



**St. MARRY UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**  
**DEPARTEMENT OF DEVELOPEMNT ECONMOICS**

**ANALYSIS OF FACTORS AFFECTING GROWTH OF AGRICULTURAL  
INSURANCE IN ETHIOPIA: THE CASE OF ETHIOPIAN INSURANCE  
CORPORATION (EIC)**

**TESHOME DEBOUCH**

**JUNE 2023**  
**ADDIS ABEBA, ETHIOPIA**

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The Case of Ethiopian Insurance Corporation (EIC)**

**Teshome Debouch**

**A THESIS SUBMITTED TO ST. MARRY'S UNIVERSITY, SCHOOL OF GRADUATE  
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**Analysis of Factors Affecting Growth of Agricultural Insurance in Ethiopia:  
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## **DECLARATION**

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Paulos Asrat (Ph.D.). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher-learning institution to earn any degree.

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St. Mary's University, Addis Ababa June 2023

## **ENDORSEMENT**

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Advisor \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

St. Mary's University, Addis Ababa June 2023

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# TABLE OF CONTENTS

Contents	
DECLARATION .....	iii
ENDORSEMENT .....	iv
ACKNOWLEDGMENTS .....	iii
TABLE OF CONTENTS .....	viii
LISTS OF TABLES .....	xi
LIST OF FIGURES .....	xii
LIST OF ABBRAVATIONS AND ACRONYMS .....	xiii
ABSTRACT .....	xiv
CHAPTER ONE .....	1
1. INTRODUCTION .....	1
1.1 Background of the Study .....	1
1.2 Statement of the Problem .....	3
1.3 Objectives of the Study .....	6
1.4 Research Questions .....	6
1.5 Research Hypothesis .....	7
1.6 Significance of the Study .....	7
1.7 Scope of the Study .....	7
1.8 Limitations of the Study .....	8
1.9 Organizational of the Study .....	8
CHAPTER TWO .....	9
2. LITERATURE REVIEW .....	9
2.1 Operational Definition of Terms .....	9
2.2 Conceptual Literature .....	10
2.2.1 Insurance and Its Benefits .....	10
2.2.2 Overview of Ethiopian Insurance Industry .....	12
2.2.3 Agricultural Insurance in Ethiopia .....	14
2.2.3.1 Overview of the Characteristics of Agricultural Insurance .....	16



2.3. Empirical studies on challenge and opportunities on growth AI in Ethiopia.....	17
2.4 Conceptual Framework of the Study.....	21
CHAPTER THREE .....	22
3. RESEARCH METHODOLOGY .....	22
3.1 . Description of EIC .....	22
3.2 Research Design.....	23
3.3 Research Approach .....	23
3.4 Types and Source of Data .....	23
3.5 Methods of Data Collection .....	24
3.6 Sampling Design.....	24
3.6.1 Sampling Frame.....	25
3.6.2 Sampling Strategy.....	26
3.6.3 Sample Size Determinations.....	26
3.7 Methods of Data Analysis.....	27
3.7.1 Descriptive Statics Methods .....	27
3.7.2 Model Specification .....	27
3.8 Reliability and Validity.....	29
CHAPTER FOUR.....	33
4. RESULT AND DISCUSSIONS.....	33
4.1. Descriptive Results.....	33
4.1.1. Response Rate.....	33
4.1.2. Socio-Demographic Characteristics of Respondents .....	34
4.1.3 Results on the Status of Agricultural Insurance (AI) Coverages in Ethiopia.....	37
4.1.3.1 Status of AIs Business Performance, Aggregate Premiums collocated & Loss.....	37
4.1.3.2 Status of AI Business performance, Premiums collected & Claims Paid within last 38	
4.1.3.3 Summary of Reason of Claim paid for AIs (CAI& Micro-Insurance).....	42
4.1.4. The Major Factors Affecting the Growth of AI Business in the Case of EIC.....	44
4.1.4.1. Product design alternatives & Scope of Covers (PDASC).....	46
4.1.4.2. Procedures, Delayance & Bureaucracies (PDB) .....	47
4.1.4.3. Awareness (A) .....	48

4.1.4.4. Subsidy(S) .....	49
4.1.4.5. Financial Capacity (FC).....	50
4.1.4.6. Trust (T).....	51
4.1.5 Result from EIC’s Operational directors and Agricultural Insurance Surveyors (AIS)....	52
4.2 Inferential Statistics Analysis .....	55
4.2.1. Correlation Analysis .....	55
4.2.3 Ordered Logistic Regression Analysis .....	59
4.3 Discussions.....	61
CHAPTER FIVE .....	63
5. CONCLUSIONS AND RECOMMENDATIONS .....	63
5.1. Conclusions .....	63
5.2. Recommendations .....	66
References.....	68
APPENDICES .....	71
Appendices A .....	71
Appendices B .....	74
Appendices C .....	78

## LISTS OF TABLES

<b>TITLE</b>	<b>PAGE NO.</b>
Table 2.1: Data on aggregate Market premium to EIC & Nyala Insurances Companies for 5 years	15
Table 2.2: Data on aggregate loss ratio to EIC and Nyala Insurance Companies for 5 years .....	16
Table 3.1. Reliability Result .....	29
Table 4.1: Age of EIC’s Operational staff.....	35
Table 4.2: Educational level of the EIC’s Operational staff & AIS .....	36
Table 4.3: Experience in years.....	36
Table 4.4: Data on aggregate Market premium to EIC & Nyala Insurances Companies for 5 years.	37
Table 4.5: Data on aggregate loss ratio to EIC and Nyala Insurance Companies for 5 years .....	38
Table 4.6: Premium Collected by EIC (2014-2022).....	39
Table 4.7: Claim paid by EIC (2014-2022) .....	41
Table 4.8: Shows Summery of Reason of claims paid per each CAI Class of Business in EIC .....	42
Table 4.9: shows Summery of Reason of claims paid per each Micro-insurance Class of Business in EIC .....	44
Table 4.10. Distribution of Respondents on Product Design Alternatives & Scope of Covers (PDASC).....	46
Table 4.11: Distribution of Respondents on Procedures, Delayance and Bureaucracies .....	47
Table 4.12: Distribution of Respondents on Subsidy .....	49
Table 4.13: Distribution of Respondents to Financial Capacity .....	50
Table 4.14: Distribution of Respondents on Trust.....	51
Table 4.15: Factors affecting the Growth of Agricultural Insurance (AI) Business in EIC .....	53
Table 4.16: Correlations Analysis.....	56
Table 4.17 Depicted That Social Demographic Information of Commercial & Smallholder Farmers .....	71
Table 4.18 Showed that economic background of Commercial & Small holder farmers. ....	72

## LIST OF FIGURES

<b>TITLE</b>	<b>PAGE NO.</b>
Figure 1: Main reason not buying Index-Based Insurance (IBI).....	19
Figure 2: Conceptual Frame work of the study.....	21
Figure 4.1 Response Rate .....	33
Figure 4.2: Test of Normality .....	58
Figure 4.3: Heteroscdastic Test.....	59

## **LIST OF ABBRAVATIONS AND ACRONYMS**

CBE	Commercial Bank of Ethiopia
EIC	Ethiopian Insurance Corporation
EIA	Ethiopian Investment Agency
DBE	Development Bank of Ethiopia
EEA	Ethiopian Economic Association
NBE	National Bank of Ethiopia
IBCI	Index-Based-Crop Insurance
I-BAI	Index-based agricultural Insurances
IBI	Index-Based Insurance
MOA	Ministry of Agriculture
MPCI	Multiple Peril Crop Insurance
LDC	Least-Developed Countries
PBI	Pictures-based Insurance
VII	Vegetation Index Insurance
WII	Weather Index Insurance
GDP	Growth Domestic Product
ILO	International Labor Organization
FAO	Food Agriculture Organization
USD	United States Dollar
IFPRI	International Food Policy Research Institute

## ABSTRACT

*This study focuses on the analysis of factor affecting growth of Agricultural Insurance (AI) in the case of Ethiopian Insurance Corporation (EIC). The specific objectives include; to examine the status of Agricultural Insurance coverage in Ethiopia, to assess the major factors affecting the growth of AI business in the case of EIC and to analyze the relationship between the affecting factors and the growth of AI Business in the Case of EIC. The research design is the descriptive and explanatory. The research approach employed is a mixed research approach. The sample size was 273. Data sources were both primary and secondary. The types of data were both qualitative and quantitative data. Descriptive and inferential statistics was employed to analyze the data. The finding of the study were EIC's doesn't have enough product alternatives and design. EIC's has rigid with the policy procedures, terms and conditions. EIC's has the experience of delay in underwriting issues and claim settlement services are keeping the insured from buying the AI by policies. EIC's does replies for customer's critics happened during claim are materialized. The customer has no exposure to attending the EIC advertising on AI business and poor knowledge and awareness about AI covers is keeping the insured from buying the Business policy. EIC's is the only government insurance institutions which doesn't allow subsidy for the smallholder famers in order to support and involve Fair-Social responsibility in its side. Based on the finding of the study the researcher recommends that EIC's should promote or design through its department of Product Development; new product design alternatives, and scope of cover for the growth of AI covers, scale-up, make technology-oriented to alleviate the problems of procedures, delayance & bureaucracies that had been seen in their delivery channels for the growth of AI covers; create awareness by using marketing and promotional strategies for the growth of AI. Develop attractive-marketing strategies of Subsidy to the smallholder Farmers for the growth of AI covers. And, Trust developments that are on the respect of customer's time, AI Business policy clauses should be written clearly and on the financial capacity of Farmers in order to pay premiums, in getting AI product covers for their Farm sites through incentive mechanisms such as availability to CredDirectorsties for its customers to the growth of AI especially on Commercial Agricultural Insurance (CAI) products in general*

**Key words:** *Agricultural Insurance (AI), Product Design Alternatives and Scope of Cover (PDA SC),Awareness(A),FinancialCapacity(FC),Trust(T).*

# CHAPTER ONE

## 1. INTRODUCTION

### 1.1 Background of the Study

Agricultural activities such as crops and livestock production are sensitive to specified natural causes (e.g., drought, flood, pests and wind). During the 1820s; due to this the agricultural insurance first began as insurance against hail in France and Germany. In the late 1800s, some farmers in the United States began a hail insurance program due to losses to their tobacco crops. So far thus, this type of coverage still exists in many countries today. Then in 1938, the United States started a program to protect against a wider range of natural disasters which became known as multi-peril insurance. On some occasions, programs offer protection against price risk. Covered losses can occur to crops, livestock, and even aquaculture, such as clams (David Hatch, 2008).

The world's Agri-food systems comprise a gargantuan global enterprise that each year produces approximately 11 billion tons of food and a multitude of non-food products, including 32 million tons of natural fibers and 4 billion m<sup>3</sup> of wood. The estimated gross value of agricultural output in 2018 was USD 3.5 trillion. Primary production alone provides about one-quarter of all employment globally, more than half in sub-Saharan Africa and almost 60 % in low-income countries (FAO,2021).

The agricultural sector is at the heart of the economies of the Least-Developed Countries (LDCs). It accounts for a large share of gross domestic product (GDP) (ranging from 30 to 60 % in about two thirds of them), employs a large proportion of the labor force (from 40 5 to as much as 90 % in most cases) and represents a major source of foreign exchange (from 25 % to as much as 95% in three quarters of the countries (FAO, 2002).

Agriculture is by far the most important sector in Ethiopia, as the majority of Ethiopians depend on agriculture for their livelihood. Almost 70% of employment is in the agricultural sector (World Bank, 2018). Ethiopian agriculture is largely characterized by smallholder farming, which generates close to 94% of agricultural GDP. The remaining 5% comes from a relatively small number of (former) state-owned or private agricultural enterprises (commercial farms).

Official statistics indicate that in 2016/2017, the agricultural sector employed 17.4 million farmers, who cultivated 12.6 million hectares of farmland (Kamel et.al., 2019).

Regarding sectorial development, the growth of real GDP in 2020/21 was attributed to the growth of agriculture (5.5 percent), industry (7.3 %), and services (6.3 %). Nominal GDP per capita stood at USD 1,092, depicting a 1.1 percent marginal improvement relative to the previous year. Meanwhile, agriculture grew by 5.5 % in 2020/21, higher than the 4.3 % growth recorded in the previous year mainly due to improvement in crop production, animal farming and hunting (NBE ,2021).

In the coming decades, ensuring food security for the Ethiopians will face great challenges. This is because of the rapid increment of population, change of fertile farmland to construction for the urban dwellers, climate change, decline of available natural resources, inflation of basic needs, young unemployment, political turmoil, & civil conflict .Overcoming these challenges requires a greater commitment of the governments and other international organizations to assurance the people's basic needs & inspire the citizens to commercialize agriculture through improving infrastructures & services i.e., Agricultural Insurance products(Gebissa,2021).

In light of widespread climate and related risks in the context of rain-fed agriculture in Ethiopia, Agricultural insurance helps to spread risks of Agricultural players efficiently and overcomes limitations inherent to traditional risk management and coping methods Insurance is a special line of property insurance applied to agricultural firms and it involves the equitable transfer of risk of loss from one entity to another in exchange for a premium or guaranteed & small quantifiable loss to prevent a large and possible devastating loss (Bridle et al.,2020).

In Ethiopia, the number of insurance companies remained at 18, consisting of 17 private and 1(one) state-owned company. Their branches increased to 667 from 622 a year ago. 54.3 % of the total branches are located in Addis Ababa. The total capital of insurance companies reached Birr 11.9 billion, with private insurance companies share being 73.20 % and the rest 23.80% market share is accounted for Governmental Insurance Company (NBE,2022).

Agricultural Insurance (AI) is one method by which farmers can stabilize farm income and investment and guard against disastrous effect of losses due to natural hazards. Crop insurance not only stabilize the farm income but also helps the farmers to initiate production activity after a bad agricultural year. It cushions the shock of crop losses by providing farmers with a minimum



amount of protection. It spreads crop es over space and time and helps farmers make more investments in agriculture (NBE, 2016).

So far, there are two major categories of Agricultural Insurance practices in Ethiopia as whole a: Micro-Insurance and Commercial Agricultural Insurance products (EIC, 2021). The Ethiopian Insurance Corporation (EIC), here in after called EIC, annual gross written premium income is Birr 6.1 billion in 2021 and whereas 6.6 billion Birr in 2022. The total premium for AI class of Business (i.e., From Indemnified AI insurance products (Crop, Coffee, Livestock & Horticulture) & Micro-Insurance Products (WII& AYI)) are 10 million in 2022 & 7.5 million in the 2022 budget year, which is 0.025% & 0.012% in 2021& 2022 respectively. So as observed from the data, the growth of AI Business in the case of EIC and the Ethiopia's Insurance Industry is found to be at its infant stage by far when compared to the annual revenue of General & Life Insurance Business (EIC, 2022).

Even though, Ethiopia's economy is highly dependent on the Agricultural Sector which provides a direct livelihood for about 83% of the population, contributing 43 – 45% of the country's Gross Domestic Product (GDP), 87% of its export earnings of which coffee and various crop have the upper portion, one can say, The Corporation is totally missing the huge opportunity from this sector and this poor performance was even worse during the three years (2013,2014 & 2015) with aggregated premium of Birr 5.4 million for the three years (Biniam,2015). This study, therefore attempted to determine the contributing factors that affect the growth of agricultural insurance in the context of EIC.

## **1.2 Statement of the Problem**

EIC is currently providing its customers Agricultural Insurance that is Indemnity based Agricultural Insurance (IBAI) for different crop production (i.e., Crop, Coffee& Horticultural crops) and dairy-Livestock projects for commercial farms; this insurance indemnifies the insured in respect of loss or damage to in the insured crop caused by direct physical damage or visible damage caused by the following perils, fire, lightning, flood, inundation, tempest, storm and hail. And mostly the insurance does not indemnify the insured against, loss or damage occurring directly or indirectly as a result of drought conditions, crop diseases and/or pests, loss of earnings, loss by delay, loss to crop outside the limits of the insured farm after harvest or in transit, loss to agricultural inputs and equipment stored in the insured's field.

In addition, Providing Index-based agricultural Insurance (I-BAI) for smallholder farmers on both crop and livestock assets; the products are AYII, WII, and Livestock-Mortality II (EIC, 2020).

Consequently, EIC is currently facing a serious problem in the area of retaining existing customers & attracting new ones. To this effect most customers, due to lack of accessibility of Branch & agricultural surveyor, awareness about the AI products, Prompt service on Claim payment, AI product design alternatives, and high premium rate when compared to other Insurance companies, then the customer opt for the one or best-fitted product design and rate-flexible private Insurance than EIC (EIC, 2022).

According to Biniam's (2015) study, He tried to find out the major causes for the poor sales performance on crop insurance gathering information from interviews with the top management staff EIC & Famers that gave possible recommendations as well.

In addition, according to the EEA study(2022) studied on determinates of household for insurance services and Institutional Challenges to provide AI (Crop & Livestock Insurances).This study did analysis determinates of demand for Index-based Crop Insurance (IBCI), showing that the log of house hold income, trust in formal financial institutions, size of land holding, membership to local institutions and time preference are positively correlated with the probability of revealing demand for IB crop insurances. On the other hand, demand for crop insurance is negatively correlated with the age of the head, the number of the livestock and being risk averse.

The problem mentioned by Biniam (2015) were in the Insurer's side only and the causes for the poor sales performance on crop insurance that were analyzed is not yet enough &the major affecting factors were also not identified in detail clearly. These causes identified by the study for the poor sales on the crop Insurance were Accessibility and prompt service, professionalism, Scope of cover, Awareness of the customers, and High premiums charges, from Insurer's side only.

