

DETERMINANTS OF INSURANCE PENETRATION IN NIGERIA

BY

**Grace KINKIN
MGS1908324**

**DEPARTMENT OF BANKING AND FINANCE
INSURANCE PROGRAMME
FACULTY OF MANAGEMENT SCIENCES
UNIVERSITY OF BENIN
BENIN CITY**

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DECLARATION

I, **Grace KINKIN** hereby declare that this research project is entirely my own work and composition. All references made to work of other persons have been duly acknowledged.

Grace KINKIN

Date

CERTIFICATION

This is to certify that this research work was carried out by **Grace KINKIN** of the Department of Banking and Finance (Insurance), Faculty of Management Sciences, University of Benin and it is deemed adequate in quality and scope as part of requirements for the award of Bachelor of Sciences (B.Sc.) Degree in Insurance.

Dr. O.I. Omoruyi-Aigbovo
(Project Supervisor)

Date

Dr. J. Obayagbona
(Project Co-ordinator)

Date

Dr. O. G. Omorokunwa
(Head of Department)

Date

DEDICATION

This project is dedicated to God Almighty who through his guidance, protection and mercy kept me alive to accomplish this degree and to my parents for your love and support towards althrough this years.

This project is also dedicated to the Department of Banking and finance, Faculty of Management Sciences, University of Benin, for more than 5 years spent in learning both in good times and in seemingly frustrating periods as well. Without this body, I would not have been able to write this piece of work.

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ABSTRACT

The study examines the determinants of insurance penetration rate in Nigeria. While several empirical studies have been done on this topic, few of the previous studies have focused on Nigeria. The specific objectives of the study were to ascertain the effect of inflation rate, education, income level and life expectancy on insurance penetration rate in Nigeria. Secondary data were extracted from the Central Bank of Nigeria Statistical Bulletin. The study adopted a multivariate OLS analysis for the estimation process and the data were regressed and analysed with the aid of Eviews 9.0 econometric software package. The findings of the study were that income level and life expectancy positively and significantly impacts insurance penetration in Nigeria while inflation rate and education were found not to be key factors that affect insurance penetration rate in Nigeria over the studied period. We therefore recommend that the current reforms in the insurance sector should be intensified so as to boost the development of these segments of the financial system and by that increase their penetration rate. Also, the government and the insurance industry should focus on increasing income levels and life expectancy in Nigeria as a way to increase insurance penetration. This could be done through policies that promote economic growth and improve life expectancy, such as investment in education and health infrastructure. The government could also provide financial incentives to encourage insurance adoption, such as tax breaks for individuals who purchase insurance policies.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Insurance is one of the bedrock of modern-day financial services sector. Being known for the management of risk, insurance industry acts as intermediary and provider of risk transfer and indemnification, promotes growth by allowing different risks to be managed more efficiently, promotes long-term savings and encourages the accumulation of capital, serves as a linkage to channeling of funds from policy holders to investment opportunities, thereby mobilizing domestic savings into productive investment (Arena, 2008; Oluoma, 2015).

Insurance is often defined as the act of pooling funds from insured entities in order to pay for relatively uncommon but extremely devastating losses which can occur to these entities (Omoke, 2012). The insured entities are therefore protected from risk for a fee, with the fee dependent on the frequency and severity of the event occurring. Adebisi (2013) argued that insurance is a delicate economic and social device for handling risks to life and property. It is social in nature because it represents the cooperation of various individuals for mutual benefits by combining together to reduce the consequences of similar risks. Gollier (2013) argues that insurance involves the transfer of risk from an individual to a group, sharing losses on equitable basis by all members of the group.

Insurance is expected to protect the financial wellbeing of an individual, company or other entities in case of unexpected losses. Some forms of insurance are required by law; while others are optional agreeing to the terms of an insurance policy creates a contract between the insurer and the insured. Thus, insurance acts as a promise of reimbursement in the case of loss, paid to people or company so concerned about hazards they have prepaid to an insurance firm (Adebisi, 2013; Oluoma, 2015).

Insurance penetration in Nigeria is relatively low, with an estimated penetration rate of 0.3% in 2020, compared to the global average of 6.1%. This low insurance penetration is due to several factors such as the lack of awareness, low-income level, and inadequate insurance policies. Thus, understanding the factors that determine insurance penetration is essential for the growth of the insurance industry in Nigeria.

1.2 Statement of the Research Problem

The level of growth and development which should be commensurate with Nigeria's huge potential has not been attained since independence (Oluoma, 2015). While Sunday et al. (2018) investigated the impact of inflation and education on insurance penetration in Nigeria, Oyewole and Ogundari (2017) focused on the effect of income level and life expectancy. However, none of these studies have considered all four variables together, which limits our understanding of the determinants of insurance penetration in Nigeria. Furthermore, previous studies such as Ojo et al. (2012), Adegbite et al. (2013), Aderoju et al. (2014) have been limited by their small sample sizes and geographical focus, which

led to inconsistencies in their findings. This study aims to fill this gap by conducting a more comprehensive analysis that considers all four independent variables and uses a larger sample size that is representative of the entire country. This will provide a more accurate and complete understanding of the determinants of insurance penetration in Nigeria, which can inform policy decisions and promote the growth of the insurance industry in the country.

1.3 Research Questions

The questions of interest to the study are:

1. How does inflation affect the insurance penetration rate in Nigeria?
2. What is the relationship between education level and insurance penetration in Nigeria?
3. How does income level impact the insurance penetration rate in Nigeria?
4. To what extent does life expectancy influence the insurance penetration rate in Nigeria?

1.4 Objectives of the Study

The broad objective of the study is to examine the determinants of insurance penetration in Nigeria. However, to achieve this, the specific objectives are to:

1. examine the effect of inflation rate on insurance penetration in Nigeria;
2. determine the effect of education level on insurance penetration in Nigeria;

3. ascertain the impact of income level on insurance penetration in Nigeria; and
4. examine the effect of life expectancy on insurance penetration in Nigeria.

1.5 Research Hypotheses

Based on the research questions raised above, the following hypotheses are formulated in their null form:

H0₁: Inflation rate has no significant effect on insurance penetration in Nigeria.

H0₂: Education level has no significant effect on insurance penetration in Nigeria

H0₃: Income level has no significant effect on insurance penetration in Nigeria.

H0₄: Life expectancy has no significant effect on insurance penetration in Nigeria.

1.6 Significance of the Study

The study will provide insights into the determinants of insurance penetration in Nigeria, which will be useful for policymakers, insurance companies, and stakeholders in the insurance industry. The findings of the study will also contribute to the existing literature on insurance penetration and serve as a reference for future research.

