.

Monique, C. and Sebstad, J. (2003). The Demand For Microinsurance. Reducing Vulnerability.

Njuguna, A. G. (2012). A Survey of Micro-Insurance Service Providers in Kenya. Risk Management Practices.

Oino, T. N. (2013). Multiple Linear Regression approach to modeling determinants of profitability of life insurance companies in Kenya. Unpublished project, University of Nairobi, Kenya.

Oliver, R. (1980). Theoretical Bases of Consumer Satisfaction Research. Theoretical Developments in Marketing, 206-210.

Pettit, R. R. (1972). Dividend Announcements, Security Performance, and Capital Market Efficiency. The Journal of Finance , 993-1007.

Prahalad, C. K. (2005). The fortune at the bottom of the pyramid: Eradicating poverty through profits.

Radeva, I. (2012, January 20). Balancing Health Microinsurance.

Ramesh, B. and Nishant, J. (2006). Factors affecting the demand for Health Insurance in a Microinsurance Scheme. 1-29.

Ray, B., & Kothari, S. (1991). Security Returns and Earnings Announcement. The Accounting Review , 718-738.

Richardson, E. (2011). Application of Standard Actuarial Pricing Techniques for Health Microinsurance Schemes. 6-17.

Ryan,W., Ji,Y., Tim, R., and Jan, I. (2012). Game Theory in General Insurance.

Hochrainer, R., Mechler, G., Pflug, A. and Lotsch,S. (2008). Investigating the Impact of Climate Change on the Robustness of Index-based Microinsurance in Malawi.

Seiro, I. & Kono, H. (2009). Why Is the Take-up of Microinsurance So Low? Evidence from a Health Insurance Scheme in India.

Wagner, J. L. (2012). Sales Efficiency in Life Insurance:On Growth and Profitability in the German Market. Working papers on risk management and insurance no. 131.

Walter, J. E. (1956). Dividend Polices and Common Stock Prices. The Journal of Finance, 29-41.

# APPENDIX I

## Microinsurance Data Collection Sheet

| Year & Month | Gross written premium | Earned premium | Net income | Incurred expenses | Incurred Claims |
|---|---|---|---|---|---|
| **2011** | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| March | | | | | |
| April | | | | | |
| May | | | | | |
| June | | | | | |
| July | | | | | |
| Aug | | | | | |
| Sept | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| **2012** | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| March | | | | | |
| April | | | | | |
| May | | | | | |
| June | | | | | |
| July | | | | | |
| Aug | | | | | |
| Sept | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| **2013** | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| March | | | | | |
| April | | | | | |
| May | | | | | |
| June | | | | | |
| July | | | | | |
| Aug | | | | | |
| Sept | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |

## APPENDIX 2

## Microinsurance Data

| Gross Premium | Incurred expense ratio | Incurred Claims ratio | Net Income ratio |
|---|---|---|---|
| 35,340.67 | 0.19318 | 0.16931 | 0.64069 |
| 35,049.80 | 0.27517 | 0.88809 | -0.16329 |
| 35,410.26 | 0.51136 | 0.36601 | 0.12259 |
| 37,985.00 | 0.31400 | 0.30870 | 0.37731 |
| 42,900.00 | 0.18524 | 0.01296 | 1.01630 |
| 10,186.00 | 0.00446 | 2.75350 | 0.01736 |
| 288,222.00 | 0.02321 | 0.25510 | 2.71853 |
| 62,731.80 | 1.30131 | 1.15897 | 4.99285 |
| 45,826.87 | 0.25199 | 0.44932 | 0.30068 |
| 49,184.32 | 0.27778 | 0.35609 | 0.36611 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 614,189.78 | 0.24923 | 3.33276 | 1.01457 |
| 257,866.00 | 0.35460 | 1.05479 | 1.50436 |
| 104,552.00 | 0.31086 | 0.72039 | 2.75994 |
| 397,687.00 | 1.08641 | 0.56077 | 4.40479 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 984,899.00 | 0.26362 | 0.44176 | 0.73638 |
| 10,186.00 | 0.00446 | 2.75350 | 0.01736 |
| 428,222.00 | 0.02321 | 0.25510 | 2.71853 |
| 602,731.80 | 1.30131 | 1.15897 | 4.99285 |
| 45,826.87 | 0.25199 | 0.44932 | 0.30068 |
| 49,184.32 | 0.27778 | 0.35609 | 0.36611 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |

| | | | |
|---|---|---|---|
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 714,552.00 | 0.31086 | 0.72039 | 2.75994 |
| 797,687.00 | 1.08641 | 0.56077 | 4.40479 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 984,899.00 | 0.26362 | 0.44176 | 0.73638 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 364,189.78 | 0.24923 | 3.33276 | 1.01457 |
| 257,866.00 | 0.35460 | 1.05479 | 1.50436 |
| 104,552.00 | 0.31086 | 0.72039 | 2.75994 |
| 739,687.00 | 1.08641 | 0.56077 | 4.40479 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 35,340.67 | 0.19318 | 0.16931 | 0.64069 |
| 35,049.80 | 0.27517 | 0.88809 | -0.16329 |
| 35,410.26 | 0.51136 | 0.36601 | 0.12259 |
| 37,985.00 | 0.31400 | 0.30870 | 0.37731 |
| 42,900.00 | 0.18524 | 0.01296 | 1.01630 |
| 10,186.00 | 0.00446 | 2.75350 | 0.01736 |
| 288,222.00 | 0.02321 | 0.25510 | 2.71853 |
| 606731.80 | 1.30131 | 1.15897 | 4.99285 |
| 45,826.87 | 0.25199 | 0.44932 | 0.30068 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 984,899.00 | 0.26362 | 0.44176 | 0.73638 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |

| | | | |
|---|---|---|---|
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 614,189.78 | 0.24923 | 3.33276 | 1.01457 |
| 225,866.00 | 0.35460 | 1.05479 | 1.50436 |
| 710,552.00 | 0.31086 | 0.72039 | 2.75994 |
| 397,687.00 | 1.08641 | 0.56077 | 4.40479 |
| 2,257,866.00 | 0.35460 | 1.05479 | 1.50436 |
| 7,104,552.00 | 0.31086 | 0.72039 | 2.75994 |
| 7,397,687.00 | 1.08641 | 0.56077 | 4.40479 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 984,899.00 | 0.26362 | 0.44176 | 0.73638 |
| 10,186.00 | 0.00446 | 2.75350 | 0.01736 |
| 45,826.87 | 0.25199 | 0.44932 | 0.30068 |
| 49,184.32 | 0.27778 | 0.35609 | 0.36611 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 984,899.00 | 0.26362 | 0.44176 | 0.73638 |
| 52,577.86 | 0.20607 | 0.40314 | 0.39076 |
| 47,550.62 | 0.19005 | 0.38942 | 0.42058 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 3,614,189.78 | 0.24923 | 3.33276 | 1.01457 |
| 2,257,866.00 | 0.35460 | 1.05479 | 1.50436 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |

| | | | |
|---|---|---|---|
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 35,340.67 | 0.19318 | 0.16931 | 0.64069 |
| 35,049.80 | 0.27517 | 0.88809 | -0.16329 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |
| 56,355.60 | 0.21134 | 0.34455 | 0.44411 |
| 287,155.00 | 0.67096 | 0.31357 | 0.32904 |
| 586,382.00 | 0.25918 | 0.36094 | 0.74082 |
| 715,841.00 | 0.36858 | 0.27589 | 0.63142 |
| 311,486.00 | 0.31593 | 0.45762 | 0.99180 |
| 304,196.00 | 0.31597 | 0.34165 | 0.68403 |
| 318,295.00 | 0.31948 | 0.31335 | 0.68052 |
| 914,026.00 | 0.39829 | 0.51777 | 0.60171 |
| 54,964.09 | 0.20701 | 0.27222 | 0.52077 |
| 51,553.32 | 0.19512 | 0.26104 | 0.54385 |
| 50,602.22 | 0.16468 | 0.26102 | 0.57429 |