As the gap of the study, the problems for the growth of AI business in the case of EIC is not only the side of EIC (or Insurer) but also on the sides of both Insured &Non- Insured Farmers both smallholders, Commercial Famers/Investors, Government & Stake holders' sides. And, from many more affecting factors of AI growth, the sound casing factors will be selected & analyzed

in details. so that, this particular study was reproduced on different institutional sides for enhancing the AI business in the EIC's, creating important considerations & implementations of Agricultural risk management tools to concerned Stakeholders for natural disasters of smallholders, and will advise the major affecting factors which need attention to solve and/or improve for the development of the growth of AI business portfolios as whole.

The affecting factors as bottleneck for the growth of AI covers from different sides are; in the EIC(Insurer) sides there are factors which include lack of different AI product-design alternatives or product customizations and scope of cover based on the request of the customers that makes uncompetitive & poor performance on the growth of AI business in EIC; shortages & Inaccessibility of EIC's Branches which intend to serve Farmers at corner of Boom Agricultural Farming takes place created Far approach and lack of awareness at side of Investor & smallholder to buy Micro-insurance and Other IBAI products and making lag the growth of AI Covers in the country; highly formalized procedures & bureaucracies are creating delayance on executing Claim settlement timely, this makes negative impression on getting service from EIC.

On the Government sides, there are factors which include limited knowledge of AI products by Farmers, most of the farmers do not know about AI products & services so far. in this regard, the use and importance of Agricultural Insurance (AI) products by concerned Government bodies (i.e., MOA) & Stake holders as Agricultural risks management tools. Policy challenges of the Government to setup AI institution as means of Agricultural Risk management tools. So that, there is no Separate government institution on AI which control, balance and bring fragmented efforts of Insurers for the development & growth of AI (commercial & Micro-Insurances) products in the country. There is no subsidy as Incentive support to Smallholders famers to buy Micro-Insurance product covers for their Farming plots.

Both Insured & Non-Insured Farmers (Smallholders & Investors) sides, factors include famers have poor financial capacity to pay a higher underwriting premium rate for getting AI covers since EIC charges high rates for AI products that of, IBAI (i.e., Muti-perils Insurance covers) relative to other private insurance companies comparatively. Farmers have no such good Trust on EIC for the natural risks covers to be occurred to their crops & Livestock assets. Almost all farmers have limited knowledge of AI products except that of commercial Famers who engaged on large scale farming investments.

So that, when we summarize the above-mentioned problems as gap of study, it would be tried to take consideration of the former studies by Biniam (2015) and EEA (2022) facts into account and further information will be gathered from interviews with the top management staff AI Surveyor of the EIC and from Insured Smallholders & Investors too. To understand that the major summarized factors that affect the growth of AI at EIC, could have been categorized as follows; lack of different product-design alternatives & Scope of Cover by EIC sides, high formalized procedures, delayance and bureaucracies on claim settlement by EIC sides, lack of Awareness of AI covers as Risk management tools by the concerned government bodies, no incentive subsidy for smallholders to buy AI products by the concerned government bodies, poor financial capacity to pay for Underwriting premium values in Famers side and poor trust on EIC for the pay of Claimable value after loss materialized by Famers. Thus, this study attempted to analyze of factor affecting growth of Agricultural Insurance in Ethiopia in the case of Ethiopian Insurance Corporation (EIC).

### **1.3 Objectives of the Study**

The general purpose of this study was to analyze the factor affecting the growth of Agricultural Insurance in Ethiopia in the case of Ethiopian Insurance Corporation (EIC).

The specific objectives include;

- To examine the status of Agricultural Insurance coverage in Ethiopia.
- To assess the major factors affecting the growth of AI business in the case of EIC.
- To analyze the relationship between the affecting factors and the growth of AI Business in the Case of EIC

### **1.4 Research Questions**

This study was design to provide answers to the following research questions:

- What is the current status of AI Growth & coverage in Ethiopia?
- What are the major factors affecting the growth of AI business in the case of EIC?
- What is the relationship between the identified affecting factors and the growth of AI Business in the Case of EIC

## **1.5 Research Hypothesis**

Ho: There is no statistically significant association between product-design alternatives & Scope of Cover and growth of AI Business.

Ho: There is no statistically significant association between procedures, delayance and Bureaucracies and growth of AI Business.

Ho: There is no statistically significant association between awareness and growth of AI Business.

Ho: There is no statistically significant association between subsidy and growth of AI Business

Ho: There is no statistically significant association between financial capacity and growth of AI Business.

Ho: There is no statistically significant association between trust and growth of AI Business.

## **1.6 Significance of the Study**

The study was attempted to identify and analyze the factors affecting the growth of AI Business of EIC. Therefore, the researcher believed that it had the following significances: The study would have to help the management of the EIC to observe the major area that causing poor growth in AI and make appropriate decision to encounter the problem, create insights to the readers on the factors that affect the growth of AI Business in the country, help EIC to see where it stands from the customers' perspective and strategize itself in a better way to serve its potential customers, would solve and initiate EIC's to Design & Supply based on the interest of customers on AI product and The study may initiate other researchers to undergo further study on the subject matter and also in other general insurance business portfolio as well.

## **1.7 Scope of the Study**

In fact, EIC faced many problems on the growth of different class of insurances Business, it is too difficult to incorporate and discuss all the problems of the EIC in this study. Therefore, considering the nature of sensitivity this research study is delimited to the problems that the corporation faces specifically in connection with it's the growth of Agricultural Insurance business.

## **1.8 Limitations of the Study**

No study is without limitation (Berg, 2001). Accordingly, this study is subject to the following limitations that future studies should address to shed more light on the subject of growth of Agricultural Insurance business.

Even though it's very important to cover the insurance industry as a whole, because of the limitation of resources like finance, data and most importantly time, this study only considered the case of EIC especially in growth of Agricultural Insurance business.

So, the researcher advice future researchers to perform a study considering wider scope like in the industry as a whole and overall agricultural insurance in the country, and also advise to do on challenges and opportunities and of the growth of Agricultural Insurances for each class of business (CAI & Micro-Insurance) in Ethiopia.

It's never accurate taking sample as of taking the whole populations, so due to time barriers and financial limitation this study was forced to take sample study. So, the researcher recommends future studies to consider on taking a census or wider sample to get more precise and accurate picture on the finding's generalizability.

The absence of similar studies on this specific field in the country is another limitation to this study, because if it was to the contrary, the researcher would have use it to substantiate its findings and also use it as a base for the study.

## **1.9 Organizational of the Study**

The proposal was organized into five chapters. Chapter one is the introductory chapter that covers the background of the Study, Statement of the Problem, Objective of the study, Research Questions, Research Hypotheses, Significance of the Study, Scope& Limitations of the Study and Operational Definitions of Terms. Chapter two is review of relevant literature. Concepts and Theoretical Framework: AI Business cover& growth, significance of the agricultural Insurance sector in economic development, and factors affecting the growth of AI. Whereas,

Chapter three is the methodology section. It focuses on the research perspectives, population, sampling, research instruments, data collection, and data analysis, Chapter four is presentation of data and analysis of results, results and discussions and finally, Chapter five is the conclusion and recommendation.

## CHAPTER TWO

### 2. LITERATURE REVIEW

#### 2.1 Operational Definition of Terms

**Insurance:** is a device for transfer of risk of individual entitles to an insurer, who agrees, for a consideration (called the premium) to assume to a specified extent losses suffered by the insured (EIC,2022).

**Insured:** Person or people to whom payment will be made in the case of risk (EIC,2022).

**Insurer:** A company which give any kind Insurance cover type for its customer (EIC,2022).

**Agricultural Insurance (AI):**is a valuable business risk management tool that provides farmers with financial protection against production losses caused by natural perils, such as Fire & Lighting, drought, excessive moisture, hail, frost, wind and wildlife (EIC,2022).

**Commercial AI (CAI)Products:** is the product that covers from medium to large scale farms, which act as Investor for producing commercial purposes. The products can broadly be classified into two categories: Indemnity-based and Index-based Insurance. There are two types of Indemnity-Based insurance divided as single/Named and multi-peril coverage like Crop, Coffee Plantation, Cotton Insurance, Greenhouse Insurance Business policies, Livestock Insurance, and so on (EIC,2022).

**Micro-Insurance:** an insurance service provided to low-income people, designed and distributed in accordance with their needs and capacities. According to ILO, it is an element of social protection and Commercial Agricultural Insurance. The products are mainly Index based on agricultural Insurances like AYII, VII, WII, & Livestock Mortality II(EIC,2022).

**Indemnity-based AI:** an insurance types which the Insurer assesses losses on yield & individual basis due to adverse event by using professionals, manually.

**Index-based AI:** an insurance types which involves against specific perils defined recorded at regional levels (using at local weather stations), and which the Insurance payouts do not depends on the individual losses of policy holders (EIC,2022).

**General Insurance:** property insurance indemnifies property damage caused by an accidental occurrences and liability insurance indemnifies the insured party in the event that it is legally liable to pay compensation to a third party.

**Single /named peril coverage:** offers protection from single hazard while,

**Multiple Peril:** more than two peril provides protection from several hazards (EIC,2022).

**Customer:** External customer who has purchased insurance products (EIC,2022).

**Policy holder:** A customer which holds mutual Business policy agreement for its firms or property from Insurer side (EIC,2022).

**Claim:** Is a request for payment under the terms of an insurance policy when a risk materialized (EIC,2022).

**Premium:** a sum of money that has to be paid by the insured in order to transfer risks to the insurance corporation (EIC,2022).

## **2.2 Conceptual Literature**

### **2.2.1 Insurance and Its Benefits**

People seek security. A sense of security may be the next basic goal after food, clothing, and shelter. An individual with economic security is fairly certain that he can satisfy his needs (food, shelter, medical care, and so on) in the present and in the future. Economic risk (which we will refer to simply as risk) is the possibility of losing economic security. Historically, economic risk was managed through informal agreements within a defined community. If someone's barn burned down and a herd of milking cows was destroyed, the community would pitch in to rebuild the barn and to provide the farmer with enough cows to replenish the milking stock. This cooperative (pooling) concept became formalized in the insurance industry. Under a formal insurance arrangement each insurance policy purchaser (policyholder) still implicitly pools his risk with all other policyholders (Andersson, 2005).

It is good business management to protect the assets of your business (including the owners) against unforeseen events. This protection usually comes in the form of insurance. Insurance is simply a devise whereby many people contribute to a pool, so that a few who suffer a loss may be compensated (Sabiyam, 2005).

It is a promise of reimbursement in the case of loss; paid to people or companies so concerned about hazards that they have made prepayments to an insurance company. "An insurance policy may be broadly defined as a contract under which the insurer agrees, in return for a premium, to indemnify the insured for loss suffered as a result of the occurrence of specified events which



cause the destruction, loss or injury of something in which the insured has an interest” (Nkrumah-Arkoh, 2012).

**Benefit of Insurance:** like most institution presents society with various benefits. Peace of mind, indemnification, keeps families and business together, provides a basis for credit, stimulate savings and provides investment capital are the most important general benefits of insurance (Dickson W. M. G, 1999).

**Peace of mind:** Almost everyone has a basic desire for some security or peace of mind. To the extent that insurance provides certainty or predictability, it helps an individual or business improving efficiency of actions by reducing anxieties (Dickson W. M. G, 1999).

**Indemnification:** The direct advantage of insurance is indemnification for unexpected loss, which means, putting one to the same position he/she was before the unfortunate events occurred (Dickson W. M. G, 1999).

**Keep families and business together:** The existence of insurance often supplies financial aid at time of death of family or damage of property due to unforeseen events (Dickson W. M. G, 1999).

**Provides a basis for credit:** One finds it impossible to visualize the credit economy of today without insurance. For instance, fire insurance is invariably used by mortgages who loan money with real or personal property as collateral. Banks wouldn't dare to grant any loans without making sure there is some institution or someone that will pay them their money if the unfortunate happens to the collateral, they hold against the credit granted (Dickson W. M. G, 1999).

**Stimulates savings:** classes like life insurance have special advantages in stimulating savings (Dickson W. M. G, 1999).

**Provides investment capital:** Insurance premiums normally are paid in advance of losses and held by insurers until the time of claim payment, which allows insurers to invest it (Dickson W. M. G, 1999).

### **2.2.2 Overview of Ethiopian Insurance Industry**

The development of insurance business in Ethiopia was closely linked to expatriates and foreign insurance companies. These parties actively participated in the establishment of the first domestic insurance company in Ethiopia. (Hailu, 2007).

According to some research year 1951, marked the beginning of a new chapter in the history of Insurance industry in Ethiopia in that it witnessed the launching for the first time entirely owned by Ethiopians called “Imperial Insurance Company” formed by the initiatives taken by some enlighten Ethiopians and the expatriates, which brought significant development in financial sector of the economy lead to the coming in to existence some eighteen company in 1954 operating in different parts of Ethiopia engage in offering coverage for life, marine, motor and fire or property Insurance services.

Proclamation No. 281/70 which was the first Governmental act on the supervision of Insurance business in the country brought about a significant change, in that the government put the governmental control in place for it feel the promotion and protection of the public Interest was timely as the scope of Insurance business in the country expanded and Insurance registration license was setup under the Minster of trade and Industry tourism.

Insurance business in its modern sense in Ethiopia started in 1905 when the then Bank of Abyssinia got underwriting authority in the form of Agency for Fire and Marine Insurance business. The first local insurance company was formed in 1951. Later on, the number of insurance companies reached 15 of which two withdrew from business in 1972.

As a result of nationalization of these companies in 1975, Proclamation No. 68/1975 was declared to form the Ethiopian Insurance Corporation with a capital of Birr 11 million. Since nationalization, its premium production on the average has continuously grown at the rate of 26.5% in 1976 to Birr 300 million in 1994/95. While its claims increased from 20 million in 1976 to Birr 160 million in 1991/92.

With the declaration of Proclamation No. 86/94, which allowed the licensing and supervision of insurance companies, there emerged seven more than private insurance companies with a total capital of nearly Birr 205 million. The total market that was Birr 50 million in 1976 reached Birr 345 million in two decades’ time. These insurance companies have reinsurance arrangements with reputable international re-insurers mainly from Munich Re., Swiss Re., etc.

Though there is a growing performance in the industry over the last few years, the industry is facing some problems. The major problems of the existing insurance companies in Ethiopia today are listed below in the order of importance:

- I. Lack of adequate public awareness
- II. Shortage of skilled manpower
- III. Price cutting
- IV. Lack of professional ethics
- V. Unfavorable policies
- VI. Lack of proper data to conduct business analysis (Biniam G., 2017).

Regarding share ownership, the government issued Legal Notice No. 393/71, dictating at least 51% of the shares and paid-up capital of an insures transacting general insurance or composite insurance (general and life combined) business should be held by Ethiopian nationals or national companies at all times. The percentage in the case of life insurance business was 30%.

According to the information gathered, the Ethiopian insurance market has registered premium volume of Birr 16.50 billion at June 30,2022with average growth rate of 18.70 %from last year period. according to 2021/22 report of Association of Ethiopia Insurers (AEI), the total number of branches has reached686 out of which 392 Branches are located in the capital and the rest 294 in different regions.in addition,85 contact offices are registered.

According to the data obtained from NBE over the last ten years(2011/12-2020/21)the average annual growth rate of the Insurance industry in terms of total GWP of Non-life and life insurance is 18.90%& 21.70% respectively.as at June 2022,the only state-owned company possessed about 39.60of the market share and the private companies together shared the remaining 60.40%.the average capita growth rate of the industry for the last ten years is 29% and the capita has reached more than birr 10.9 Billion as of June 2021.

Insurance industry in Ethiopia, is struggling to survive in an increasing competitive environment.it is characterize by lower profit margins. higher costs for distributions and product development as well as consistently low investment returns.

Concisely, Insurance uptake very low in this market due to a significant poverty rate and lack of capital and expertise within the insurance companies that would help tap in the market. the lack

of effective and transparent legal and regulatory system in combination with immature financial markets and common usage of informal types of insurance contribute to the low penetrations.

### 2.2.3 Agricultural Insurance in Ethiopia

Among 18 Insurers, currently two Insurers (Nyala and EIC) offer commercial agricultural Insurances for Livestock, Crop, Coffee, Horticulture and poultry projects. The Major Customers are large scale commercial farms engaged in the production and export of high-value crops such as Coffee, Sesame, Soya bean and that financed by DBE, CBE and other private banks based on NBE loan statute & regulations. The Premium generated from commercial agricultural insurances are very low with fluctuating trend over the last five years (see table 2.1).

In general, The Premium generated from crop insurance is dominant taking 76% of the total and in terms of market share EIC took 80% while Nyala shares 20% Which, EIC's dominance might be affiliation with DBE as State owned entities working together.

**Table 2.1:** Data on aggregate Market premium to EIC & Nyala Insurances Companies for 5 years

Budget year	Aggregate market premium per Business policy			Market share of Insures	
	Crop	Livestock	Total	Nyala	EIC
2017	25,173,239	1,249,011	26,422,250	570,170	25,852,080
2018	12,648,429	11,302,633	23,951,062	1,404,054	22,547,008
2019	24,821,283	17,054,502	41,875,785	15,818,966	26,056,819
2020	28,497,254	1,566,094	30,063,348	4,520,402	25,542,946
2021	9,893,413	1,612,925	11,506,338	4,310,444	7,195,894
<b>Total:</b>	<b>101,033,618</b>	<b>32,785,164</b>	<b>133,818,783</b>	<b>26,624,036</b>	<b>107,194,747</b>
<b>Percent:</b>	<b>76%</b>	<b>24%</b>	<b>100%</b>	<b>20%</b>	<b>80%</b>

Source; own survey (2023)

In addition, Agricultural insurance is risky business involving systemic risk (risk that affect large area & population simultaneously). This fact is substantiated by loss incurred over the last five years that Aggregate loss ratio appears to be 108%. On disaggregated basis, Nyala's loss ratio exceeds both EIC and aggregate loss ratio as indicated in the following Table 2.2.