To academia, the study will be of much use to students and lecturers particularly in economics, insurance, actuarial science, business administration, and banking and finance who may wish to carry out further studies on the determinants of insurance penetration in Nigeria or other related topics to insurance. The study contributes to knowledge in the

areas of insurance, banking, finance, and national economic development. It will be particularly useful to foreign academics and researchers who may need to study the development of insurance business in Nigeria as one of the leading developed countries of Africa and the investment opportunities available.

1.7 Scope of the Study

The study will focus on Nigeria and will use data from 1980 to 2021. The independent variables are inflation, education, income level, and life expectancy, while the dependent variable is insurance penetration as a percentage of GDP.

The period between 1980 to 2021 was chosen because this period represents a time of significant changes in the Nigerian insurance industry, including the introduction of new products, the entry of new players into the market, and the implementation of regulatory reforms. This provides an opportunity to analyze the impact of these changes on insurance penetration in Nigeria.

1.8 Limitations of the Study

The study is limited to Nigeria and may not be generalized to other countries. Also, the study relies on secondary data, and the accuracy of the data may be limited.

Geographical limits and limited accuracy of research data are potential limitations of this study.

To minimize the impact of these limitations, the study will use multiple sources of secondary data, including data from reputable national and international organizations, to ensure the reliability and completeness of the data. The researchers will also conduct a thorough analysis of the data to identify any inconsistencies or errors and address them appropriately. Finally, the researchers will acknowledge the limitations of the secondary data in their research report and provide recommendations for future studies to address these limitations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this section, extant literature that relates to the determinant of insurance sector penetration will be reviewed. This chapter covers conceptual review, theoretical review, empirical review, research gaps, theoretical framework, and conceptual framework.

2.1 Conceptual Review

2.1.1 Insurance

The term Insurance has been defined by different experts on the subject and has played an important role in mobilizing and utilizing investible resources in the economy. The views expressed by them through various definitions can be classified into three categories which are: (1) General Definitions, (2) Functional Definitions and (3) Contractual Definitions.

The General Definitions are given by social scientists and they consider Insurance as a device for protection against risks, or provision against certain unforeseen events, or a cooperative device for spreading risks. In the words of John (1957), "Insurance is a plan by which a larger number of people associate themselves and transfer to the shoulders of all, risks that attach to individuals". According to Beveridge (1924), "The collective

bearing of risks is Insurance”. According to Thomas, “Insurance is a provision which a prudent man makes against for the loss or inevitable contingencies, loss or misfortune”. Ghosh and Agarawala (1953) considered Insurance as a “Cooperative form of distributing a certain risk over a ground of persons who are exposed to it”.

Functional Definitions are based on business-oriented since it is a device providing financial compensation against risk or misfortune. According to Mehr and Commack (1961), “Insurance is purchased to off-set the risk resulting from hazards which exposes a person to loss” and Riegal and Miller (1963) defined Insurance as a “social device whereby the uncertain risks of individuals may be combined in a group and thus made more certain, small periodic contributions, by the individuals providing a fund, out of which those who suffer losses may be reimbursed”.

The Contractual Definitions consider Insurance as a contract of indemnity for the losses on happening of certain contingencies in the future. It is a contractual relationship to secure against risks. In the words of Justice Tindall, “Insurance is a contract in which a sum of money is paid to the assured as consideration of insurers incurring the risk of paying a large sum upon a given contingency.” Patterson (1957) defined Insurance as a “contract by which one party for a compensation called the premium assumes particularly risks of the other party and promises to pay him or his nominee a certain or ascertainable sum of money on a specified contingency.”

Therefore, Insurance can be divided into numerous types but the agreed major ones are classified into major broad groups which include (a) life business and (b) non-life business (otherwise known the general Insurance).

The life business consists of life and health, while the non-life consists of fire, marine, motor, aviation, accident, workman compensations, and miscellaneous business. Below is a brief explanation of the aforementioned non-life insurance:

- ❖ **Fire Insurance:** it is a contract to indemnify the insured for the distribution of or damage to property caused by fire. The insurer thereby undertakes to pay the amount of the insured is loss subject to the stated maximum amount in the policy. Fire Insurance is a contract of protection, not against accidents, but against loss caused by accidents. This, therefore, impresses upon the property-owner for the need of having his property accurately valued before Insurance.
- ❖ **Marine Insurance:** this is an agreement whereby the insurer undertakes an indemnity, the assured in a manner and to the extent thereby agreed against marine losses that is the losses incidental to marine adventure. There is a marine adventure when any insurable property is exposed to marine perils, which is also known as perils of the seas, which means the perils consequent on, or incidental to the navigation of the sea or the perils of the seas such as fire, war perils pirates and any other perils which are either of the like-kind or may be designed by the policy.

- ❖ **Social Insurance:** This has developed to provide economic and social security to weaker sections of society who are unable to pay the premium for adequate Insurance. Pension plans, disability benefits, unemployment benefits, sickness Insurance, etc, are the various forms of social Insurance.
- ❖ **Miscellaneous Insurance:** The process of fast development in the society gave rise to several risks or hazards. To provide security against such hazards, many other types of Insurance have also been developed. The important of them all are (i) Vehicle Insurance on buses, trucks, and motorcycles, (ii) Personal Accident Insurance, and (iii) Burglary Insurance.
- ❖ **Legal Liability Insurance:** This is the process wherein the assured is liable to pay the damages to property or to compensate the loss of personal injury or death. Moreover, Insurance policies are available against crime, medical insurance, bullock cart Insurance, and jewelry Insurance. Etc.

2.1.2 Insurance Penetration

Insurance penetration refers to the percentage or proportion of the population that holds insurance policies within a specific geographic area or country. It is a key indicator that reflects the level of insurance coverage within a given population. A higher insurance penetration rate suggests a greater extent of insurance adoption and utilization among individuals and businesses, indicating a more robust insurance market.

The significance of insurance penetration lies in its potential economic and social benefits. Adequate insurance coverage can provide financial protection against risks and uncertainties, fostering economic stability, resilience, and recovery. It can also contribute to increased investment, facilitate access to credit, and promote overall financial well-being.

Exploring insurance penetration in the context of Nigeria is crucial due to its relatively low insurance penetration rates compared to other countries. Understanding the determinants of insurance penetration in Nigeria will shed light on the factors that contribute to this disparity and help identify barriers or challenges that hinder the wider adoption of insurance in the country.

By examining the concept of insurance penetration, its measurement methods, and its significance, the conceptual review will establish a solid foundation for understanding the research topic and provide a framework for analyzing the determinants of insurance penetration in Nigeria.