**Table 2. 2:** Data on aggregate loss ratio to EIC and Nyala Insurance Companies for 5 years

Budget Year	Loss ratio by Insurers and in aggregate		
	Nyala	EIC	Aggregate
2017	22%	91%	89%
2018	4.00%	150%	141%
2019	75%	44%	56%
2020	177%	94%	106%
2021	350%	239%	281%
<b>Total</b>	<b>132%</b>	<b>102%</b>	<b>108%</b>

Source; own Survey (2023)

According to EIC Survey Report (2020), The current Challenges of Agricultural Insurance in Ethiopia are:

**Information asymmetries:** Presence of unequal information regarding the risk between insurers and farmers),

**Diversification:** Diversification is difficult to achieve for agricultural insurers Crops are planted in geographical regions that are subject to the same probability of occurrence of adverse events

**Geographical Dispersion/Distribution:** The geographical dispersion of agriculture production makes the operational and administrative costs of delivering insurance high in comparison with other types of insurance. Overcoming high transaction costs for agricultural insurance represents an additional challenge for the insurer.

**Complexity and Expertise Requirement:** AI is a technically complex activity that demands expertise in agronomy, plant science, livestock experts trained in insurance

**Systemic or Covariate Risk:** Some of the risks affecting agricultural crop production are systemic or covariate risks- excessive rainfall, drought, and flood and it is a risk that affects large areas and many people resulting in enormous or catastrophic losses.

### **2.2.3.1 Overview of the Characteristics of Agricultural Insurance**

Characteristics of crop insurance and animal insurance are virtually identical for all insurance companies. Crop insurance protects crop production and yield losses that may arise as a result of achieving the insured risk. The insurance provides cover for crops, industrial crops, vegetables, crops and fruits in greenhouses, herbs, ornamental plants, orchards, vineyards, orchards and, vineyards before the ripening period, fruit, vine and forest seedlings, young forests by the age of six years, plaiting willows and reeds. The insurance covers the parts of plants that determine the purpose of breeding, such as grain (seeds), roots, tubers, fruit, coils, stems, seedlings, cutting and forage mass.

Risks typically covered include basic risks (hail, lightning, and fire) and if an additional premium is paid it is possible to insure additional risks such as floods, storms, spring frost, autumn frost, loss of seed quality, and loss of quality of the fruit and table grapes).

The insurance premium depends on 1) the characteristics of insurance cases or classes of sensitivity crops which ensure 2) the number and types of insured risk covered, 3) hazard classes territorial areas where the culture process, 4) deduction (determined by the percentage amount damages or the sum-insured), 5) technical result (loss ratio can be determined for the whole of the insurance or the insured), 6) contractual discounts (for the collective, for many years, and for crop insurance on the same surface) and 7) the sum insurance.

The sum insured is determined on the basis of the expected yield per acre and the expected market price per kilogram or contracted or guaranteed prices for a specific culture. The sum insured as well is affected by the premium rate that is calculated by multiplying the specified sum insured per unit area and the total area. When an insured event occurs insurance benefits are usually determined on the sum insured, the actual values of crop and the amount of damage and if there is a deduction then it affects the size of the claims.

When livestock is object of insurance it can be applied on domestic, some wild and exotic livestock in zoos (e.g., equine, cattle, buffalo, sheep, goats, pigs, bees, trout, poultry, etc.). Insurance may cover only healthy livestock for less than one year, a period of one year or longer than one year. Risks covered are divided into primary (death, emergency slaughter or killing because of illness or accident) and supplemental (medical costs and other contractual risks such as insurance animal exhibitions on, loss of calves at birth, loss of breeding ability of heifers,

cows or male breeding throat, etc.). The insurance premium depends on the type of animal, group risk, scope of coverage, the insured value of the livestock, the economic purpose and age of the livestock, discounts (e.g., for insurance on a certain number of years, to ensure all livestock, the premium payment terms, etc.).

And technical results (determined by the types and categories of livestock for individual policyholders or individual fields). The sum insured is expressed per animal based on its weight and price per pound or per head value and may be the most equal to the actual value of the livestock at the time of conclusion of the contract and for the young and fattening livestock the value that will be achieved by the end of fattening, or life insurance.

Finally, the basic obligation of the insured to ensure all areas under crops and fruits of the same kind, or in securing livestock all livestock of the same species, to take all measures to prevent the occurrence of the insured event, the insured event occurs when you take all measures in order to limit its adverse effects in a timely manner and on the terms of insurance, notify the insurer (EIC,2020).

### **2.3. Empirical studies on challenge and opportunities on growth AI in Ethiopia**

Several studies aim to resolve the puzzle of low uptake by smallholder farmers in less developing countries. Accordingly, the most important limiting factor is basis risk (Ali et al., 2020). By ‘basis risk’ we mean the imperfect correlation between computed indexes and the actual losses that can jeopardize actual uptake of IBI (Jensen et al., 2014).

According to Nshakira-Rukundo et al. (2021), there are three categories of basis risk. The first is the geographical/spatial basis risk, which measures the distance from a farmer’s plot to the measurement point. The second is design basis risk which emanates from the models and variables used to construct an index. The third is temporal basis risk which is related to the time frame in which the index is measured. Due to the presence of basis risk, significant portion of losses left unpaid.

In order to reduce basis risk, several strategies have been suggested by experts and these include; i) substantial investment by governments and other stakeholders on whether apparatus to ensure more proximity to farmers ii) the insurance product can give more protection through insuring

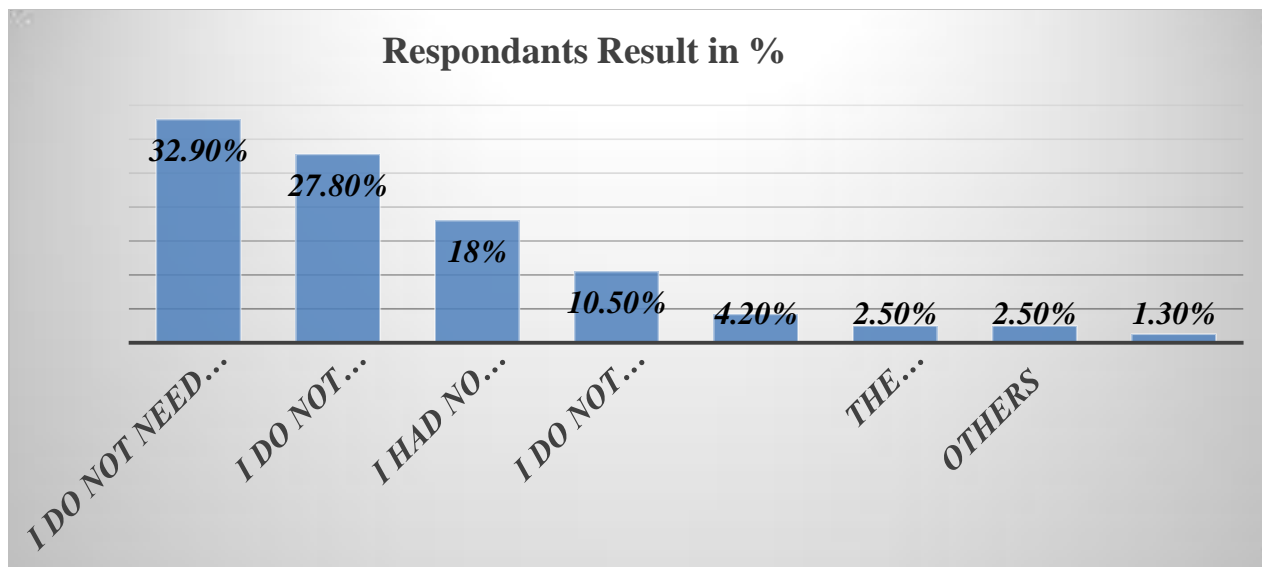
multiple crop and multiple perils rather than single crop and peril iii) insurance product development might consider using multiple sources and types of data to better explain both the production risk and multiple dimensions of possible losses. However, these studies have underlined that even though these technological improvements are valuable additions, their use should be weighted with their respective costs, time lag in triggering payments, etc (Nshakira-Rukundo et al. (2021).

In addition to basis risk, cash-constrained smallholder farmers in developing countries have unveiled low demand for IBI since they don't have the resource to pay premiums (Cole et al., 2013). As a result, IBI should cost less because premium payments may involve high opportunity costs for the insured, causing other negative consequences such as a decrease in consumption and foregone opportunity to invest more in productive activities (Helgeson et al., 2013).

Furthermore, lack of trust on financial institutions and their products and limited knowledge & information about index-based insurance are also bidding constraints to uptake the insurance product (World Bank, 2007).

According to EEA study (2022), on access to Crop and Livestock insurance services, the major source of information about Crop Insurance for respondents was development agents. Some 15.23% of respondents heard about crop insurance of which more than 90% of them got the information from development agents. Those who purchased crop insurance were 4.30% of the respondents and they purchased it at least once in the last 5 years from an insurance company. The average annual premium payment was 213 ETB per policy. If available, 21.50% of respondents have shown demand for IBCI. Only 5% of the respondents heard about livestock insurances; among those who heard about this insurance, 60% of them got the information from development agents and the remaining from radio. None of the respondents have purchased livestock insurance so far although 15.56% of the respondents have shown demand for livestock Insurance. The main reason for not buying index-based insurances (IBI) were that they do not need it (33%), or they do not know the institutions selling the Insurance (28%), do not have the money to pay for it (18%), or do not know the benefits of Insurance (10%).





**Figure 1:** Main reason not buying Index-Based Insurance (IBI)

Source; EEA,2022

According to this study, both the determinates of house hold demand for insurance services and Institutional Challenges to provide Agricultural Insurance (Crop & Livestock Insurances).

**This study the determinates of house hold demand for Agricultural Insurance (AI) services,** shown that the existing coverage of both crop and Livestock insurance is highly limited but, we also found if available ,21.50% and 15.56% of respondents have shown demand for index-based crop &Livestock insurance with the existing market price.

**This studies also do analysis on determinates of demand for Index-based Crop Insurance (IBCI),** shows that the log o of house hold income, trust on formal financial institutions, size of land holding, membership to local institutions and time preference are positively correlated with the probability of revealing demand for IB crop insurances. On the other hand, demand for crop insurance is negatively correlated with the age of the head, number of livestock and being risk averse.

This study again does analysis on Institutional Challenges to provide AI services and showed that there are Policy challenges, Inadequate Infrastructures, Gaps in marketing channels, Poor Capacity to pay premiums and Limited knowledge of AI products by Farmers.

**According to the studies Miguel Quercus (2018), the main challenge of AI in developing countries,** is how to create sustainable agricultural microinsurance markets. To meet this

challenge, the following three elements are needed: (1) designing high-quality products that are commercially viable with minimum possible government support, (2) the existence of a large and sustained demand, and (3) the presence of a competitive supply mainly from the private sector. Given limited resources in developing countries and many other sectors requiring attention, promoting strong private-sector participation in agricultural microinsurance markets complemented with well-targeted government support is the most realistic option.

**According to study EEA (2022), some of the efforts conducted & raised various empirical & experimental studies that aim to develop the existing IBI;**

In a recent pilot project, R4 has partnered with the International Food Policy research institute (IFPRI) to use smartphone pictures to improve its index insurance contracts for small-scale Teff growing Farmers in Ethiopia. With pictures-based Insurance (PBI) audits, Farmers or agents regularly send in geo-referenced smartphone pictures of insured crops (i.e., in this case, Teff), from planting to post-damage. then, loss assessments are based on damages visible from a time series of pictures taken by the farmers regularly using smart phones in its pilot implementations the project has increased uptake of IBI by reducing basis risk through engaging farmers to participate directly, with one's own picture being more tangible than other indices (Portered et al.,2020).

Tadesse et al. (2016) studies, use a choice experiment to elicit smallholders' willingness to pay for IBI either cash or kind (i.e., work for insurance program a daily wage rate to overcome cash shortages) in four districts of south-central Ethiopia. They found that farmers opt for premium payments with daily wage rate than cash. In another related studies aim to at increasing uptake in context of cash constrained smallholders Farmers.

According to Ahimed et al. (2017) study, shows the uptake of commercial rainfed insurance in drought-plagued farming cooperatives in Amahara region is very low, ranges from 0.5% to 3% across different seasons. However, uptake has increased to 39% when small free Insurances are provided.

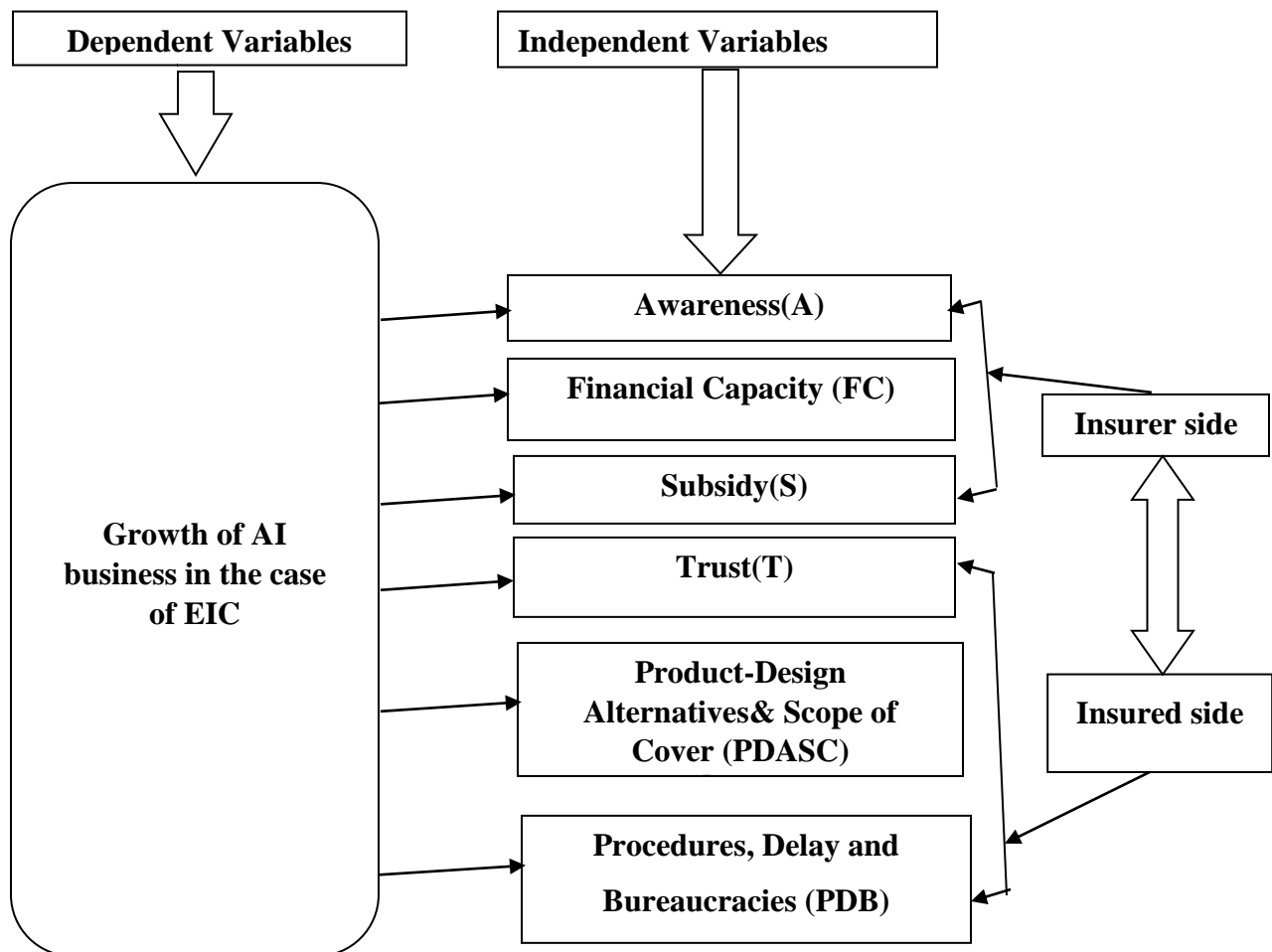
According to the case studies by Dercon,et al (2014) &Belissaet al. (2019), To address the problems of low trust and knowledge of IBI test, to what extent uptake can be enhanced via informal risk sharing institutions (i.e.,Iddries). Both studies ascertain that promoting insurances through 'Iddries' increases uptake more than standard IBI.

According to Belissa et al. (2020), has provided experimental evidences on impact of risk ambiguity aversion behaviors of farmers on the uptake of Index- based crop insurance. They found that an increase in risk aversion increases uptake, but an increase in ambiguity aversion lowers uptake.

Other studies by Clarke (2011) Bishu et al. (2018), and Amare et al. (2019) found that the uptake of existing index- based Insurance depends on basis risk, educational level, trust and risk & ambiguity aversions.

## 2.4 Conceptual Framework of the Study

The following diagram shows the variables included in the study and the conceptualization of the relationship between the independent and dependent variables based on the interview findings held with the top management of the EIC.



**Figure 2:** Conceptual Frame work of the study

## **CHAPTER THREE**

### **3. RESEARCH METHODOLOGY**

#### **3.1. Description of EIC**

The study was conducted on Ethiopian Insurance Corporation (EIC) was established in 1976 by proclamation No.68/1975 and it is the state Insurance corporation which situated around, Addis Abeba (Leghari), Ethiopia. The Corporation came into existence by taking over all the assets and liabilities of the thirteen nationalized private insurance companies, with Birr 11million (USD 1.29 million) paid up capital aiming the following objectives to Engage in all classes of insurance business in Ethiopia and Ensure the insurance services reach the broad mass of the people (EIC,2022).

Subject to the provision of Article 18 of the Housing and Saving Bank establishment proclamation No. 60/1975, promote efficient utilization of both material and financial resources EIC was operating the business for about nineteen years under protected monopolistic system as state owned-sole insurer. After the demise of the Marxist regime in mid-1991 a fundamental change has taken place and there was a shift in political, economic and social orientation from totalitarianism to that of liberalism. Therefore, EIC was re-established as public enterprise under proclamation number 201/94 with Birr 61 million (USD 7.13 million) paid up capital (EIC,2022).

Upon re-establishment of the Corporation in 1994 as state owned enterprise, the law covers the following new objectives to the Corporation: to engage in the business of rendering insurance services and engage in any other related activities conducive to the attainment of its purposes. More, the Vision of the corporation is ‘To be a world class insurer by the year, 2025’ and the mission of the EIC is ‘We provide our customers an efficient and reliable insurance service and engage in investment activities by deploying the right mix of expertise, the state-of-the-art technology and cost-effective strategy. In doing so, we contribute to the sustainable development of the national economy and play a vital role in the industry.’(EIC,2022).

### **3.2 Research Design**

According to purpose, Research design provides a logical structure for research data gathering and analysis. Many research designs could be used to study business problems. Depending on the way in which researchers ask their research questions and present their purpose, the research design could be classified into three groups, namely exploratory, descriptive and explanatory studies (Shaik S. et al., 2006).

To this study descriptive and Explanatory research design method was proposed. This study, tries to examined the factors affecting the growth of AI business in the case of EIC with the purpose of identifying the gaps or problems of this specific business portfolios.

### **3.3 Research Approach**

The purpose of the study was, to identify the factors which affect the growth of AI Business, and analyze the factors' & their relationship with the growth of AI, the study was employed mixed with deductive approach. The overall goal of mixed research approach, of combining qualitative and quantitative research components, is to expand and strengthen a study's conclusions. The use of mixed approach helps to contribute to answering the research questions. The data used were both qualitative and quantitative data. The quantitative data was obtained from questionnaires and document analysis. The qualitative data obtained through semi-structured interview to be exact, to help the researcher get insights of factors that are affecting the growth of AI insurance Business

### **3.4 Types and Source of Data**

The data types used by the study were qualitative and quantitative data. Moreover, cross-sectional data was collected from documents and reports of the organization to accomplish the objective of this study and the qualitative and quantitative data was collected using different methods of data collection such as semi-structured interviews and questionnaires. Sources of data were both primary and secondary data was also used. The primary data, was obtained from the sample management staff (Operational Directors & Agricultural Insurance Surveyors) & AI employees of the EIC and Commercial Farmer's production manager and Smallholder Farmers regarding factors that affect the growth of AI Business using self-developed semi-structured

interview and questionnaires. The secondary data, was collect from journals, articles, documents EIC, the National Bank of Ethiopia and the internet too. So far thus concerning to the secondary data was collected from the under listed sources.

- The EIC's website: [www.eic.net.et](http://www.eic.net.et)
- The National Bank's website: [www.nbe.gov.et.com](http://www.nbe.gov.et.com)
- Different Journals, Articles, Magazines, reports and documentations issued by NBE, EIC, EIA and various journal links from the internet too.

### **3.5 Methods of Data Collection**

The main tool for data collection methods were both questionnaire and interview. A questionnaire is a formalized set of questions for obtaining information from respondents that translate the researchers' information needs to a set of specific questions that respondents are willing and able to answer. For the purpose of data collection method, the researcher was employed closed ended questionnaire was prepared by considering for the Analysis of factor affecting the growth of AI in Ethiopia: the case of EIC.

Thus, closed-ended questionnaires help to avoid pressure up on respondents in any direction so as to get a better and required data in study area. The questionnaire was framed using Likert's scale of measurement ranging from strongly agree with 5 points to strongly disagree with 1 point. Thus, a total numerical value can be calculated from all the responses.

### **3.6 Sampling Design**

First, permission of the consent of respondents was assured from themselves and EIC with the help of the consent form which includes the purpose and confidentiality of responses. Purposive sampling techniques used to select the company under the study,

In this study the procedures of sampling; Semi-structured interviews can be very helpful to 'find out what is happening and to seek new insights' (Robson 20020. Since the researcher's purpose was to identify the factors that affect the growth of AI, the researcher used semi-structured interviews with the top management of Operational Directors and AISs of the EIC.

In the explanatory study design, Questionnaires was tended to be used for descriptive or explanatory research. (Mark, Philip, & Adrian, 2009). And also used some note pads to gather the information. So, after identifying the factors via the first phase the researcher developed structured questionnaire and collect quantitative data. The questions were framed using Likert's scale of measurement ranging from strongly agree with 5 points to strongly disagree with 1 point. Questions eliciting information on respondents' socio-economic characteristics was requested as well.

The semi-structured interviews were administered to the respondents through personal contact by the researcher & the structured questionnaire was administered with the help of the corporation's insurance professional that are found in the corporation's outlying branches across the country.

### **3.6.1 Sampling Frame**

Sampling means the total number of entities in which the researcher is interested in, it was the collection of individuals, objects or events about which the researcher wants to make inferences. The Sampling frame of the study was broadly categorized into two major groups,

- First, the External population consisting of commercial farmers that engaging on field crop productions & Horticultural /Green House production, only those that are operational. Smallholders who have experience on buying AYII in Oromiya region, West Arsi zone, 2 Woreda of Adaba & Asasa of each three kebele, of each 3 Farmers, a total of 18 Farmers. According to data from Ethiopian Investment Agency (as date of June June), Commercial Farmers, which at 688 and, a total- sum of 706.

Second, the Internal population consisting of different levels of Management staff(Operational Directors) and AISs, only working in the corporation's Insurance Service Process, because they are the ones a non-op interaction with customers &several years of practical experience of in situations.

According to data from the EIC's Human Resource Directorate office, which amount to 229 Management staff (29 operational directors and 5 Agricultural Insurance Surveyor (AIS)) since they are the one with vast practical experiences and will indicate picture clearly, the total-sum of 234. So, the total population of the study accounts for 940.

### 3.6.2 Sampling Strategy

In the strategy of sampling to collect data, the researcher uses census from the target population, the EIC's top management staffs only, since they are ones with extensive practical experience, know the real problem, and could see the big picture out there. The census used to manage the data collection was the sample population is small and simple to contact each of them. The strategy used to distribute data collection instrument was presented as follows.

◇ For the internal population, using the internal e-mail system/outlook, the researcher was distributed the questionnaires to those management staff that are selected, using a simple lottery method.

◇ For the external population, the researcher with the help of AISs found outlying branches of the EIC, randomly distribute to them commercial farmers came to who the offices at the time of data collection and disseminate the questioners for Smallholders farmers contacting the sample Woreda's office that buy AYII/Micro-Insurances cover or Customers of EIC.

### 3.6.3 Sample Size Determinations

The purpose of this study was to identify affecting the factors behind the growth of AI Business. In addition, this study study's respondents were commercial & Smallholder farmers and management staff of the EIC once and not for different periods of time. The researcher considered the size of the population limited to only the top management staff (operational Directors) & AISs of the EIC involved in the Insurance Service Process, the researcher was talk census. Since the point of collecting quantitative data is to measure the relationship and strength of the factors and the outcome. The researcher will define its sample from the total number of the population from both clusters the formula detailed under then allocate the number of samples from each cluster equally as follow. For populations that are large, (Cochran, 1963) developed the following equation to yield a representative sample for proportions.

$$n_o = Z^2 pq / e^2 = (1.96)^2 (0.50) (0.50) / (0.05)^2 = 384$$

This is valid where  $n_o$ , is the sample size,  $Z^2$  is the 1-a equals the desired confidence level, which is 95%,  $e$  is the desired level of precision,  $p$  is the estimated proportion of an attribute is present in the population, and  $q$  is  $1 - p$ . the value of  $Z$  is found in statistical tables. So, for the purpose of



this, study the research formulate a sample size assuming **p** is 0.5(maximum variability), 95% of confidence level, and +/- 5% precision. the sample size would have been 384.

The population of this study was calculated simply with the following formula;

$$n = \frac{no}{1 + \frac{no-1}{N}} = \frac{384}{1 + \frac{384-1}{940}} = 273$$

Where **no** is the sample size which is 384 units and **N** is the population size which is 940. Having said all the above things, the sample size for the second phase is 273 units of sample. Then, to perform a regression analysis it's mandatory that the number of observations of all variables must be equal (137 & 136 samples). So, the researcher will take by using stratified sampling 137 of Farmers which includes, 119 Commercial Farmers & 18 Local farmers was talk all numbers and 136 Managements staff which was taken as; by considering long years work experience with stratified sampling methods, 29 Operational Directors and 5 AISs ,a total of 34 only taken since they was feed very important information for the thesis since they are the only crucial technical & operational expertise for AI future business destiny in EIC.

### **3.7 Methods of Data Analysis**

#### **3.7.1 Descriptive Statics Methods**

The study was used both qualitative and quantitative data. The data analysis used was both descriptive and inferential statistics. Descriptive statistics was used to analyze the data gathered from the questionnaire, the researcher has applied frequency tables, percent, mean and standard deviation to easily understand the major factors that affect the growth of AI business in case of EIC. Moreover, the study was used inferential statistics correlation and multiple linear regression analysis was used to understand and examine the causal relationship of the identified factors of the growth of AI Business in the case of EIC. Here again, the study as used appropriate Statistical Package for Social Science (SPSS) version 26 and Stata version 11.

#### **3.7.2 Model Specification**

The study was used a multiple linear regression model of Multiple regression, use both qualitative and quantitative data analysis techniques and examine the effects and magnitudes of the independent variables that will identifies from the interview with the top management of the

EIC&AISs, on the factor affecting the growth of AI. Before analyzing of the data from the questionnaires that will be developed, the researcher was checked all the necessary assumptions that have to fulfill in order to undertake analysis by multiple regression analysis. The regression analysis was performed based on data that was collected from the EIC's Operational Directors & AIS, and Smallholders and commercial Farmer's, whom from customers of AI policy covers at EIC currently.

The model for the study that was portray factors that affect the growth of AI Business;

$$\log \frac{p(X)}{1-p(x)} = \alpha + \beta_1 PDASC + \beta_2 PDB + \beta_3 A + \beta_4 S + \beta_5 FC + \beta_6 T + ei$$

Where; **GAI**= Growth of AIs

**$\alpha$**  = The constant, or Y intercept or Dependent Variables

**$\beta_i$** = The coefficient of the predictor variables,

**$ei$** = the error term

**PDASC** = Product design alternatives& Scope of Cover

**PDB** = Procedures, Delayance & Bureaucracies

**A**= Awareness

**S**= Subsidy

**FC**=Financial Capacity

**T**=Trust

***Hypothesis Testing Procedure was,***

***Ho:*** There is no association between the dependent and the predictor variables

***Ha:*** There is association between the dependent and the predictor variables

### 3.8 Reliability and Validity

Reliability and validity are both about how well a method measures something: Reliability refers to the consistency of a measure (whether the results can be reproduced under the same conditions). Validity refers to the accuracy of a measure (whether the results really do represent what they are supposed to measure). Research quality is normally determined by the validity and reliability of the methodology and data. As espoused by Golafshani (2003), validity and reliability are two major aspects of a research study that every researcher must pay attention to when designing a study, analyzing results and determining the quality and credibility of a study. Reliability and validity are important concepts used in research and testing. To test the validity the researcher was distributed the questionnaires to the respondents as a pilot test to test and based on the comments or feedback obtained from pilot test participant and possible modification was done. Therefore, before any, administering the interview and questionnaire, it was face for validation with the Advisor of the Researcher

Reliability is concerned with consistency of results. That is the degree to which same or similar results are attained for a particular study if the research is performed by another researcher within the same context as the previous ones or under the same conditions. As matter of fact, to test for internal consistency of the research instrument Cronbach alpha value was used. To analysis the reliability the Cronbach's alpha value ranges between 0 and 1. But Cronbach's alpha frequently uses 0.7 as a benchmark value. At the level of 0.70 and higher, the items are sufficiently consistent to indicate the measure is reliable. The Cronbach's alpha of the identified factors affecting growth of AI business presented as follows

**Table 3.1. Reliability Result**

<b>Variables</b>	<b>Cronbach's Alpha coefficient</b>	<b>No items</b>
PDSC	0.748	3
PDB	0.812	4
A	0.809	4
S	0.789	3
FC	0.873	3
T	0.785	4

Source; own survey (2023)

Table 3.1 showed that reliability coefficients Procedures, Delayance & Bureaucracies(PDASC) is reliable at 0.748 with 3 items, the reliability coefficients PDB is reliable at 0.812 with 4 items, the reliability coefficients Awareness(A) is reliable at 0.809 with 4 items, the reliability coefficients Subsidy(S) is reliable at 0.789 with 3 items, the reliability coefficients is reliable at 0.809 with 3 items, the reliability coefficients Financial Capacity(FC) is reliable at 0.873 with 3 items and Finally, the reliability coefficients Trust(T) is reliable at 0.785 with 4 items.

### **3.9. Definition of Variables Measurement and Hypothesis**

#### **3.9.1 Independent Variables**

##### **Product design alternatives& Scope of Cover (PDASC)**

Product design should include: defining the target group; identifying insurable risks; determining key product features; establishing payment capabilities. Affordability and product design preferences should be investigated together to provide real value to clients. Whereas, Scope of Cover; “All risks” of physical loss or damage to the Project Assets which are the property of the Borrower or for which it is responsible from any cause not excluded, including machinery breakdown in respect of appropriate equipment’s (Internet). This paper tests hypothesis whether there is no statistically significant association between Product design alternatives& Scope of Cover and growth of AI Business or not.

##### **Procedures, Delayance & Bureaucracies (PDB)**

In general, an insurance contract must meet four conditions in order to be legally valid: it must be for a legal purpose; the parties must have a legal capacity to contract; there must be evidence of a meeting of minds between the insurer and the insured; and there must be a payment or consideration. A delay provision is an agricultural insurance policies provision that allows the insurance company to delay policy payment of the cash surrender value for a stated period till the insured crop production project is harvested from the farm plots. And, the term bureaucracy refers to a complex organization that has multilayered systems and processes. The systems and processes that are put in place effectively make decision-making slow. They are designed to maintain uniformity and control within the organization (Internet). This paper tests the hypothesis whether there is no statistically significant association between Procedures, Delayance & Bureaucracies and growth of AI Business or not.

**Awareness (A)**

Insurance awareness refers to an individual's knowledge and understanding of insurance policies and their importance. It involves being aware of the various types of insurance available, such as health, life, auto, and property insurance, as well as the coverage and benefits they provide (Internet). This paper tests the hypothesis whether there is no statistically significant association between awareness and growth of AI Business or not.

**Subsidy (S)**

A subsidy is a benefit given by the government to groups or individuals, usually in the form of a cash payment or tax reduction (Internet). This paper tests the hypothesis whether there is no statistically significant association between subsidy and growth of AI Business or not.

**Financial Capacity (FC)**

The financial capacity is the financial limit of an organization's ability to absorb losses with its own funds or borrowed funds without major disruption (Internet). This paper tests the hypothesis whether there is no statistically significant association between Financial Capacity and growth of AI Business or not.

**Trust (T)**

The signing of the insurance contract is based on trust, which means the customer is required to inform the actual condition to the insurance company for risk assessment and calculate the premiums, while the customer must clearly acknowledge the contents of the contract to make sure all benefits are acquired (Internet). This paper tests the hypothesis whether there is no statistically significant association between trust and growth of AI Business or not.

### **3.9.2. Dependent Variables**

#### **Growth of AI Business/Cover (GAI)**

Agricultural insurance (AI) provides protection for economic losses caused by natural disasters, accidents, epidemics, diseases, etc., in the process of agricultural productions. It can promote the growth of Insurance sector economy and specifically, the agricultural economy that effectively disperse the risks of agricultural disasters to farmers, expand the scale of agricultural industry development, and have a significant positive impact on the upgrading of the agricultural industry structure (Internet).

The welfare effect of AI mainly refers to enhancing social welfare by increasing national income and promoting equal distribution. According to the theory of welfare economics, AI guarantees, which inevitably increases the total income of farmers. On the other hand, AI can alleviate the ineffective resource allocation of farmers caused by natural disasters, promote the resources to be distributed rationally, attract more production factors to be invested in agriculture, increase the fairness of resource distribution, and further promote the equalization of farmers' income. AI guarantees the overall stable development of the national economy, and ultimately improves the overall national welfare level (Internet). More, this paper also tests the hypothesis whether there is no statistically significant association between Product design alternatives& Scope of Cover, Procedures, Delayance & Bureaucracies, Awareness, Subsidy, Financial Capacity, trust and growth of AI Business or not.

### **3.11. Ethical Consideration**

It is mandatory for a researcher to have an ethical consideration for the organization which was studied. In the view of Berg & Lune (2016), ethical issues are concerned with “issues of harm, consent, privacy, and data confidentiality”.

In this study, the researcher was warranted that all respondents had been informed about the purpose of the research and created awareness about the study well before any information was collected from them. Again, respondents understood that the Study was purely for academic reasons and that there were no direct benefits to them to ensure unbiased responses from them.