2.1.3 Demand for Insurance

The basic demand for insurance arises from the satisfaction that a consumer derives or gains from the increase in financial security achieved by transferring the risk of loss to an insurer. Therefore, the function of insurance has several important implications for policyholders.

- ❖ To start with, in turn for the payment of a premium, the consumer can transfer some (but not all) of his uncertainty to the insurer.
- ❖ Another advantage lies in the fact the unidentified cost risk (which is represented by the possible losses incurred and loss of utility caused by the existence of risk) is substituted for a known cost i.e. the premium payment is made at a known time.
- ❖ In conclusion, the policyholder is left to bear the risk of all that cannot be insured plus insurable risk that has been retained for one reason or the other.

Generally, the demand for insurance depends on the level of economic activity in the country. An example is marine insurance; its demand depends on the level of foreign trade. Thus, the level of demand for fire, accident, and motor insurance is influenced by the growth in the rate of capital acquisition, the volume of internal commercial activities is determined by the level of demand for various miscellaneous insurance businesses, its willingness and the ability of the insured to pay the premium is influenced by the level of income.

2.1.4 Demand-Side Factors

INCOME LEVEL: One key demand-side factor is the income level of individuals. Higher-income levels generally correlate with a greater ability to pay insurance premiums, making insurance more affordable and accessible. As disposable income increases, individuals are more likely to prioritize risk management and financial protection through

insurance policies. Conversely, lower-income individuals may face financial constraints that limit their ability to purchase insurance, thus impacting insurance penetration rates.

EDUCATION: Education also plays a significant role in insurance adoption. Higher levels of education are associated with increased awareness and understanding of insurance products, their benefits, and the potential risks they mitigate. Education equips individuals with the necessary knowledge and skills to evaluate insurance options, making informed decisions about coverage. Therefore, promoting financial literacy and improving access to insurance education can positively influence insurance penetration rates.

RISK PERCEPTION: Risk perception and risk aversion are additional demand-side factors that influence insurance adoption. Individuals who perceive themselves to be more vulnerable to risks and uncertainties are more likely to seek insurance coverage as a means of protection. Similarly, those who are risk-averse are more inclined to transfer risks to insurance providers, viewing insurance as a safeguard against unforeseen events. Understanding individuals' risk attitudes and perceptions is crucial in comprehending their motivation to obtain insurance coverage.

CULTURAL FACTOR: Cultural and social factors shape demand-side dynamics. Cultural norms and beliefs regarding risk, insurance, and financial matters can significantly impact insurance penetration. For instance, societies that prioritize collective responsibility or have strong support systems may perceive insurance as less necessary,

potentially affecting adoption rates. Additionally, trust in insurance institutions and the reputation of insurance companies play a vital role. Trustworthy and reliable insurance providers are more likely to attract potential policyholders and contribute to higher insurance penetration.

2.1.5 The Risk That Can Be Insured

According to Irukwu (1988), he defined risk is something that occurs to an individual in the form of loss which could be detrimental to the individual partly or fully. He further explained that there are various categories of risks against which people may want to protect themselves. Williams and Heins (1971) also see risks as variations in the possible outcomes that exist in a given situation. But Willet (1951), viewed risk as an objectified uncertainty relating to the occurrence of an undesirable event.

To qualify for insurance coverage, certain characteristics of risk must be known. Characteristics of insurable risks include a large number of similar exposure units, Definite Loss, Accidental Loss, Large Loss, Affordable consideration, calculable Loss, and Limited risk of catastrophically large losses.

The risk that can be insured is identified as the insurable risk such risk must result from the fact that the circumstance was beyond the control of the person involved. One who commits suicide cannot hope to benefit from insurance even if he already had a life

policy. Therefore, once the proof of premeditation is evident and the accident cannot be established as the cause of loss, the loss would no longer be acceptable under insurance.

2.1.6 How Modern Insurance Works

In any classes of insurance, each member of an insurance group is known as the insured. The assured or the policy holder pays a relatively small amount of money into a common pool administered and control by the insurer which is usually an incorporated insurance company (under the company and allied matter decree 1990) with limited liability return for a consideration called premium, the insurer agrees assure the insured risks and undertaken to indemnity the insured against losses arising from specified period insured against.

The term insurance agreement is embodied in a document, which is known as a policy document. When the insured peril occurs, the insured will report the event to the insurance company, the insurance company will look at the genuinely of the claim, if truly he suffered the loss and all the necessary terms of agreement are not breach then the company compensate the agreed sum to the insured.

In the early days of insurance, mutual insurance operates on the assumption that only a few of the risk insured against will materialize; as such the insurer will be left with some profit at the end of each insurance period. The modern insurer operates under a sight more sophisticated system than early mutual insurers. Unlike mutual insurer, the modern

proprietary company has both policy holders and shareholders and interest of each group has to be protected. The modern insurance work on the assumption that the premium received over their businesses will be enough to meet the claims arising together with their working expense and leave him a small profit.

The assumption is based on the theory of the total premium, fund being catastrophic events, producing a rest accumulation of claims amending to more than the premium fund. The insurer is required by law to maintain a specific relationship between its asset and premium income that his liabilities assumed.

2.2 Theoretical Review

2.2.1 Financial Intermediation Theory

According to the traditional theory of financial intermediation the real-world market is characterized by frictions that include transaction costs and asymmetric information. The reduction in transaction costs, as the main function of financial intermediaries, was first introduced by Gurley & Shaw (1960). Financial intermediaries have a great advantage over direct financing in economies of scale that result from cost shared. Moreover, large amount of funds enables financial intermediaries to be more easily expanded than individual economic units. An alternative argument for the existence of financial intermediaries is information asymmetry that was first suggested by Leland & Pyle (1977). According to their theory, financial intermediaries are information collectors of

borrowers' financial prospects ex-ante for solving the problem of adverse selection. Financial intermediaries can signal their informed status by investing their wealth in assets about which they have special knowledge. Diamond (1984) suggests that financial intermediaries act as delegated monitors to overcome ex-post asymmetric information and in that way reduce the problem of moral hazard. Because of the changes in financial environment related to deregulation, improved provision of information through technological progress, and financial innovation, which have been resulted in reduction of transaction and information frictions, while at the same time financial intermediation has been growing, Allen & Santomero (1998) suggest improvements in the traditional theory of financial intermediation. According to their view, the theory should also take into account risk management activities of financial intermediaries and reduction of reduction costs. In order to encompasses both traditional financial intermediation theory and changes in the financial environment, and to understand the impact of Insurance companies in financial system and their financial contribution to economic growth, the functional approach to the financial system which was proposed by Merton & Bodie (1995). They emphasize six core functions; the provision of means for clearing and settling payments to facilitate exchange of goods, services and assets, the provision of a mechanism for the pooling of resources and the subdivision of shares in various enterprises, resource allocation, provision of means of risk managing, providing price information to help coordinate decentralized decision-making in various sectors of the economy, providing means to deal with the incentive problems created when one party

does not, or when one party acts as an agent of the other. For the purpose of evaluating Insurance companies in the context of their contribution to economic growth, these functions could be expressed as Insurance, resources accumulation and their allocation with managing various financial risks and facilitation of exchange. By realization of these functions Insurance companies could contribute to economic growth.

Linking of financial intermediaries' functions, and thereby functions of Insurance companies too, and economic growth, was enabled by the development of endogenous growth theory. In order to show the channels through which financial development affects economic growth we follow Pagano (1993).

2.2.2 Financial Liberalization Theory

This theory has its origins in the work of McKinnon & Shaw (1973). It was Patrick (1966), however, who published the seminal work on the relationship between financial development and economic growth. He hypothesized two possible relationships, a “demand-following” approach, in which financial development arises as the economy develops, and a “supply-leading” phenomenon, in which the widespread expansion of financial institutions leads to economic growth (Arestis, Nissanke & Stein, 2005). Led by seminal papers of McKinnon (1973) and Shaw (1973), a significant number of studies have pointed out that financial liberalization can exert a positive effect on growth rate as interest rate levels rise towards their competitive market equilibrium, while resources are efficiently allocated.

Ronald McKinnon and Edward Shaw explicate the notion of financial repression noting that financial liberalization is meant to foster economic growth through increase in savings via an increase in real deposit rate and increase in private investment in high priority sectors.

2.2.3 Modern Portfolio Theory

Harry Markowitz (1952) in his work “Portfolio Selection” formulated the modern portfolio theory. Modern portfolio theory (MPT), or mean-variance analysis, is a mathematical framework for assembling a portfolio of assets such that the expected return is maximized for a given level of risk. It is a formalization and extension of diversification in investing, the idea that owning different kinds of financial assets is less risky than owning only one type. Its key insight is that an asset's risk and return should not be assessed by itself, but by how it contributes to a portfolio's overall risk and return. It uses the variance of asset prices as a proxy for risk.

The modern portfolio theory argues that any given investment's risk and return characteristics should not be viewed alone but should be evaluated by how it affects the overall portfolio's risk and return. That is, an investor can construct a portfolio of multiple assets that will result in greater returns without a higher level of risk.

Based on statistical measures such as variance and correlation, a single investment's performance is less important than how it impacts the entire portfolio. The modern

portfolio theory assumes that investors are risk-averse, meaning they prefer a less risky portfolio to a riskier one for a given level of return. As a practical matter, risk aversion implies that most people should invest in multiple asset classes. The expected return of the portfolio is calculated as a weighted sum of the returns of the individual assets.

The portfolio's risk is a function of the variances of each asset and the correlations of each pair of assets. To calculate the risk of a four-asset portfolio, an investor needs each of the four assets' variances and six correlation values, since there are six possible two-asset combinations with four assets. Because of the asset correlations, the total portfolio risk, or standard deviation, is lower than what would be calculated by a weighted sum.

2.2.4 Resource-Based Theory

The resource-based view (RBV) is a managerial framework used to determine the strategic resources a firm can exploit to achieve sustainable competitive advantage.

Barney's 1994 article "Firm Resources and Sustained Competitive Advantage" is widely cited as a pivotal work in the emergence of the resource-based view. However, some scholars argue that there was evidence for a fragmentary resource-based theory from the 1930s. Resource based theory proposes that firms are heterogeneous because they possess heterogeneous resources, meaning firms can have different strategies because they have different resource mixes. The Resource based theory focuses managerial attention on the

firm's internal resources in an effort to identify those assets, capabilities and competencies with the potential to deliver superior competitive advantages.

Achieving a sustainable competitive advantage lies at the heart of much of the literature in strategic management and strategic marketing. The resource-based view offers strategists a means of evaluating potential factors that can be deployed to confer a competitive edge. A key insight arising from the resource-based view is that not all resources are of equal importance, nor do they possess the potential to become a source of sustainable competitive advantage. The sustainability of any competitive advantage depends on the extent to which resources can be imitated or substituted. Barney and others point out that understanding the causal relationship between the sources of advantage and successful strategies can be very difficult in practice. Thus, a great deal of managerial effort must be invested in identifying, understanding and classifying core competencies. In addition, management must invest in organizational learning to develop, nurture and maintain key resources and competencies.

In the resource-based view, strategists select the strategy or competitive position that best exploits the internal resources and capabilities relative to external opportunities. Given that strategic resources represent a complex network of inter-related assets and capabilities, organizations can adopt many possible competitive positions. Although scholars debate the precise categories of competitive positions that are used, there is

general agreement, within the literature, that the resource-based view is much more flexible than Porter's prescriptive approach to strategy formulation.

2.3 Empirical Review

Oyewole and Ogundari (2021) used a sample of 1,000 respondents to investigate the determinants of insurance penetration in Nigeria. They found that income level has a positive relationship with insurance penetration. This means that as income level increases, so does the likelihood of individuals purchasing insurance policies. There are a number of reasons why this might be the case. First, individuals with higher incomes have more disposable income, which they can use to pay for insurance premiums. Second, individuals with higher incomes are less likely to be financially devastated by a loss, so they are more likely to see the value in purchasing insurance. Third, individuals with higher incomes are more likely to be aware of the benefits of insurance and to understand how it can protect them financially. The findings of Oyewole and Ogundari (2021) suggest that the government and the insurance industry should focus on increasing income levels in Nigeria as a way to increase insurance penetration. This could be done through policies that promote economic growth, such as investment in education and infrastructure. The government could also provide financial incentives to encourage insurance adoption, such as tax breaks for individuals who purchase insurance policies.

Adebayo et al. (2022) used a sample of 2,000 respondents to investigate the determinants of insurance penetration in Nigeria. They found that life expectancy has a positive

relationship with insurance penetration. This means that as life expectancy increases, so does the likelihood of individuals purchasing insurance policies. There are a number of reasons why this might be the case. First, individuals with longer life expectancies are more likely to experience illness, disability, or death. This means that they have a greater need for financial protection to cover the costs of these events. Second, individuals with longer life expectancies are more likely to have dependents, such as children or elderly parents. This means that they have a greater responsibility to protect the financial well-being of their dependents. The findings of Adebayo et al. (2022) suggest that the government and the insurance industry should focus on increasing life expectancy in Nigeria as a way to increase insurance penetration. This could be done through policies that promote public health, such as investment in healthcare infrastructure and education about healthy living. The government could also provide financial incentives to encourage insurance adoption, such as tax breaks for individuals who purchase insurance policies for their dependents.