## CHAPTER FOUR

### 4. RESULT AND DISCUSSIONS

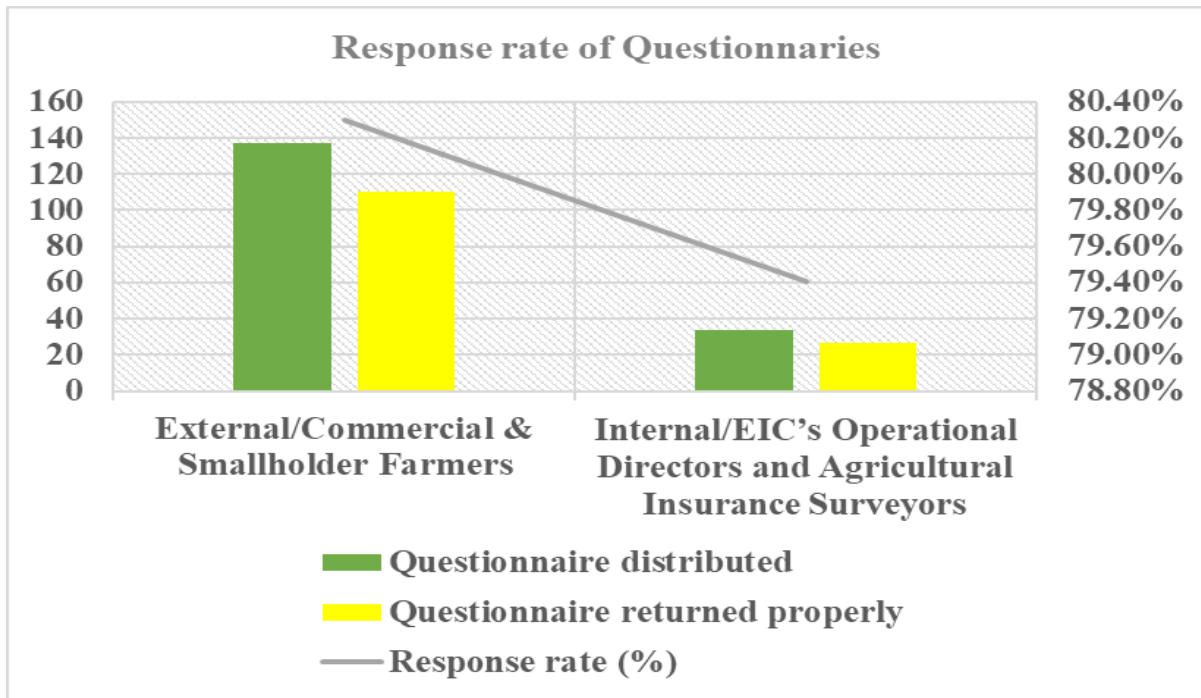
This section of the study deals with results and discussion. The obtained from the field will be presented as follows;

#### 4.1. Descriptive Results

This section of the study presents the results of the study. It includes response socio-demographic characteristics of respondents, Status of Agricultural Insurance overages in Ethiopia and factors affecting and factors affecting the growth of AI business in the case of EIC. The result presented as follows.

##### 4.1.1. Response Rate

This section of the study deals with response rate. The researcher was distributed questionnaires to respondents for two group of respondents which were commercial & smallholder farmers and EIC's operational directors and agricultural insurance. The result presented as follows.



Source; own survey (2023)

**Figure 4.1 Response Rate**

As presented in the Figure 4.1, The researcher distributed 137 questionnaires to commercial and small holder farmers, of which 110 of the questionnaires were properly filled and returned back.

The response rate for external respondents of Commercial & Smallholders Farmers is 80.30%. The other groups of respondents were EIC's Operational Directors and AISs. To these group 34 questionnaires were distributed 27 questionnaires were returned back. The response rate is 79.40%. According to Mugenda and Mugenda (2003) a response rate should be at least 50% for the significant of analysis

#### **4.1.2. Socio-Demographic Characteristics of Respondents**

This section of the study deals with socio demographic characteristics of the respondents in two parts. The commercial & Smallholder Farmers/External respondents and Management staff of Operational Directors & AI surveyors of EIC/Internal respondents demographic summary are presented as follow.

**The first part of External respondents**, the questionnaire consists of ten questions that were designed to understand the socio-economic demographic characteristics of the respondents, to have some understanding about the status of the Farmers that of Commercial & Small holders especially in crop production and the status of AI insurance coverage in the country, that the attached-on Appendix A showed the above-mentioned information of the respondents.

As one can understand from Appendix A table 4.1, almost 74% of the respondents fall under the categories above 36 years of age, which means the majority of commercial& Small holder's farmers are matured & productive enough. When we came to Experience, it also shows that the majority of respondents are well experienced above 11 years with their field of crop production projects

Educational achievement, only 29% of them have attended college educations, the rest 51% of the farmers fall under the categories of high school & primary school and 20% of Farmers are read & write well. These facts showed that Experience is more valued than education in this sector.

In addition, in Appendix A table 4.2 depicted the economic demographics of Farmers. Regarding size of the land, only 6% of the respondents fall with holding of more than 750 hectares of land for their crop farm. The biggest share with 34% goes under the category of land holdings between 101 to 250 hectares. 25% of the farmers only holds a size of land below 100 hectares. From these figures, one can say the commercial farmers are yet to develop and involve themselves in to highly mechanize large farms.



The approximate capital investment figure also shows the same fact to that of size of land holdings, most of the farmers are still small in size with 32% of them fall under the category of investment between Birr 3 to 6 million and 21% of them only invested below Birr 1 to 3 million ETB. From the data that shows about last year's crop insurance coverage, the figures depicted the fact that crop insurance coverage is low, almost only 38% of them were insured last year, meaning the other 62% of the commercial & Small holder farmers were not insured in area which took questioners survey. Out of the total average revenue collected by the Farmers which amounted about Birr 613 million, the insured value was only amounted to about Birr 233 million which is low.

The production yield in quintal is also low, 45% even below one thousand & almost 34% of the farmers harvested quintals that amounted between 1,000 to 6,000. And only 3% of them collected more than 18 thousand of quintals, which is very low percentages. These facts can be attributed to the problems of the statement (paragraph 5) mentioned on the first chapter of the study, fear of risks.

The profit level of the farmers was also low. 42% of them only get a profit below Birr one million, 24% between 1 to 3 million, 18% between 3 to 6 million, 12% accounts for a profit between 6 to 9 million and the rest 4.5% got a profit of more than Birr 9 million.

**The second part of Internal respondents**, demographic summary is presented as follow. The questionnaire consists of three questions requesting about the age, work experience and educational level of the respondents. This demographic information of the respondents was not used to understand their relationship with the dependent variable which is growth of AI rather they are just used to understand the composition of the management staffs (i.e., Operational Directors & AISs) of the EIC as it is.

<b>Age of EIC's Operational Staff</b>		
<b>Age Categories</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>24-29</b>	0	0
<b>30-35</b>	4	14.81
<b>36-40</b>	13	48.15
<b>Above 40</b>	10	37.04
<b>Total:</b>	<b>27</b>	

Source; Own survey (2023)

Table 4.1: Age of EIC's Operational staff

The above table shows that about 62.96% of the Management staff (Operational Directors & AIS) respondents were between the ages of 30 to 40 which is higher in number, 48.15% were found in between Above 40, 14.81% were between the age of 30-35, no respondents found at the age between 24-29 since most of these staff were long year served & experienced at EIC. From the above figures one can conclude that the sampled management of EIC's have somehow on productive age stages.

<b>Education level of EIC's Operational staff</b>		
<b>Educational Level</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>1<sup>st</sup> Degree</b>	4	14.81
<b>Master's Degree</b>	23	85.18
<b>Total:</b>	<b>27</b>	

Source; Own survey, 2023

Table 4.2: Educational level of the EIC's Operational staff & AIS

Table 4.4 showed that almost 85% of the EIC's Operational staff & AIS are Master's degree holders and only 15% of them are first degree holder.

<b>Experiences in years</b>		
<b>Experience in years</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>Below 5</b>	0	0
<b>5-10</b>	3	11.11
<b>11-15</b>	13	48.15
<b>Above 15</b>	9	33.33
<b>Total:</b>	<b>27</b>	

Source; Own survey, 2023

Table 4.3: Experience in years

As per the above table demonstrates that no respondents of the Management staff /Operational staff of the EIC have less than five years experiences, 11.11% of them have five to ten years experiences, 48.15% of them have eleven to fifteen years of experiences and the other 33.33% have more than 15 years of experiences. So, in this regard one can simple understand the EIC's management staff equipped with extensive work experiences in the field of AI class of business.

### 4.1.3 Results on the Status of Agricultural Insurance (AI) Coverages in Ethiopia

#### 4.1.3.1 Status of AIs Business Performance, Aggregate Premiums collocated & Loss ratio within 5 years in EIC& Nyala

Among 18 Insurers, currently two Insurers (Nyala and EIC) offer commercial agricultural Insurances for Livestock, Crop, Coffee, Horticulture and poultry projects. The Major Customers are large scale commercial farms engaged in the production and export of high value crops such as Coffee, Sesame, Soya bean and that financed by DBE, CBE and other private banks based on NBE loan statute & regulations. The Premium generated from commercial agricultural insurance are very low with fluctuating trend over the last five years (see table 1).

In general, The Premium generated from crop insurance is dominant taking 76% of the total and in terms of market share EIC took 80% while Nyala shares 20%, EIC's dominance might be affiliation with DBE as State owned entities working together.

Budget	Aggregate market premium per Business policy			Market share of Insures	
Year	Crop	Livestock	Total	Nyala	EIC
<b>2017</b>	25,173,239	1,249,011	26,422,250	570,170	25,852,080
<b>2018</b>	12,648,429	11,302,633	23,951,062	1,404,054	22,547,008
<b>2019</b>	24,821,283	17,054,502	41,875,785	15,818,966	26,056,819
<b>2020</b>	28,497,254	1,566,094	30,063,348	4,520,402	25,542,946
<b>2021</b>	9,893,413	1,612,925	11,506,338	4,310,444	7,195,894
<b>Total:</b>	<b>101,033,618</b>	<b>32,785,164</b>	<b>133,818,783</b>	<b>26,624,036</b>	<b>107,194,747</b>
<b>Percent:</b>	<b>76%</b>	<b>24%</b>	<b>100%</b>	<b>20%</b>	<b>80%</b>

Source; EIC,2022

Table 4.4: Data on aggregate Market premium to EIC & Nyala Insurances Companies for 5 years

In addition, Agricultural insurance is a risky business involving systemic risk (risk that affects large area & population simultaneously). This fact is substantiated by loss incurred over the last five year the Aggregate loss ratio appears to be 108%. On disaggregated basis, Nyala's loss ratio exceeds both EIC and aggregate loss ratio as indicated in the following table.

Budget		Loss ratio by Insurers and in aggregate		
Year	Nyala	EIC	Aggregate	
2017	22%	91%	89%	
2018	4.00%	150%	141%	
2019	75%	44%	56%	
2020	177%	94%	106%	
2021	350%	239%	281%	
<b>Total</b>	<b>132%</b>	<b>102%</b>	<b>108%</b>	

Source; EIC,20222

Table 4.5: Data on aggregate loss ratio to EIC and Nyala Insurance Companies for 5 years

#### **4.1.3.2 Status of AI Business performance, Premiums collected & Claims Paid within last 9 years in EIC**

This section of the study presents the status of AI business cover within the last 9 years of the performance of EIC. The data obtained from the document analysis presented as follows.

**Table 4.6: Premium Collected by EIC (2014-2022)**

Type of AIs Business policy	The premium collected per each year								
	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Horticulturalists Insurance</b>	-1,531,039.02	-15,428,470.59	-2,342,046.74	-2,875,588.81	-3,724,337.82	-2,301,432.96	-2,313,477.42	-2,443,641.38	-2,370,288.13
<b>Weather Insurance</b>	-	-	-	-	-1,488.38	-	-	-	-
<b>Livestock Insurance</b>	-644,652.42	-25,130.00	-117,695.15	-380,339.34	-9,832,525.88	-16,287,814.01	-699,601.22	-725,193.00	-1,110,035.67
<b>Crop Insurance</b>	-6,105,296.45	-15,216,531.19	-33,201,148.23	-42,631,881.39	-26,253,208.20	-11,844,061.41	-9,943,937.53	-24,824,355.67	-6,186,179.22

Source; EIC report (2022)

Table 4.6 showed the premiums collected by EIC in the last 9 years. The categories of insurance are horticulturalists Insurance, Weather Insurance, Livestock Insurance and Crop Insurance. Across the 9 years premium collected in which indicates that presence of deficit as compared the claim paid. From the above table the Horticulturalist's Insurance has the highest deficit is experience in the year 2015(-15,428,470.59) and followed by 2018(-3,724,337.82) Livestock Insurance has the experience highest deficient in the year 2019(-16,287,814.01) and followed by 2018(-9,832,525.88). Crop insurance has the highest deficit in the year 2017(-42,631,881.39) and followed by 2016(-33,201,148.23).

**Table 4.7: Claim paid by EIC (2014-2022)**

Type of AI Business policy	Claim paid per each year								
	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Horticulturalis ts Insurance</b>	0.00	955,497.28	53.00	328,839.33	343,258.20	2,035,488.55	125,266.61	306,706.96	1,834,372.59
<b>Weather Insurance</b>	200.00	-	-	-	-	-	-	-85,746.35	-
<b>Livestock Insurance</b>	50,000.00	340,780.00	154,000.00	185,853.00	672,114.61	1,512,751.00	1,762,157.00	549,855.32	740,485.32
<b>Crop Insurance</b>	5,607,134.86	5,252,157.95	14,280,375.77	17,660,034.37	35,113,158.68	12,084,574.67	35,056,077.18	5,022,174.28	7,353,522.71

Source; EIC report (2022)

Table 4.9 showed that claim paid by EIC (2014-2022). In this regards EIC has claim paid for various categories. Horticulture insurance has paid the highest claim in the year 2019(2,035,488.55) which is followed by 2022 (1,834,372.59). Livestock Insurance has highest claim paid in the year 2020(1,762,157.00) and followed by the year in 2019(1,512,751.00). Crop insurance claim paid was the highest in the year of 2018 (35,113,158.68) which were followed by 2020(35,056,077.18).

#### 4.1.3.3 Summary of Reason of Claim paid for AIs (CAI& Micro-Insurance)

### Business covers in EIC in last 9 years

#### 1. Commercial Agricultural Insurance (CAI)

**Table 4.8: Shows Summery of Reason of claims paid per each CAI Class of Business in EIC**

Type of Insurance policy Covered	Insured Year	Insured Crops & assets	Major Reason of Loss (Peril covered types)	Major damaged crops & Assets
<b>Crop Insurances</b> (Includes Coffee & Cotton insurance Polices) <b>Plus,P.V.T Insurance</b> (start cover after 2020)	2014-2016	Coffee & Cotton Plantations, Field crops (Maize & Beans)	Flood, Hail & Fire& Lighting	Maize and Coffee Plantations
	2016-2022	Oil crops (Sesame), Industrial crops (Cotton), Field crops (Masho /green gram &Maize) and Coffee Plantations	Windstorm, Inundation, and Uncontrollable Diseases	Sesame, Cotton and Masho
<b>Horticulturalist's Insurance</b>	2014-2022	Roses, Strawberry and Herbs And Assets (Plastic cladding & Steel structures)	Hail, Whirl wind	Plastic cladding and Roses
<b>Livestock Insurance</b>	2014-2022	Dairy Cattles (Milking cows& Bull)	Death by different Disease's	Milking Cows

Source; EIC Reports (2023)



EIC's status on AI class of business in terms of coverage CAI Business type is the dominant, had covered different product types and customers are also fairly interested to cover their Farm's entity to protect their crops and assets from natural hazards when compared to Micro -Insurance types relatively. In addition, EIC is the dominant, have many experienced Agro- insurance professionals/AIS and the only senior company which started & have been serve many CAI Business products in Ethiopia insurance Industry too.

Table 4.9 indicated that Crop insurance business covered at EIC for many cash crops during 2014 to 2022 for commercial Farmers in different parts of Investments corner of the country that financed by Government Banks. The major reason of loss are Flood, Hail and Fire and also the major Crops damaged are Maize and Coffee Plantations in between 2014 to 2016. whereas, due to additional peril cover of uncontrollable Disease & Pests in between 2014 and 2022; the Insured cash crops were got high in parallel the number of customers also getting rased. so that, the major perils for the losses were Windstorm, Inundation & Uncontrollable diseases and the major cash crops which got damaged are Sesame Masho and Cotton because they are very sensitive for diseases and natural hazards after pre-maturity index.

More, Horticulturalist's Insurance cover is given for Crops which grown in Green House or controlled environments. so that the major assets which damaged were Plastic cladding and Rose Plants due to Hail & Wind storm perils.

As the above tables showed that the major Livestock insurance peril for loss was death due different diseases, which resulted for the death of Milking Cows in Farm's pen.

## 2. Micro-Insurance

**Table 4.9: shows Summery of Reason of claims paid per each Micro-insurance Class of Business in EIC**

Type of Insurance policy Covered	Insured Year	Insured resources	Reason of Loss (Peril covered types)	Remark
<b>WII (Weather Index Insurance)</b>	2018	Livestock (small holder's Cattle)	Heavy drought	The most horrific loss registered at Somali region & Borena zone.
<b>AYII (Area- Yield Index Insurance)</b>	2022	Crops (wheat, Barely, Bean)	Shortage of Rain fall	Moderate loss ratio registered

Source; EIC Reports (2023)

Table 4.10 depicted that EIC had only covered WII& AYII from Micro- insurance cover at 2018&2022 respectively. the peril covered type was drought or shortage of Rain fall only and given cover for Livestock and Crops resources as pilot project.

In general, EIC was gave Micro- Insurance cover for smallholder Farmers which are found at low land areas of the country. but, only for two types of Micro-Insurance products. even if, EIC started Micro-insurance Busine in 2016, it should do further for the growth of this cover and give awareness to different stakeholders, for the growth of the Micro-insurance business products found on the shelf when compared to CAI business performances.

### 4.1.4. The Major Factors Affecting the Growth of AI Business in the Case of EIC

Agriculture is an important sector that involves the livelihood of society, maintaining jobs in rural areas, caring for the landscape, and, increasingly, environmental issues. However, agriculture is also vulnerable to risks of various origins. Farmers must deal with these risks by adopting alternative risk management strategies. A significant threat to agribusiness is a non-insurable risk, which is systemic and difficult for insurers to diversify. Agriculture is risky.