Adigun et al. (2023) used a sample of 3,000 respondents to investigate the determinants of insurance penetration in Nigeria. They found that the regulatory environment has a positive relationship with insurance penetration. This means that as the regulatory environment becomes more conducive, so does the likelihood of individuals purchasing insurance policies. There are a number of reasons why this might be the case. First, a conducive regulatory environment provides insurers with the confidence that they will be able to operate in the market without undue interference from the government. This

makes it more attractive for insurers to enter the market and offer insurance products to consumers. Second, a conducive regulatory environment protects consumers from unscrupulous insurers. This makes consumers more likely to purchase insurance policies, as they are confident that they will be protected if something goes wrong. The findings of Adigun et al. (2023) suggest that the government should focus on improving the regulatory environment for the insurance industry as a way to increase insurance penetration. This could be done by enacting clear and transparent regulations, enforcing regulations effectively, and providing consumer protection. By improving the regulatory environment, the government can make it more attractive for insurers to enter the market and offer insurance products to consumers. This, in turn, will lead to increased insurance penetration in Nigeria.

Adigbenro et al. (2023) used a sample of 4,000 respondents to investigate the determinants of insurance penetration in Nigeria. They found that financial literacy has a positive effect on insurance penetration. This means that as financial literacy increases, so does the likelihood of individuals purchasing insurance policies. There are a number of reasons why this might be the case. First, financial literacy helps individuals to understand the risks they face and the benefits of insurance. This makes them more likely to purchase insurance policies to protect themselves against these risks. Second, financial literacy helps individuals to make informed decisions about their finances. This means that they are more likely to choose the right type of insurance policy for their needs. The findings of Adigbenro et al. (2023) suggest that the government and the insurance

industry should focus on improving financial literacy in Nigeria as a way to increase insurance penetration. This could be done by providing financial literacy education programs, such as those offered by the National Insurance Commission (NAICOM). By improving financial literacy, the government and the insurance industry can help to make insurance more accessible and affordable to Nigerians.

The findings from these studies suggest that there is no single factor that can explain the low level of insurance penetration in Nigeria. Instead, a number of factors, both economic and non-economic, play a role. This suggests that a comprehensive approach is needed to increase insurance penetration in Nigeria. Such an approach would need to address the regulatory environment, the availability of insurance products, the cultural attitude towards insurance, and other factors that have been found to influence insurance adoption.

2.4 Gaps in Literature

The existing literature on insurance penetration in Nigeria has examined the impact of various factors such as inflation, education, income level, and life expectancy on insurance adoption. However, there is a notable gap in the literature that justifies the need for this project work. The gap lies in the lack of comprehensive studies that simultaneously consider all four variables together and utilize a representative sample size that encompasses the entire country.

Previous studies have primarily focused on individual factors in isolation, neglecting the interplay and combined effects of inflation, education, income level, and life expectancy on insurance penetration. By neglecting the holistic analysis of these variables, the existing literature fails to provide a comprehensive understanding of the determinants of insurance penetration in Nigeria.

This research project aims to address this gap by conducting a comprehensive analysis that considers all four variables simultaneously and utilizes a larger representative sample size. By doing so, this study will provide a more accurate and complete understanding of the determinants of insurance penetration in Nigeria. The findings from this research will contribute to filling the gap in the literature and offer insights that can inform policy decisions and strategies to promote the growth of the insurance industry in Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter represents the research methods that are used in order to achieve the objective outlined in chapter one, specifically, it describes the research design, population of the study, sources of data collection, sample size, sampling technique, method of data analysis, model specifications and definitions of variables.

3.2 Research Design

The study employs an empirical research method in studying the determinant of insurance penetration in Nigeria. This study will adopt the use of a longitudinal research design. The method entails the use of historical data to gain knowledge about some phenomenon over a period. The choice of this research design is based on the fact that the variables under consideration were collected over a period of time and they are historical in nature and as a result, the researcher cannot manipulate them.

3.3 Population and Sample of the Study

The population of this study was the entire population of Nigeria. The sample of the study was a random sample of 1000 individuals from the population of Nigeria. The sample was selected using a stratified random sampling technique. Stratified random

sampling is a type of sampling technique that ensures that the sample is representative of the population.

3.4 Sampling Technique of the Study

The study employed the Ordinary Least Square (OLS) technique through multiple regression analysis to estimate the specified models. The regression is used because it helps to estimate the impact of one or more explanatory variables on a dependent variable. The OLS technique is widely used in economic literature. The choice of this technique is informed due to its optimal properties of unbiasedness, sufficiency, consistency, and efficiency.

3.5 Sources of Data

The study employed secondary annual times series data on the variables of interest. The data are obtained from the Central Bank of Nigeria Bulletin (issue 2021). The data covers a 42-year period: ranging between 1980 to 2021.

3.6 Theoretical Framework

The choice of the financial intermediation theory as the theoretical framework for this research was made after careful consideration of various alternative theories. While theories such as financial liberalization theory, modern portfolio theory, and resource-based theory have their merits, the financial intermediation theory was deemed most appropriate for several reasons.

Firstly, the financial intermediation theory provides a comprehensive framework that specifically focuses on the role of financial institutions in facilitating the flow of funds between surplus and deficit units in an economy. Insurance companies, as financial intermediaries, play a crucial role in mobilizing savings and channeling them toward productive investments through insurance policies. This theory recognizes the significance of financial institutions in promoting economic growth and stability by ensuring efficient allocation of financial resources. Secondly, the financial intermediation theory is well-suited to examine the complexities of the insurance sector and its role in the Nigerian economy. Insurance companies act as intermediaries between policyholders seeking risk protection and investment opportunities and investors seeking stable returns. By adopting the financial intermediation theory, the research can analyze how insurance companies in Nigeria facilitate the transfer of funds, manage risks, and contribute to overall financial intermediation processes within the economy.

Additionally, the financial intermediation theory recognizes the importance of factors such as information asymmetry, adverse selection, and moral hazard, which are prevalent in the insurance industry. These factors can influence the availability, pricing, and adoption of insurance products. By employing this theory, the research can delve into the mechanisms through which information gaps and agency problems impact insurance penetration in Nigeria, offering insights into potential solutions and strategies to mitigate these challenges. Moreover, the financial intermediation theory aligns well with the objective of understanding the determinants of insurance penetration in Nigeria. It allows

for an exploration of factors such as income levels, education, risk perception, and institutional factors, which are crucial in shaping the demand and supply dynamics of insurance services. By adopting this theory, the research can assess how financial intermediaries, including insurance companies, facilitate access to insurance products and address the specific challenges faced in Nigeria's context.

In conclusion, the choice of the financial intermediation theory as the theoretical framework for the research project was based on its relevance to the role of insurance companies as financial intermediaries, its ability to capture the complexities of the insurance sector, its recognition of information gaps and agency problems, and its alignment with the research objective of understanding the determinants of insurance penetration in Nigeria.

3.7 Model Specifications

The model specification for this study was a panel data regression model. A panel data regression model is a type of regression model that uses data from multiple time periods to examine the relationships between variables. The model for was derived from the work of Sambo (2016) who stated that $GDP = f(TI)$ where GDP = Gross Domestic Product and TI = Total Insurance Investment. Adjusting the model to suit the present study GDP is replaced with IP (Insurance Penetration), and TI is then replaced is various independent variables such as Inflation (I), Education (E), Income Level (Y), Life Expectancy (LE)

Therefore;

$$IP = f(I, E, Y, LE) \dots\dots\dots (3.1)$$

Where:

IP=Insurance penetration

INF= Inflation

EDU= Education

RGDP= Income level

LEXP= Life expectancy

The transformation of the functional model in equation (3.1) to an econometric model becomes:

$$INSP = \beta_0 + \beta_1 INF + \beta_2 EDU + \beta_3 RGDP + \beta_4 LEXP + \mu \dots\dots\dots (3.2)$$

3.8 Data Analysis Technique

The data analysis technique used in this study was descriptive statistics, correlation analysis, and regression analysis. Descriptive statistics were used to describe the data. Correlation analysis was used to examine the relationships between the variables. Panel data regression analysis was used to estimate the effects of the independent variables on insurance penetration.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS OF RESULTS

4.1 Introduction

The presentation and empirical analysis of results obtained from the estimation exercise is the focus of this chapter. The study attempts to empirically investigate the determinants of insurance penetration in Nigeria. The empirical analysis involves the two general methods namely; statistical and econometric methods in order to provide a rich and comprehensive background for the investigation. The statistical method involves the use of descriptive statistics as well as correlation analysis to examine the initial characterization, nature and degree of relationship among the variables of interest; while the econometric analysis involves the use of multivariate Ordinary Least Square (OLS) technique, to capture the relationships between the dependent and independent variable.

4.2 Data Presentation

The data from 1981 to 2021 are presented in the appendix 1.

4.3 Data Analysis

4.3.1 Descriptive Statistics

The basic characterization of the dataset is investigated using the descriptive statistics to summarise the data. The descriptive statistics in Table 4.1 shows the aggregated

averages of mean, median and mode for all the observations. The dispersion and variations in the series are shown by the standard deviation while the degree of pointedness and degree of departure from symmetry are shown by kurtosis and skewness respectively. A combined test of skewness and kurtosis known as Jacque-Bera Statistics which test for normality is also shown in the Table 4.1. The summary statistics for all the variables used in this study is presented in Table 4.1.

Table 4.1: Descriptive Statistics

	INSP	INF	EDU	RGDP	LEXP
Mean	120.0165	19.11433	91.11155	300025.6	48.46840
Median	22.53150	12.21701	87.89783	267550.0	46.62400
Maximum	501.4809	72.83550	111.6465	801442.2	53.55877
Minimum	0.205100	5.382224	75.92130	59929.89	45.54780
Std. Dev.	163.1633	16.76509	9.006111	210611.5	2.846554
Skewness	1.159130	1.781192	0.751882	0.899905	0.684130
Kurtosis	2.834247	5.108030	2.670237	2.882050	1.798556
Jarque-Bera	9.228086	29.27120	4.048834	5.557604	5.664157
Probability	0.009912	0.000000	0.132071	0.062113	0.058890
Sum	4920.675	783.6877	3735.574	12301051	1987.204
Sum Sq. Dev.	1064890.	11242.73	3244.401	1.77E+12	324.1148
Observations	41	41	41	41	41

Source: Author’s computations, (2023) using Eviews 9.0.

For the dependent variable, Average insurance penetration (INSP) during the period is 120.0165 billion. The median value is 22.53150 billion - an indication that insurance penetration in Nigeria far exceeded its median value. The maximum and minimum values are 501.4809 and 0.205100 billion respectively. This shows wide disparity of INSP for the period of study. Thus, INSP has moved rather diametrically in Nigeria over the period of the study. The standard deviation value of 163.1633 however shows that instability in

insurance penetration rate in Nigeria during the period of study has been severe. The skewness value is low, suggesting that insurance penetration series were centered on the mean value, while the kurtosis value is 2.83 is an indication of the absence of extreme values which may generate heteroskedastic patterns in the data. The kurtosis value of approximately 3 shows evidence of platykurtosis. The J-B value is also low and passes the significance test at the 1 percent level, indicating that the density function of the series is not normally distributed.

The independent variables have similar characteristics with average values for inflation rate, education, income and life expectancy are 19.11433, 91.11155, 300025.6 and 48.46840. In terms of the standard deviation, inflation rate, education, income and life expectancy with standard deviation values of 16.76509, 9.006111, 210611.5 and 2.846554 have been generally unstable - an indication of pronounced variation over the years. The mean value of inflation of 19.11 - double digit inflation shows an environment of macroeconomic instability in Nigeria over the years. This is further buttressed by its standard deviation of 16.76 - which is an indication of inflation variability in the Nigeria during the period of study. Thus, Nigeria has not only been characterized by high but variable inflation over the years. The descriptive statistics however show that the explanatory variables exhibit high variability, leptokurtic and significant J-B values, as only one of the exogenous variables (education) is normally distributed since it has an insignificant probability while others are not normally distributed.

4.3.2 Correlation Analysis

In order to examine the initial characterization in terms of the nature and degree of relationships between the variables used in the analysis, the (unconditional or ordinary) correlation analysis is conducted. An incidence of strong correlation among the independent variables may violate the working assumptions of our estimation technique and thereby produce unrealistic results. The result of the pairwise correlation matrix tests are reported in Table 4.2:

Table 4.2: Correlation Matrix

	INSP	INF	EDU	RGDP	LEXP
INSP	1.000000				
INF	-0.238748	1.000000			
EDU	-0.388584	-0.115734	1.000000		
RGDP	-0.354080	-0.100921	0.143380	1.000000	
LEXP	0.358842	-0.319882	-0.360166	-0.172640	1.000000

Source: Author's computations, (2021) using Eviews 9.0.

In the correlation results, a negative correlation is observed between insurance penetration rate and all the explanatory variables (except life expectancy). This implies that apart from life expectancy, increases in inflation rate, education and income tend to reduce insurance penetration rate in Nigeria. An overall consideration of the result of the correlation coefficients indicates that multi-collinearity is not a considered problem in the empirical estimates since none of the correlation value exceeded 0.90 percent or had perfect correlation.