Indeed, the exposure to a wide variety, complexity, and scale of risks can make it one of those rare activities where the risks are too high and the rewards too low, especially for smallholder farmers. Many risks classes agriculture is exposed to, especially rain-fed agriculture, which, naturally, is more vulnerable to the risk of too much or too little rainfall. In addition, extreme weather, though perhaps rare, can frequently cause catastrophic losses. Farmers' exposure to weather risks also varies significantly with the choice of crops. Every crop requires watering at various stages of planting, tilling, heading, and ripening. Crop output is significantly reduced when water is insufficient or excessive during each of these phases. Pest infestations are more likely during heading and ripening and are generally less severe, but in rare cases can damage an entire crop. In addition, infestation can be localized or widespread depend on a crop's vulnerability to pests. Pest-resistant seeds and pesticides can be helpful, but in some cases become ineffective. The high use of pesticides, meanwhile, is connected to non-communicable diseases such as cancer. Water and soil quality also impact agricultural output. Groundwater or surface water that is contaminated by industrial effluents and pollutants undermines the quantity and quality of agricultural output. In addition, indiscriminate use of chemical fertilizers that do not match the soil conditions can be detrimental to crop yields and, although occurring with low to medium frequency and severity, can become more severe if ignored. In recent years, agriculture production and farm incomes are frequently affected by natural disasters such as droughts, floods, pests and, diseases. The susceptibility agriculture to these disasters is compounded by the outbreak of epidemics and man-made disasters such as fire, sale of spurious seeds, fertilizers and pesticides, price crashes, scrupulous middlemen etc., All these events severely affect farmers through loss in production and farm income, and they are beyond the control of the farmers, this further which affects the country's food security. The question is how to protect farmer increases productivity by minimizing such losses. For a section of farmers, subsidies for some farming inputs provide a measure of income stability but doesn't necessarily prevent the declining food security. Agricultural insurance is very important to safeguard and /or reduce the risk of agricultural activities and products produced. In this section the researcher tried to assess the factor affecting agricultural insurance growth in the case of Ethiopian Insurance Company.

#### 4.1.4.1. Product design alternatives & Scope of Covers (PDASC)

This section of the study finds out one of the factors that affect agricultural insurance growth in the case of EIC. Regarding this product design alternatives and scope of cover are of the factors that affect agricultural insurance growth which is dealt with this study. The data obtained from the field is presented as follows.

**Table 4.10. Distribution of Respondents on Product Design Alternatives & Scope of Covers (PDASC)**

Statements	Results		
	Responses	Frequency	Percent
EIC doesn't have enough product alternatives	Strongly Disagree	1	.9
	Disagree	25	22.7
	Neutral	6	5.5
	Agree	77	70.0
	Strongly Agree	1	.9
	Total	110	100.0
EIC doesn't design the product /customizations based on customers' requests or market need	Strongly Disagree	1	.9
	Disagree	1	.9
	Neutral	53	48.2
	Agree	27	24.5
	Strongly Agree	28	25.5
	Total	110	100.0
EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited	Neutral	27	24.5
	Agree	57	51.8
	Strongly Agree	26	23.6
	Total	110	100.0

Source; own survey (2023)

Table 4.11 showed that distribution of respondents on product design alternatives & scope of covers (PDASC). In this regards, 82(74.5%) of the respondents were agreed to EIC's doesn't have enough product alternatives while 28(25.5%) of the respondents were disagreed that EIC's doesn't have enough product alternatives. This implies that EIC's doesn't have enough product alternatives. Moreover, 55(50%) of the respondents have neutral response that EIC's doesn't design the product /customizations based on customers request or market need whereas

28(25.5%) of the respondents replied that strongly disagreed. This implies that respondents were not quite sure that EIC's doesn't design the product /customizations based on customers request or market need or not. Moreover, 55(50.0%) of respondents said agreed that EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited whereas 28(25.5%) of the respondents were neutral. From the above information it is possible to conclude that EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited.

#### 4.1.4.2. Procedures, Delayance & Bureaucracies (PDB)

This section covers that the second factors affecting the agricultural insurance growth of Ethiopian Insurance Company. Against procedures, delayance and bureaucracy's statements designed and the result obtain from the field presented as follows.

**Table 4.11: Distribution of Respondents on Procedures, Delayance and Bureaucracies**

Statements	Results		
	Responses	Frequenc y	Percent
EIC's is rigid with the policy procedures, terms and conditions	Neutral	27	24.5
	Agree	54	49.1
	Strongly Agree	29	26.4
	Total	110	100.0
EIC's delayance in underwriting issues & Claim settlement services are keeping me from buying the AI policies	Agree	80	75.5
	Strongly Agree	30	24.5
	Total	110	100.0
EIC's does not execute estimated loss adjusted value & follow good parameter when their customers faced damages on their Firm on time.	Neutral	2	1.8
	Agree	54	49.1
	Strongly Agree	54	49.1
	Total	110	100.0
EIC's doesn't replies for customer's criticisms which happened during claim is materialized.	Agree	26	23.6
	Strongly Agree	84	76.4
	Total	110	100.0
	Total	110	100.0

Source; own survey (2023)

Table 4.12 showed that distribution of respondents on Procedures, delayance and bureaucracies. In this regard,55(50%) of the respondents confirmed that EIC’s has rigid with the policy procedures, terms and conditions and 83(75.5%) of the respondents confirmed that EIC’s delayance in underwriting issues & Claim settlement services are keeping me from buying the AI policies. Moreover, 56(50.9%) of the respondents said that EIC’s does not execute estimated loss adjusted value & follow good parameter when their customers faced damages on their Firm on time. Finally, 83(75.5%) of the respondents confirmed that EIC’s does replies for customer’s criticisms which happened during claim is materialized.

#### 4.1.4.3. Awareness (A)

Awareness is the fourth factors which are designed by the researcher as factors affecting the growth of Agricultural Insurance in Ethiopia in the case of Ethiopian Insurance Corporation (EIC). The data obtained from the field presented as follows.

**Table 4.12. Distribution of Respondents on Awareness**

Statements	Results		
	Responses	Frequency	Percent
I don't know enough about AI policy covers (CAI& Micro-Insurances)	Disagree	27	24.5
	Neutral	26	23.6
	Agree	29	26.4
	Strongly Agree	28	25.5
	Total	110	100.0
I don't know the benefits and importance of AI Business (CAI& Micro-Insurance covers)	Strongly Disagree	26	23.6
	Disagree	27	24.5
	Neutral	2	1.8
	Agree	27	24.5
	Strongly Agree	28	25.5
Total	110	100.0	
I never heard of the EIC advertising on AI business/covers	Strongly Disagree	27	24.5
	Agree	83	75.5
	Total	110	100.0
My poor knowledge and awareness about AI covers is keeping me from buying the Business policy	Strongly Disagree	56	50.9
	Strongly Agree	54	49.1
	Total	110	100.0

Source: Own Survey,2023

Table 4.13 depicted that distribution of respondents on awareness. In this regards, 29(26.4%) of the respondents don't know enough about AI policy covers (CAI& Micro-Insurances) whereas 27(24.5%) of the respondents do don't know enough about AI policy covers (CAI& Micro-Insurances). From the above information it is possible to conclude that there is no enough awareness about AI policy covers (CAI& Micro-Insurances). Moreover, 28(25.5%) of the respondents don't know the benefits and importance of AI Business (CAI& Micro-Insurance covers) and 83(75.5%) of the respondents never heard of the EIC advertising on AI business/covers. Finally, 56(50.9%) of the respondents have poor knowledge and awareness about AI covers is keeping me from buying the Business policy.

#### 4.1.4.4. Subsidy(S)

Subsidy is the fourth factors affecting agricultural insurance growth in the EIC. To describe subsidy statements were designed and the result from the field survey is presented as follows.

**Table 4.12: Distribution of Respondents on Subsidy**

Statements	Results		
	Responses	Frequenc y	Percent
EIC's doesn't offer incentive & push to Concerned Government bodies for subsidies to Smallholders to buy Micro-insurance products like AYII,VII,WII& Livestock-Mortality II.	Strongly Disagree	27	24.5
	Disagree	27	24.5
	Agree	3	2.7
	Strongly Agree	53	48.2
	Total	110	100.0
EIC's have no room for premium rate discount for its AI business/covers when compare to other private Insurance companies	Neutral	27	24.5
	Agree	28	25.5
	Strongly Agree	55	50.0
	Total	110	100.0
EIC's as Government insurance Institutions doesn't allow subsidy for smallholder Famers in order to support &involve Fair-Social responsibility in its side	Neutral	27	24.5
	Agree	28	25.5
	Strongly Agree	55	50.0
	Total	110	100.0

Source: Own Survey,2023

Table 4.14 showed that distribution of respondents on subsidy. In this regard 53(48.2%) of the respondents said that EIC's doesn't offer incentive & push to Concerned Government bodies for subsidies to Smallholders to buy Micro-insurance products like AYII, VII, WII& Livestock-Mortality II. In addition to this, 55(50.0%) of the respondents said that EIC's have no room for premium rate discount for its AI business/covers when compared to other private Insurance companies. Finally, 55(50.0%) of the respondents said that EIC's as Government insurance Institutions doesn't allow subsidy for smallholder Famers in order to support &involve Fair-Social responsibility in its side.

#### 4.1.4.5. Financial Capacity (FC)

Financial capacity is the factor affecting agricultural insurance growth to Ethiopian Insurance Company. To explain the financial capacity statements were designed and the result from field survey presented as follows.

**Table 4.13: Distribution of Respondents to Financial Capacity**

Statements	Results		
	Responses	Frequency	Percent
EIC's premium rate allocation for AI product is expensive to the Farmers	Agree	28	25.5
	Strongly Agree	82	74.5
	Total	110	100.0
EIC's doesn't have credit facilities available for its customers to Buy AI Business/covers to the Farmers	Agree	28	25.5
	Strongly Agree	82	74.5
	Total	110	100.0
I will buy if EIC decreases the premium discharge rate for AI product covers	Neutral	28	25.5
	Agree	27	24.5
	Strongly Agree	55	50.0
	Total	110	100.0

Source: Own Survey,2023

Table 4.15 showed that distribution of respondents to financial Capacity. In this regards, 82(74.5%) of the respondents said that EIC's premium rate allocation for AI product is expensive to the Farmers and EIC's doesn't have credit facilities available for its customers to Buy AI Business/covers to the Farmers. Finally, 55(50.0%) of the respondents said they will buy if EIC decreases the premium discharge rate for AI product covers



#### 4.1.4.6. Trust (T)

Trust was the last factor affecting agricultural insurance which was designed by respondents. To describe trust statements were designed and the result obtained from the field presented as follows.

**Table 4.14: Distribution of Respondents on Trust**

Statements	Results		
	Responses	Frequency	Percent
EIC's staffs doesn't inform us what we need to know about the terms and conditions of the policy during buying AI covers/underwriting period	Neutral	27	24.5
	Agree	83	75.5
	Total	110	100.0
AI Business policy text/clause is not with common local languages clearly, it is with foreign language (English) so that difficult to understand duties & responsibilities of both Insured and Insurer sides too.	Agree	72	65.5
	Strongly Agree	38	34.5
	Total	110	100.0
EIC's doesn't have well transparent & proofed Claim calculations & field Assessment activities which done by Surveyor.	Neutral	28	25.5
	Agree	27	24.5
	Strongly Agree	55	50.0
	Total	110	100.0
EIC's staffs doesn't willing to assist the formal manner& solve confusion in need of customers regarding information to underwriting issues & Claim settlement services.	Agree	55	50.0
	Strongly Agree	55	50.0
	Total	110	100.0

Source: Own Survey,2023

Table 4.16 showed that distribution of respondents on trust. In this regards, 83(75.5%) of the respondents said that EIC's staffs doesn't inform us what we need to know about the terms and conditions of the policy during buying AI covers/underwriting period and 72(65.5%) of the respondents said that AI Business policy text/clause is not with common local languages clearly, it is with foreign language (English) so that difficult to understand duties & responsibilities of both Insured and Insurer sides too. Moreover, 55(50.0%) of the respondents said that EIC's

doesn't have well transparent & proofed Claim calculations & field Assessment activities which done by Surveyor. And 110(100%) of the respondents said that EIC's staffs doesn't willing to assist the formal manner& solve confusion in need of customers regarding information to underwriting issues & Claim settlement services.

#### **4.1.5 Result from EIC's Operational directors and Agricultural Insurance Surveyors (AIS)**

This section of the study presents discussion of the data obtained from EIC's Operational directors and Agricultural insurance surveyors (AIS). According to the respondents explained listed that five qualities that come into their mind when they thought of qualities an Insurer shall possess to sell its insurance policies widely in general. These are financial Capacity of the Insurer, promptness in the claim service, availability of capable and experienced professionals, existence of flexible services, and existence of wider scope of cover for any risk types. The other respondents added that quality Interpreted in terms of personnel expert in the field of Insurance, technological usage of the company and facility availability for services

Moreover, they pointed out those qualities does EIC possess. EIC possess some of the qualities that mentioned above and also rate as poor on some of the qualities. Furthermore, the facilitator asked to the participant where do you categorize EIC's growth of AI Business /Covers, (poor, ok, or great)? Why? The respondents replied that it is poor since agricultural insurance is new in its type and the use of general Insurance and Long term (life Insurance) covers is very limited even. In addition, the growth of AI covers is also poor due to the service are given only few Insurance companies and AI is the riskiest Insurance Business and need high reserved/outstanding Paid up capital. so, Insurance companies fear AI to start for doing as ordinary insurance and may think it as unprofitable business too. The other side that somehow it possesses

According to respondents the factors affecting that contribute to the growth of AI Business/covers of EIC are Awareness, Premium amount for Buying Insurance products, service qualities that are undelayance & Bureaucracies for any request of AI services, Accessibility to Farmer site and scope of covers. The factors affecting that contribute to the growth of AI Business/covers of EIC are availability of skilled man power and attention given to AI by Top Management

The facilitator asked that do you think EIC fulfill the AI Business/Cover customer's expectation and needs. The respondents explained that I am not sure (or 50:50) that we need to do more on customers handling and service qualities. Plus, the facilities asked to respondents anything more you want to discuss regarding factors affecting the growth of AI Business /Covers. The respondents replied that nothing yet additional. The other participants explained that Promotion and awareness creation campaign which reaches the rural society

**Table 4.15: Factors affecting the Growth of Agricultural Insurance (AI) Business in EIC**

statements	Results				
	Responses	Frequen cy	Perce nt	Mean	Std. deviation
The annual gross premium collected by EIC from AI covers is low relative to other types of General insurance policies.	Neutral	6	22.2	4.44	.85
	Agree	3	11.1		
	strongly Agree	18	66.7		
	Total	27	100.0		
The gross premium collected from AI not showing the same improvement as others types of General Insurance policies in EIC.	Neutral	12	44.4	3.78	.80
	Agree	9	33.3		
	strongly Agree	6	22.2		
	Total	27	100.0		
The share of AI against other types of General Insurance products is low in EIC.	Neutral	3	11.1	4.67	.68
	Agree	3	11.1		
	strongly Agree	21	77.8		
	Total	27	100.0		
Overall growth of AI Business/Covers is not at the desired level in EIC.	Neutral	9	33.3	3.89	.75
	Agree	12	44.4		
	strongly Agree	6	22.2		
	Total	27	100.0		
EIC's Management Staff have not such strong Strategies (check, Balance & Control) its outline Branch& District's to include AI business portfolios as others General Insurances Business	Neutral	12	44.4	4.00	.96
	Agree	3	11.1		
	strongly Agree	12	44.4		
	Total	27	100.0		

trend in their Yearly Business Budget Plan.					
EIC's Marketing staff & Sales agent does not interested in doing AI (CAI& Micro-Insurance) Covers as others General Insurance Business portfolios.	Neutral	6	22.2	4.11	.75
	Agree	12	44.4		
	strongly Agree	9	33.3		
	Total	27	100.0		
Overall growth of AI Business/Covers is not at the desired level in Ethiopia.	Neutral	6	22.2	4.11	.75
	Agree	12	44.4		
	strongly Agree	9	33.3		
	Total	27	100.0		
AI covers are riskiest or have high loss ratio than General insurance Business in Ethiopia.	Neutral	3	11.1	4.33	.68
	Agree	12	44.4		
	strongly Agree	12	44.4		
	Total	27	100.0		

Table 4.17 showed that factors affecting the Growth of Agricultural Insurance (AI) Business/Covers. In this regards the first item was the annual gross premium collected by EIC from AI covers is low relative to other types of General insurance policies which is confirmed by The respondents are not quite sure that the gross premium collected from AI not showing the same improvement as others types of General Insurance policies in EIC which is confirmed by 12(44.4%). The share of AI against other types of General Insurance products is low in EIC which is reported by 21(77.8%) of the respondents. Overall growth of AI Business/Covers is not at the desired level in EIC which is confirmed by 12(44.4%) of the respondents. EIC's Management Staff have not such strong Strategies (check, Balance & Control) its outline Branch& District's to include AI business portfolios as others General Insurances Business trend in their Yearly Business Budget Plan which is confirmed by 15(45.5%) of the respondents. EIC's Marketing staff & Sales agent does not interested in doing AI (CAI& Micro-Insurance) Covers as others General Insurance Business portfolios which is confirmed by 12(44.4%) of the respondents. Overall growth of AI Business/Covers is not at the desired level in Ethiopia which is confirmed by 12(44.4%) of the respondents. AI covers are riskiest or have high loss ratio than General insurance Business in Ethiopia which is reported by 24(88.8%) of the respondents.

## 4.2 Inferential Statistics Analysis

### 4.2.1. Correlation Analysis

The study sought to establish the relationship between independent variables and dependent variables. Pearson Correlation analysis was used to achieve this end at 95% confidence level ( $\alpha = 0.05$ ). Correlation analysis is one of the most widely used in research, it is often used to determine a relationship between two different variables, if so, how significant or how strong is the association between variables. And also, a very useful means to summarize these relationships between the variables with a single number that falls between -1 and +1 Field (2005). A correlation analysis with Pearson's correlation coefficient ( $r$ ) was conducted on all variables in this study to explore the relationships between them. The correlation coefficient  $r$  is statistics used to measure the degree or strength of this type of relationship (Taylor, 1990).