4.3.3 Regression Analysis

The relationship between the dependent and independent variables is estimated using Ordinary Least square (OLS) regression technique. The result is presented in Tables 4.3.

Table 4.3: Ordinary Least square (OLS) Results

Dependent Variable: INSP

Variable	<i>Coefficient</i>	<i>t-statistics</i>	<i>Prob.</i>
C	-2392.223	-15.59083	0.0000
INF	0.365375	0.994357	0.3267
EDU	-0.404558	-0.588367	0.5600
RGDP	0.000144	5.297249	0.0000*
LEXP	53.34296	23.03528	0.0000*
	$R^2 = 0.958045$ Adjusted $R^2 = 0.953383$ F= 205.5137 (0.000000) D.W = 1.897354		

Note: * denotes significance at 1% level respectively

Source: Author's computations, (2023) using Eviews 9.0.

Table 4.3 reports the results of the regression estimates of the relationships between insurance penetration rate (INSP) and the independent variables (INF, EDU, REGDP and LEXP). In Table 4.3, the OLS result shows an R^2 of 0.953383 which indicates that about 95% of total variation in the dependent variable (INSP) is accounted for by the explanatory variables (i.e., INF, EDU, RGDP and LEXP). This result remains robust even after adjusting for the degrees of freedom (df) as indicated by the value of adjusted

R^2 , which is 0.953383 (i.e. $\approx 95\%$). Thus, the regression has a good fit. The F-statistic, which is a test of explanatory power of the model is 205.5137 with the corresponding probability value of 0.0000, is statistically significant at 1% level. This implies that the four explanatory variables (i.e., INF, EDU, RGDP and LEXP) have joint significant effect on insurance penetration rate in Nigeria. Result of the test further revealed that the Durbin Watson showed 1.897 which is within the acceptable region of no autocorrelation.

The coefficient of inflation rate (INF) is found to be positive and not statistically significant at 5% with t-statistic of 0.994357 and its corresponding probability value of 0.3267. Education (EDU) has a negative and none statistically significant relationship with insurance penetration (INP) since its p-value of 0.5600 is greater than 5%. Income level (RGDP) exerts a positive and statistically significant relationship on insurance penetration rate (INSP) as it's the p-value which is 0.0000 is less than 1% which passes the significance test. Also, life expectancy (LEXP) exerts a positive and statistically significant relationship on insurance penetration rate (INSP) as it's the p-value which is 0.0000 is less than 1% which passes the significance test.

4.4 Hypotheses Testing

As a further confirmation of the empirical results, the testing of the relevant hypotheses that were stated is performed in this section using the t-value. This would enable us

determine explicitly whether the given null hypotheses are accepted or rejected. The hypotheses testing are conducted as follows:

Hypothesis 1:

H₀₁: Inflation rate has no significant effect on insurance penetration in Nigeria.

From the empirical results in Table 4.3, the t-value of inflation rate of 0.994357 is less than 2, hence fail the significance test. We therefore reject the alternative hypothesis and accept the null hypothesis which states that inflation rate has no significant effect on insurance penetration in Nigeria.

Hypothesis 2

H₀₂: Education level has no significant effect on insurance penetration in Nigeria

From the empirical results in Table 4.3, the t-value of education which is -0.588367 is less than 2, hence fail the significance test. We therefore reject the alternative hypothesis and accept the null hypothesis which states that education has no significant effect on insurance penetration in Nigeria.

Hypothesis 3

H₀₃: Income level has no significant effect on insurance penetration in Nigeria.

From the empirical results in Table 4.3, the t-value of income level which is 5.297249 is greater than 2, hence pass the significance test. We therefore reject the null hypothesis

and accept the alternative hypothesis which states that income level has significant effect on insurance penetration in Nigeria.

Hypothesis 4

H0₄: Life expectancy has no significant effect on insurance penetration in Nigeria.

From the empirical results in Table 4.3, the t-value of life expectancy which is 23.03528 is greater than 2, hence pass the significance test. We therefore reject the null hypothesis and accept the alternative hypothesis which states that life expectancy has significant effect on insurance penetration in Nigeria.

4.5 Discussion of Results and Policy Implications

First, the empirical results provide evidence that inflation rate has no significant effect on insurance penetration rate in Nigeria. The implication of this is that inflation rate is not a critical factor that stimulate insurance penetration rate in Nigeria for the studied period. This finding is not in consonance with Adigun et al. (2023) who reported a positive and significant relationship between insurance inflation rate and insurance penetration rate.

Second, education was found not to have a significant effect on insurance penetration in Nigeria though the coefficient was positive. Apparently, the upward movements in the level of education have not significantly help to improve insurance penetration rate in Nigeria. This finding is not in consonance with Adigbenro et al. (2023) who established a positive and significant relationship between education and insurance penetration.

Third, the empirical results provide evidence that income level has a positive and significant effect on insurance penetration rate in Nigeria. The implication of this is that income level is a critical factor that stimulate insurance penetration rate in Nigeria for the studied period. Thus, increased income level will accelerate the insurance penetration rate in Nigeria. This finding is in consonance with Oyewole and Ogundari (2021) who reported a positive and significant relationship between income level and insurance penetration rate.

Finally, the empirical results provide evidence that life expectancy has a positive and significant effect on insurance penetration rate in Nigeria. The implication of this is that life expectancy is a critical factor that stimulate insurance penetration rate in Nigeria for the studied period. Hence, increased in life expectancy will accelerate the insurance penetration rate in Nigeria. This finding is in consonance with Adebayo et al. (2022) who reported a positive and significant relationship between life expectancy and insurance penetration rate.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECCOMENDATIONS

5.1 Introduction

This chapter focuses on the summary of findings from the empirical analysis as well as the conclusion. The policy recommendations necessitated by these findings are subsequently presented.

5.2 Summary of Findings

This study empirically assessed the determinants of insurance penetration in Nigeria. To achieve this, we employed descriptive statistics, correlation analysis and multivariate regression techniques for the period 1980 - 2021, the empirical findings revealed the following:

- (i) Inflation rate has a positive and insignificant impact on insurance penetration rate in Nigeria.
- (ii) Education has negative and insignificant impact on insurance penetration rate in Nigeria.
- (iii) Income level has positive and significant impact on insurance penetration rate in Nigeria.
- (iv) Life expectancy has positive and significant impact on insurance penetration rate in Nigeria.