To interpret the strengths of relationships between variables, the guidelines suggested by Taylor R, (1990), was followed. His classification of the correlation efficient ( $r$ ) is as follows:  $\leq 0.35$  is considered to represent low or weak correlation; 0.36 – 0.67 is modest or moderate correlation; 0.68-0.89 is strong or high correlation and a correlation with  $r$  coefficient  $\geq 0.90$  is very high correlation. Again, if the correlation result lies between -1 and 0, the two variables are negatively related. However, the result is interpreted and discussed using this criterion in each dimension. The result presented as follows,

**Table 4.16: Correlations Analysis**

Correlations Analysis		Growth of AIs Business	PDASC	PDB	A	S	FC	T
<b>Growth of AI Business</b>	<i>Pearson Correlation</i>	1						
	<i>Sig. (2-tailed)</i>							
	<i>N</i>	110						
<b>PDASC</b>	<i>Pearson Correlation</i>	-.551**	1					
	<i>Sig. (2-tailed)</i>	.000						
	<i>N</i>	110	110					
<b>PDB</b>	<i>Pearson Correlation</i>	.029	.291**	1				
	<i>Sig. (2-tailed)</i>	.760	.002					
	<i>N</i>	110	110	110				
<b>A</b>	<i>Pearson Correlation</i>	.957**	-.674**	-.188*	1			
	<i>Sig. (2-tailed)</i>	.000	.000	.050				
	<i>N</i>	110	110	110	110			
<b>S</b>	<i>Pearson Correlation</i>	.988**	-.609**	-.092	.984**	1		
	<i>Sig. (2-tailed)</i>	.000	.000	.340	.000			
	<i>N</i>	110	110	110	110	110		
<b>FC</b>	<i>Pearson Correlation</i>	.735**	-.591**	.394**	.618**	.679**	1	
	<i>Sig. (2-tailed)</i>	.000	.000	.000	.000	.000		
	<i>N</i>	110	110	110	110	110	110	
<b>T</b>	<i>Pearson Correlation</i>	.962**	-.613**	.002	.927**	.944**	.727**	1
	<i>Sig. (2-tailed)</i>	.000	.000	.986	.000	.000	.000	
	<i>N</i>	110	110	110	110	110	110	110
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

The results of the correlation analysis on Table 4.18, shows the growth of agriculture insurance business/cover is negatively related with the first variable of product design alternative and scope of covers (PDASC), this results with a Pearson's correlation coefficient of  $r = -0.551$  at moderate or modest level of correlation(relationship) and that at a level of significance of 0.000, it is statistically significant at p value less than 0.05.

The second variable procedure, delayance and bureaucracies (PDB), This results also show that there is a positive correlation between agriculture insurance business/cover and procedure, delayance and bureaucracies with a Pearson's correlation coefficient of  $r = 0.029$  low level of correlation and a level of significance of 0.760 (statistically not significant).

The third variable of awareness(A), These results show that there is a positive correlation between agriculture insurance business/cover and awareness with a Pearson's correlation coefficient of  $r = 0.957$  at very high level of correlation and a level of significance of 0.000 (statistically significant).

The fourth Variable of subsidy(S), The results show that there is a positive correlation between agriculture insurance business/cover and subsidy with a Pearson's correlation coefficient of  $r = 0.988$  at very high correlation and a level of significance of 0.000 (statistically significant).

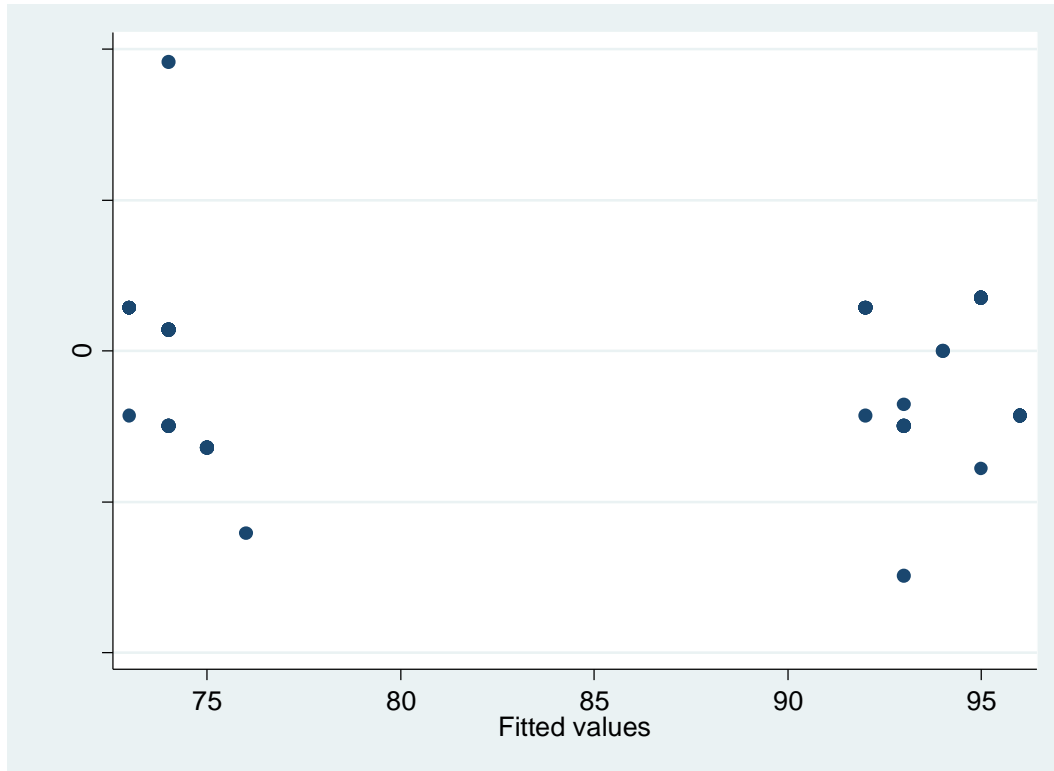
Th fifth Variable of Finical Capacity (FC), The results show that there is a positive correlation between agriculture insurance business/cover and financial capacity with a Pearson's correlation coefficient of  $r = 0.735$  at strong or high correlation and a level of significance of 0.000 (statistically significant).

Th last variable of Trust(T), The results show that there is a positive correlation between agriculture insurance business/cover and trust with a Pearson's correlation coefficient of  $r = 0.962$  at very high correlation and a level of significance of 0.000 (statistically significant).

Therefore, the significance values tell us that the probability of the correlation being a fluke is very low; hence the study can have confidence that the relationship between the variables is genuine.

### 4.2.2 Heteroscedastic Test

Heteroskedasticity (or heteroscedasticity) happens when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. With heteroskedasticity, the tell-tale sign upon visual inspection of the residual errors is that they will tend to fan out over time, as depicted in the image below.



**Figure 4.2** Heteroscedastic Test

This scatter plot used to test Heteroskedasticity Interpret the plot to determine if the plot is a good fit for logistic model. It is located the residual = 0 line in the residual plot. The residuals are the y values in residual plots. The residual =0 line coincides with the x-axis. In this residual plot, the points are scattered randomly around the residual=0 line. It is possible to conclude that a Logistic model is appropriate for modeling this data.



### 4.2.3 Ordered Logistic Regression Analysis

The study sought to establish how factors affecting AI growth influence on AI business /cover using multiple linear regression analysis. The dimensions were: product design alternatives, and scope of cover, procedures, delayance and bureaucracies, awareness, subsidy, financial capacity and trust. The regression model was:

$$\log \frac{p(X)}{1-p(x)} = \alpha + \beta_1 PDASC + \beta_2 PDB + \beta_3 A + \beta_4 S + \beta_5 FC + \beta_6 T + ei$$

Whereby  $\alpha$  is growth of AI Business/cover,  $\beta_0$  is regression constant,  $\beta_1 - \beta_6$  regression coefficients,  $X_1$  is product design alternatives, and scope of cove,  $X_2$  procedures, delayance and bureaucracies,  $X_3$  is awareness,  $X_4$  is subsidy  $X_5$  financial capacity,  $X_6$  trust and  $\epsilon$  model's error term.

### Ordered Regression Analysis

. use "C:\Users\Hp\Desktop\Untitled2.dta", clear

```
. use "C:\Users\Hp\Desktop\Untitled2.dta", clear
. ologit growthofAIbusiness PDASC PDB A S FC T
```

```
Iteration 0: log likelihood = -213.57956
Iteration 1: log likelihood = -113.5826
Iteration 2: log likelihood = -60.034447
Iteration 3: log likelihood = -38.486673
Iteration 4: log likelihood = -34.473814
Iteration 5: log likelihood = -23.791713
Iteration 6: log likelihood = -23.554379
Iteration 7: log likelihood = -16.760089
Iteration 8: log likelihood = -16.22992
Iteration 9: log likelihood = -5.6344215
Iteration 10: log likelihood = -.00076355
Iteration 11: log likelihood = -1.068e-07
Iteration 12: log likelihood = -1.637e-08
```

```
Ordered logistic regression      Number of obs   =      110
                                LR chi2(6)      =     427.16
                                Prob > chi2        =     0.0000
                                Pseudo R2         =     1.0000

Log likelihood = -1.637e-08
```

growthofAI~s	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
PDASC	46.08781	22123.51	0.00	0.998	-43315.2 43407.37
PDB	45.02825	18648.05	0.00	0.998	-36504.49 36594.54
A	45.5281	19432.43	0.00	0.998	-38041.33 38132.39
S	45.29537	34403.78	0.00	0.999	-67384.87 67475.46
FC	45.32948	24052.43	0.00	0.998	-47096.56 47187.22
T	47.53802	30900.2	0.00	0.999	-60515.74 60610.82
/cut1	3370.699	1447585			-2833843 2840584
/cut2	3418.179	1465248			-2868415 2875252
/cut3	3463.862	1480282			-2897835 2904763
/cut4	4186.955	1823061			-3568948 3577322
/cut5	4239.811	1831265			-3584974 3593454
/cut6	4284.328	1836423			-3595039 3603608
/cut7	4328.976	1866828			-3654586 3663244
/cut8	4376.883	1884185			-3688559 3697312

Note: 110 observations completely determined. Standard errors questionable.

The equation showed here under,

$$Z = 46.08781 * PDASC + 45.02825 * PDB + 45.5281 * A + 45.32948 * S + 45.32948 * FC + 47.53802 * T$$

The output above first can be seen that iteration log. At iteration of fits a null model, i.e. the intercept only model. It then moves on to fit full model and stops iteration process once the difference in log likelihood between successive iterations becomes sufficiently small. The final log likelihood (-1.637e-.08) is displayed again. It can be used in comparison of nested models. Also at the top of the output can be seen that all 110 observations in the data set were used in the analyzed. The likelihood ratio chi-square of 427.16 with 0.000 tell us that our model as a whole is statistically significant as compared to the null model with no predictors. The pseudo- R – squared of 1.0000 is also given.

In the table that can be seen is the coefficients their standard errors-tests and their associated p-value and the 95% confidence interval of the coefficients. All are not statistically significant. that means the variables need further examination in difference. For PDASC we would say that for a unit increase in PDSC we expect 46.08781 increase in log odd of being in higher level of growth Agricultural insurance business given all of the other variables in the model are held constant. For a one unit increases in PDB we would expect a 45.02825 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in PDB we would expect a 45.02825 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in A we would expect a 45.5281 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in S we would expect a 45.29537 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in FC we would expect a 45.32948 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in T we would expect a 47.53802 increase in the log odds of being in a higher level of

growth of agricultural insurance business given that all of the other variables in the model are held constant.

### **4.3 Discussions**

The Main issues that must be discussed here should be the overall fitness of the model; this fact has been confirmed by different types of statistical results.

Th the result of ordered logistic regression analysis can be seen that iletration log. At iletration of fits a null model, i.e. the intercept only model. It then moves on to fit full model and stops iteration process once the difference in log likelihood between successive iterations becomes sufficiently small. The final log likelihood (-1.637e-.08) is displayed again. It can be used in comparison of nested models. Also at the top of the output can be seen that all 110 observations in the data set were used in the analyzed. The likelihood ratio chi-square of 427.16 with 0.000 tell us that our model as a whole is statistically significant as compared to the null model with no predictors. The pseudo- R – squared of 1.0000 is also given.

In the result can be seen is the coefficients their standard errors-tests and their associated p-value and the 95% confidence interval of the coefficients. All are not statistically significant. that means the variables need further examination in difference. For PDASC we would say that for a unit increase in PDSC we expect 46.08781 increase in log odd of being in higher level of growth Agricultural insurance business given all of the other variables in the model are held constant. For a one unit increases in PDB we would expect a 45.02825 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in PDB we would expect a 45.02825 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in A we would expect a 45.5281 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in S we would expect a 45.29537 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant. For a one unit increases in FC we would expect a 45.32948 increase in the log odds of being in a higher level of growth of agricultural insurance

business given that all of the other variables in the model are held constant. For a one unit increase in T we would expect a 47.53802 increase in the log odds of being in a higher level of growth of agricultural insurance business given that all of the other variables in the model are held constant.

In General, the ordered logistic regression analysis model developed under this study can be considered as a good fit or predictor of growth of Agricultural Insurances of EIC.

In addition to this, the individual effects of the independent variables can be explained by their respective beta coefficients. As per the Correlation analysis result table 4.8 above, it can be said that Subsidy(S) influences the growth of AI business at the most level (Pearson's correlation coefficient of  $r = 0.988$ ), in which this finding nearly approaches to the study of Geoffroy, Fabian & Felice in 2012 and Timothy & Richards in 2000, also stated that an increase in premium rate would have a negative impact on the consumption. And insurance companies should charge a competitive price or premium.

Then, followed by Trust(T) (Pearson's correlation coefficient of  $r = 0.962$ ), the third most level is Awareness(A) (Pearson's correlation coefficient of  $r = 0.957$ ). This shows, Awareness regression verifies with the views of G/Georgakoudis, (2014), Geoffroy, Fabian & Felice (2012), Timothy & Richards (2000) and Ebitu, Ibok, Mbum (2012) who found in their respective studies that increasing the level of awareness would have a positive impact on consumption or growth of Sales performances of AI products or Crop Insurance business policy.

Finally, the fourth most important level of factor is Financial Capacity (FC) (Pearson's correlation coefficient of  $r = 0.735$ ). These findings are in line with the findings by Ginder and Aslihan (2006) who found that the price of the insurance is the most influential factor determining the farmers decision to have insurance or not and what type of insurance product that is chosen. and a study done by Adinolfi et al. (2012) on evaluation of crop insurance in France and Italy, and showed that business related factors such as farm size, the number of crops grown and the premium levels influence the farmers' insurance decisions.

## CHAPTER FIVE

### 5. CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Conclusions

The general purpose of this study was to analyze of factor affecting the growth of Agricultural Insurances in Ethiopia in the case of Ethiopian Insurance Corporation (EIC). The study attempted to answer the following research questions:

- What is the current status of AI Growth & coverage in Ethiopia?
- What are the major factors affecting the growth of AI business in the case of EIC?
- What are the effect and relationship of the identified affecting factors for the growth of AI Business in the Case of EIC?

Based on this the finding of the study summarized as follows. The economic background of Commercial & Small holder farmers; Regarding size of the land, only 6% of the respondents fall with holding of more than 750 hectares of land for their crop farm. The biggest share with 34% goes under the category of land holdings between 101 to 250 hectares. 25% of the farmers only holds a size of land below 100 hectares. From these figures, one can say the commercial farmers are yet to develop and involve themselves in to highly mechanize large farms.

The approximate capital investment shows the same fact to that of size of land holdings, most of the farmers are still small in size with 32% of them fall under the category of investment between Birr 3 to 6 million and 21% of them only invested below Birr 1 to 3 million ETB. From the data that shows about last year's crop insurance coverage, the figures depicted the fact that crop insurance coverage is low, almost only 38% of them were insured last year, meaning the other 62% of the commercial & Small holder farmers were not insured in area which took questioners survey. Out of the total average revenue collected by the Farmers which amounted about Birr 613 million, the insured value was only amounted to about Birr 233 million which is low.

The production yield in quintal is also low, 45% even below one thousand & almost 34% of the farmers harvested quintals that amounted between 1,000 to 6,000. And only 3% of them collected more than 18 thousand of quintals, which is very low percentages. These facts can be

attributed to the problems of the statement (paragraph 5) mentioned on the first chapter of the study, fear of risks.

The profit level of the farmers was also low. 42% of them only get a profit below Birr one million, 24% between 1 to 3 million, 18% between 3 to 6 million, 12% accounts for a profit between 6 to 9 million and the rest 4.5% got a profit of more than Birr 9 million.

Regarding to Status of Agricultural Insurance overages in Ethiopia the following findings are identified. Among 18 Insurers, currently two Insurers (Nyala and EIC) offer commercial agricultural Insurances for Livestock, Crop, Coffee, Horticulture and Poultry projects. The Major Customers are large scale commercial farms engaged in the production and export of high value crops such as Coffee, Sesame, Soya bean and that financed by DBE, CBE and other private banks based on NBE loan statute & regulations. The Premium generated from commercial agricultural insurances are very low with fluctuating trend over the last five years. In general, The Premium generated from crop insurance is dominant taking 76% of the total and in terms of market share EIC took 80% while Nyala shares 20% Which, EIC's dominance might be affiliation with DBE as State owned entities working together. In addition, Agricultural insurance is risky business involving systemic risk that affect large area & population simultaneously. This fact is substantiated by loss incurred over the last five years that Aggregate loss ratio appears to be 108%.