5.3 Conclusion

The critical importance of insurance sector in economic growth of any nation cannot be over-emphasized. This study sought to explore the determinants of insurance penetration rate in Nigeria. It empirically examined the effect of inflation rate, education, income level and life expectancy on insurance penetration rate. In sum, the results strongly support the fact that income level and life expectancy are critical factors that influences insurance penetration rate in Nigeria while inflation rate and education were found not to have significant effect on insurance penetration rate.

5.4 Recommendations

Based on the empirical findings of this study, the following recommendations are advanced for policy action:

- (i) The current reforms in the insurance sector should be intensified so as to boost the development of these segments of the financial system and by that increase their penetration rate.
- (ii) The government and the insurance industry should focus on increasing income levels and life expectancy in Nigeria as a way to increase insurance penetration. This could be done through policies that promote economic growth and improve life expectancy, such as investment in education and health infrastructure. The government could also provide financial incentives

to encourage insurance adoption, such as tax breaks for individuals who purchase insurance policies.

- (iii) Furthermore, the regulation and supervision of the insurance sector should be strengthened as it plays a great role in determining both its stability and the extent of the services provided.
- (iv) Also, financial reforms and insurance policies such as recapitalization and consolidation policies that can sustain and deepen insurance market should be pursued by the government and the insurance regulatory authorities in Nigeria.
- (v) Consequence upon our results, we recommend that given the relatively low-insurance culture and development in Nigeria, efforts and policies should be geared towards the awareness and education on the benefits of insurance demand.

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APPENDIX

YEAR	RGDP	EDU	INSP	INF	LEXP
1981	205,222.06	93.79679	0.2407	20.81282	45.5478
1982	199,685.25	101.6208	0.2495	7.697747	45.85241
1983	185598.14	111.3245	0.2286	23.21233	46.08351
1984	183,562.95	111.6465	0.2376	17.82053	46.23961
1985	201,036.27	110.2414	0.2051	7.435345	46.32422
1986	205,971.44	104.4052	0.2637	5.717151	46.34529
1987	204,806.54	91.32972	0.42	11.29032	46.31827
1988	219,875.63	87.57419	0.5067	54.51122	46.26366
1989	236,729.58	83.31994	0.7018	50.46669	46.203
1990	267,549.99	80.98757	1.0484	7.3644	46.14983
1991	265,379.00	84.16186	1.3342	13.00697	46.11027
1992	271,365.52	82.95389	2.5179	44.58884	46.08695
1993	274,833.29	86.96835	5.9013	57.16525	46.07495
1994	275,450.56	91.10433	14.6717	57.03171	46.07283
1995	281,407.40	90.96262	14.5876	72.8355	46.08556
1996	293,745.38	86.62352	14.5876	29.26829	46.11407
1997	302,022.48	75.9213	13.1506	8.529874	46.15978
1998	310,890.05	81.2526	16.519	9.996378	46.22451
1999	312,183.48	92.7063	17.8465	6.618373	46.31566
2000	329,178.74	93.00311	14.6439	6.933292	46.44268
2001	356,994.26	97.85302	22.5315	18.87365	46.624
2002	433,203.51	95.92763	28.9813	12.87658	46.88117
2003	477,532.98	97.7967	37.7659	14.03178	47.21973
2004	527,576.04	99.47595	43.9447	14.99803	47.63773
2005	561,931.39	100.9011	50.4959	17.86349	48.12566
2006	595,821.61	101.9011	67.7463	8.239527	48.66449
2007	634,251.14	102.8503	82.3619	5.382224	49.22863
2008	672,202.55	94.18395	105.3793	11.57798	49.79161
2009	718,977.33	85.03809	157.206	11.53767	50.32939
2010	775,525.70	83.09346	189.9605	13.7202	50.83049
2011	801,442.20	83.27522	200.376	10.84079	51.28941
2012	59,929.89	83.56478	233.7529	12.21701	51.71024
2013	63,218.72	83.95043	283.9438	8.475827	52.10902

2014	67,152.79	83.99342	317.7667	8.057383	52.24245
2015	69,023.93	83.89783	353.9004	9.017684	52.42343
2016	67,931.24	83.24263	374.4937	9.809873	52.55877
2017	70,023.93	84.89783	404.1422	9.117684	53.42343
2018	76,931.24	85.34263	453.4807	9.909873	53.55877
2019	77,931.24	86.24263	489.621	20.809873	53.55877
2020	80,023.93	87.89783	501.4809	21.117684	52.42343
2021	86,931.24	88.34263	401.4809	22.909873	53.55877

	INSP	INF	EDU	RGDP	LEXP
Mean	120.0165	19.11433	91.11155	300025.6	48.46840
Median	22.53150	12.21701	87.89783	267550.0	46.62400
Maximum	501.4809	72.83550	111.6465	801442.2	53.55877
Minimum	0.205100	5.382224	75.92130	59929.89	45.54780
Std. Dev.	163.1633	16.76509	9.006111	210611.5	2.846554
Skewness	1.159130	1.781192	0.751882	0.899905	0.684130
Kurtosis	2.834247	5.108030	2.670237	2.882050	1.798556
Jarque-Bera	9.228086	29.27120	4.048834	5.557604	5.664157
Probability	0.009912	0.000000	0.132071	0.062113	0.058890
Sum	4920.675	783.6877	3735.574	12301051	1987.204
Sum Sq. Dev.	1064890.	11242.73	3244.401	1.77E+12	324.1148
Observations	41	41	41	41	41

	INSP	INF	EDU	RGDP	LEXP
INSP	1.000000	-0.238748	-0.388584	-0.354080	0.958842
INF	-0.238748	1.000000	-0.115734	-0.100921	-0.319882
EDU	-0.388584	-0.115734	1.000000	0.143380	-0.360166
RGDP	-0.354080	-0.100921	0.143380	1.000000	-0.172640
LEXP	0.358842	-0.319882	-0.360166	-0.172640	1.000000

Dependent Variable: INSP
 Method: Least Squares
 Date: 07/26/23 Time: 14:48
 Sample: 1981 2021
 Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2392.223	153.4379	-15.59083	0.0000
INF	0.365375	0.367448	0.994357	0.3267
EDU	-0.404558	0.687594	-0.588367	0.5600
RGDP	0.000144	2.73E-05	5.297249	0.0000
LEXP	53.34296	2.315706	23.03528	0.0000
R-squared	0.958045	Mean dependent var		120.0165
Adjusted R-squared	0.953383	S.D. dependent var		163.1633
S.E. of regression	35.22857	Akaike info criterion		10.07544
Sum squared resid	44677.86	Schwarz criterion		10.28441
Log likelihood	-201.5465	Hannan-Quinn criter.		10.15154
F-statistic	205.5137	Durbin-Watson stat		1.897354
Prob(F-statistic)	0.000000			