Regarding to product design alternatives & Scope of Covers (PDASC) the finding of the study summarized as follows. In this regards, 82(74.5%) of the respondents were agreed to EIC's doesn't have enough product alternatives while 28(25.5%) of the respondents were disagreed that EIC's doesn't have enough product alternatives. This implies that EIC's doesn't have enough product alternatives. Moreover, 55(50%) of the respondents have neutral response that EIC's doesn't design the product /customizations based on customers request or market need whereas 28(25.5%) of the respondents replied that strongly disagreed. This implies that respondents were not quite sure that EIC's doesn't design the product /customizations based on customers request or market need or not. Moreover, 55(50.0%) of respondents said agreed that EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited whereas 28(25.5%) of the respondents were neutral. From the above information it is possible to conclude that EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited.

Regarding to Procedures, Delayance and Bureaucracies. The distribution of respondents on Procedures, delayance and bureaucracies. In this regard, 55(50%) of the respondents confirmed that EIC's has rigid with the policy procedures, terms and conditions and 83(75.5%) of the respondents confirmed that EIC's delayance in underwriting issues & Claim settlement services are keeping me from buying the AI policies. Moreover, 56(50.9%) of the respondents said that EIC's does not execute estimated loss adjusted value & follow good parameter when their customers faced damages on their Firm on time. Finally, 83(75.5%) of the respondents confirmed that EIC's does replies for customer's criticisms which happened during claim is materialized.

Regarding to Awareness, 29(26.4%) of the respondents don't know enough about AI policy covers (CAI& Micro-Insurances) whereas 27(24.5%) of the respondents do don't know enough about AI policy covers (CAI& Micro-Insurances). From the above information it is possible to conclude that there is no enough awareness about AI policy covers (CAI& Micro-Insurances). Moreover, 28(25.5%) of the respondents don't know the benefits and importance of AI Business (CAI& Micro-Insurance covers) and 83(75.5%) of the respondents never heard of the EIC advertising on AI business/covers. Finally, 56(50.9%) of the respondents have poor knowledge and awareness about AI covers is keeping me from buying the Business policy.

Regarding to subsidy 53(48.2%) of the respondents said that EIC's doesn't offer incentive & push to Concerned Government bodies for subsidies to Smallholders to buy Micro-insurance products like AYII, VII, WII& Livestock-Mortality II. In addition to this, 55(50.0%) of the respondents said that EIC's have no room for premium rate discount for its AI business/covers when compared to other private Insurance companies. Finally, 55(50.0%) of the respondents said that EIC's as Government insurance Institutions doesn't allow subsidy for smallholder Famers in order to support &involve Fair-Social responsibility in its side.

Regarding to Financial capacity is the factor affecting agricultural insurance growth to EIC's. In this regards, 82(74.5%) of the respondents said that EIC's premium rate allocation for AI product is expensive to the Farmers and EIC's doesn't have credit facilities available for its customers to Buy AI Business/covers to the Farmers. Finally, 55(50.0%) of the respondents said they will buy if EIC decreases the premium discharge rate for AI product covers

Regarding to Trust was the last factor affecting the growth of agricultural insurances which was designed by respondents. In this regards, 83(75.5%) of the respondents said that EIC's staffs doesn't inform us what we need to know about the terms and conditions of the policy during buying AI covers/underwriting period and 72(65.5%) of the respondents said that AI Business policy text/clause is not with common local languages clearly, it is with foreign language (English) so that difficult to understand duties & responsibilities of both Insured and Insurer sides too. Moreover, 55(50.0%) of the respondents said that EIC's doesn't have well transparent & proofed Claim calculations & field Assessment activities which done by Surveyor. And 110(100%) of the respondents said that EIC's staffs doesn't willing to assist the formal manner& solve confusion in need of customers regarding information to underwriting issues & Claim settlement services.

## **5.2. Recommendations**

Based on the finding of the study the researcher recommends that:

- ❖ Ethiopia Insurance Corporation (EIC) should promote customization or design through its Department of Product Development, new product design alternatives, and scope of covers for the growth of AIs especially on Commercial Agricultural Insurance (CAI) Business products.
- ❖ EIC should Scale-up, make modernize or make technology-oriented techniques to alleviate the problems of Procedures, Delayance & Bureaucracies that had been seen in their delivery channels for the growth of AIs especially on the CAI Business products.
- ❖ EIC should create Awareness by using different Marketing and Promotional strategies for the growth of both Agricultural Insurances, CAI and Micro-Insurance Product covers.
- ❖ EIC as the only Government Insurance Institutions; it should be developing attractive-marketing strategies of Subsidy to smallholder Farmers in order to support & involve Fair-Social responsibility in its side, for the growth of Agricultural Insurances (AIs) especially on premium rates of Micro-Insurance Products.
- ❖ EIC should works on Trust developments that are on the respect of customer's time, AI Business policy clauses should be written clearly and well transparent and proofed Claim calculations and field Assessment activities which done by Surveyor and, to the growth of AI especially on CAI products.



- ❖ EIC should work on the financial capacity of Farmers (Smallholders & Commercial Farmers) in order to pay premiums in getting AI product covers for their Farm sites through incentive mechanisms of, the availability to Credit facilities for its customers and decreases the premium discharge rate which existed by now for the growth of AI product covers.

## References

- Adinolfi E, Raffaghello L, Giuliani AL, Cavazzini L, Capece M. (2012) *Expression of P2X7 Receptor Increases in Growth*.
- Adinolfi, Felice (2012). *Direct payments, crop insurance and the volatility of farm income*.
- Andersson, J. F. (2005). Risk and Insurance. *Education and Examination of the Society Actuaries*. Retrieved from www.soa.org: <http://www.soa.org/files/pdf/P-21-05.pdf>
- Berg, B. (2001). *Qualitative Research Methods for The Social Science*. London: Allyn and Bacon.
- Berg, B. L. & Lune, H., (2016). *Qualitative research methods for the social sciences*. Pearson Higher Ed.
- Biniam G. (2017), *Teaching material*. @Bonga University, Department of Management Ethiopia.
- Biniam Shiferaw. (2015). Factor affecting Sales performance of Crop Insurance at Ethiopian Challenges. Addis Ababa: Master Printing Press PLC.
- Dercon, S., & Christiaensen, L. (2010). Consumption risk, technology adoption and poverty traps: evidence from Ethiopia. *Journal of Development Economics*, 96(2), 159-173.
- Cochran, W. G. (1963). *Sampling Techniques*. (2nd, Editor) Retrieved April 24, 2015, from <http://edis.ifas.ufl.edu/pdf/files/pd/pd00600.pdf>
- Dickson W. M. G, S. (1999). *Risk and Insurance*; Study course 510 London. London: CII
- Durbin, J. and Watson, G.S. (1951) *Testing for Serial Correlation in Least Squares Regression*. II. *Biometrika*, 38, 159-177.
- EEA. (2022). *Land, Agriculture, and Finance in the Ethiopian Economy*. November, 2022. A.A
- EIC. (2016). *Annual Comparative Performance Report of 2015/16 Budget Year*. Addis Ababa: EIC
- EIC. (2022). *Annual Comparative Performance Report of 2021/22 Budget Year*. Addis Ababa: EIC
- EIC. (2023). *Re-insurance team Report of 2022/23*. Addis Ababa: EIC, Head office
- EIC. (n.d.). www.eic.net.et. Retrieved December 15, 2022, from <http://www.eic.net.et>

- Ebitu, E. T, Ibok. N. I, and Mbum. P. A. (2012). Factors affecting Insurance Consumption in Akwa Ibom State, Nigeria. *Journal of Research in International Business and Management*. Vol 2 (12), pp 323- 328. Enjolras, Geoffroy & Capitano, Fabian & Aubert, Magali & \
- FAO, (2002). *The Role of Agriculture in the Development of Least-Developed countries and Their Integration into the World Economy*. Commodities and Trade Division Food and Agriculture Organization of the United Nations. Rome.
- FAO. 2021. The State of Food and Agriculture 2021. Making agrifood systems more resilient to shocks and stresses. Rome, FAO. <https://doi.org/10.4060/cb4476en>
- G Georgakoudis,( 2014) *International Conference on Embedded Computer Systems: Architectures ...*, 2014.
- G/Giorgis, A. (2014). *Assessing Factors Contribute to the Declining Rate of Life Insurance in Ethiopian Insurance Corporation*. Master's thesis. Addis Ababa, Ethiopia: St. Marry University School of Graduate Studies.
- Gebissa Yigezu Wendimu (2021). The challenges and prospects of Ethiopian agriculture, *Cogent Food Agriculture*, 7:1: <https://doi.org/10.1080/23311932.2021.1923619>
- Geoffroy, E., Fabian, C., & Felice, A. (2012). *The demand for crop insurance: Combined approaches for France & Italy*. *AGRICULTURAL ECONOMIC REVIEW*, 13(1), 5-22.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. The
- Hailu, Z. (2007). *Insurance in Ethiopia Historical Development, Present status and Future* Higher Ed Hill/Irwin.
- Idris Elnoman Elawad, (2019). *Evaluation of The Impact of Eco-Farm Project on Agricultural Productivity and Food Security in Kordofan, Sudan*. Master's Thesis. Norwegian university of Life sciences.
- Mark, S., Philip, L., & Adrian, T. (2009). *Research Methods for Business Students*. (5th, Ed.)
- Matthew G. Ginder and Aslihan (2006) *Factors Affecting Crop Insurance Purchase Decisions in Northern Illinois* No 21073, 2006 Annual meeting, July 23-26, Long Beach, CA from American Agricultural Economics Association (New Name 2008: Agricultural and Applied Economics Association)
- NBE, (2021). *Annual report of 2020/2021 budget year*. Addis abeba, Ethiopia.

- NBE. (2016). *Birritu (129 ed.)*. Addis Ababa.
- Ngechu M. (2004): *Understanding the Research Process and Methods: An introduction to Research Methods*, Nairobi.
- Nkrumah-Arkoh, S. K. (2012). *A Study of Customer Satisfaction with Service Delivery in the Motor Insurance Industry*. Master's thesis. Ghana: Lulea University of Technology.
- Richards, Timothy J., (2000). "A Two-Stage Model of The Demand for Specialty Crop Insurance," *Journal of Agricultural and Resource Economics, Western Agricultural Association*
- Robson, C. (2002). *Real World Research: A Resource for Social Scientists and Rotolito Lombarda*, Italy
- Sabiyam, M. (2005). *The impact of Insurance on Transport Business in Ghana: A case Study in School of Graduate Studies*.
- Shaik S, Coble K H, and Knight T O. 2005. *Revenue crop insurance demand. In selected paper Society of Actuaries. Sunyani Municipality*. Unpublished thesis, 1-2. Sunyani, Ghana: Sunyani polytechnic. their Integration in to the world economy.
- Timothy, J., & Richards, S. (2000). A Two-Stage Model of the Demand for Specialty Crop Insurance. *Journal of Agricultural Economics and Development*, 25(1), 177-194.
- Websites:<https://www.insurancecareers.co.uk/finding-the-right-job/how-to-develop-commercialawareness/#:~:text=Commercial%20awareness%20refers%20to%20your,it%20is%20the%20insurance%20industry>.

## APPENDICES

### Appendices A

#### 4.1.2. Socio-Demographic Characteristics of Respondents

The first part of External respondents,

Table 4.17 Depicted That Social Demographic Information of Commercial & Smallholder Farmers

<b>Age</b>		
<b>Age in Years</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>30-35</b>	26	23.63
<b>36-40</b>	43	37.27
<b>Above 41</b>	41	37.27
<b>Total:</b>	110	
<b>Experiences</b>		
<b>Experiences in Years</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>Below 5</b>	18	16.36
<b>5-10</b>	20	18.18
<b>11-15</b>	38	34.54
<b>Above 15</b>	34	30.91
<b>Total:</b>	110	
<b>Educations</b>		
<b>Educational stages</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
<b>Literate (Read &amp; Write only)</b>	21	19.09
<b>Attended primary school</b>	30	27.27
<b>Attended high school</b>	27	24.54
<b>Diploma</b>	18	16.36
<b>1<sup>st</sup> degree</b>	14	12.72
<b>Total:</b>	110	

Source; own survey (202

**Table 4.18 Showed that economic background of Commercial & Small holder farmers.**

<b>Size of Land</b>		
<b>Size in hectares</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 5	14	12.73
6-100	28	25.45
101-250	37	33.64
151-500	13	11.82
501-750	11	10
Above 750	7	6.36
<b>Total:</b>	<b>110</b>	
<b>Approximate Capital Invested</b>		
<b>Capital in ETB</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 250,000.00	14	12.73
251,000-1,000,000.00	25	22.73
1,000,001.00-3,000,000.00	23	20.91
3,000,001.00-6,000,000.00	35	31.82
6,000,001.00-9,000,000.00	8	7.27
9,000,001.00-12,000,000.00	5	4.55
Above 12,000,001.00	0	0
<b>Total:</b>	<b>110</b>	
<b>Insurance Coverage Value/Sum-Insured Value Last Year</b>		
<b>Sum-Insured Value in Birr</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 500,000.00	2	1.82
501,000.00- 1,000,000.00	3	2.73
1,000,001.00-2,000,000.00	2	1.82
2,000,001.00-4,000,000.00	4	3.64
4,000,001.00-6,000,000.00	9	8.18
6,000,001.00-8,000,000.00	11	10.00
8,000,001.00-10,000,000.00	8	7.27
Above 10,000,000.00	3	2.73
<b>Sub-Total:</b>	<b>42</b>	<b>38.19</b>
<b>No-Insurance Covers:</b>	<b>68</b>	<b>61.81</b>
<b>Total:</b>	<b>110</b>	
<b>Last Year's Yield</b>		
<b>Yield in Quintals</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 500.00	21	19.09
501-1,000.00	29	26.36
1,001.00-6,000.00	37	33.64
6,001.00-12,000.00	13	11.81
12,001.00-18,000.00	10	9.09
18,001-24,000.00	3	2.72
Above 24,000.00	0	0
<b>Total:</b>	<b>110</b>	

<b>Last Year's Total Revenue</b>		
<b>Revenue in ETB</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 500,000.00	2	1.82
501,000.00-1,000,000.00	21	19.09
1,000,000.00-5,000,000.00	38	34.54
5,000,001.00-10,000,000.00	29	26.36
10,000,001.00-15,000,000.00	17	15.45
15,000,001.00-20,000,000.00	3	2.73
Above 20,000,001.00	0	0
<b>Total:</b>	<b>110</b>	
<b>Last Year's Profit</b>		
<b>Profit in ETB</b>	<b>Results</b>	
	<b>Frequency</b>	<b>Percent (%)</b>
Below 1,000,000.00	46	41.82
1,000,000.00-3,000,000.00	26	23.64
3,000,001.00-6,000,000.00	20	18.18
6,000,001.00-9,000,000.00	13	11.82
9,000,001.00-12,000,000.00	4	3.63
Above 12,000,000.00	1	0.90
<b>Total:</b>	<b>110</b>	

Source; own survey (2023)

## Appendices B



### School of Graduate Studies

### Post Graduate Program in Development Economics

**Dear Respondents,**

This questionnaire is designed to collect data about **the Analysis of factor affecting the growth of Agricultural Insurance (AI) in Ethiopia: the case of Ethiopian Insurance Corporation (EIC)**, here in after called EIC. The information that you offer me with these questionnaires (i.e., to Operational Directors and Farmers (Commercial & Smallholders)) are used as a primary data in my study which I am conducting as a partial fulfillment of the requirements for the degree of Master of Development Economics at St. Marry University. This research is to be evaluated in terms of its contribution to the understanding of factors affecting the growth of AI in Ethiopia: in case of EIC and has paramount importance for improvements in the sector.

Therefore, I kindly and earnestly request you to respond for all questions contained in this questionnaire by giving your honest answers. I want to assure you that this research is only for academic purpose authorized by the St. Marry University. No other person could access the collected data. Your response is handled confidentially and interpreted impartially.

In the end, I would like to express my deep appreciation for your generous time and prompt responses.

**Thank you!**

*General Instructions: -*

*No need of writing your name.*

*In all cases where answer options are available, please tick (✓) in the appropriate box.*



**Interview Questions for EIC’s Operational Directors and Agricultural Insurance Surveyors (AIS)**

1. List the first five qualities that come into your mind when you think of qualities an Insurer shall possess to sell its insurance policies widely in general?

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2. Does EIC possess those qualities?

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3. Where do you categorize EIC’s growth of AI Business /Covers, (poor, ok, or great)? Why?

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4. What are the factors affecting that contribute to the growth of AI Business/covers of EIC?

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5. Do you think EIC fulfill the AI Business/Cover customer’s expectation and needs?

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6. Anything more you want to discuss regarding factors affecting the growth of AI Business /Covers?

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**Questionnaire to be filled by EIC’s Operational Directors and Agricultural Insurance Surveyors (AIS)**

**PART I: Demographic Information**

1. Age: 24-29  30-35  36-40  Above 40

2. Experience in years: Below 5  5-10  11-15  Above 15

3. Education level: Certificate  Diploma  Degree Master’s   
Degree  Above master’s degree

**PART II: Please state your level of agreement or disagreement for each given statement using the following scales:**

1 = strongly disagree      2 = disagree      3 = Neutral      4 = Agree      5 = strongly agree

S/no.	Factors affecting the Growth of Agricultural Insurance (AI) Business covers	Levels of agreement				
		1	2	3	4	5
1.	The annual gross premium collected by EIC from AI covers is low relative to other types of General insurance policies.					
2.	The gross premium collected from AI not showing the same improvement as others types of General Insurance policies in EIC.					
3.	The share of AI against other types of General Insurance products is low in EIC.					
4.	Overall growth of AI Business/Covers is not at the desired level in EIC.					
5.	EIC’s Management Staff have not such strong					

	Strategies (check, Balance & Control) its outline Branch& District's to include AI business portfolios as others General Insurances Business trend in their Yearly Business Budget Plan.					
6.	EIC's Marketing staff & Sales agent does not interested in doing AI (CAI& Micro-Insurance) Covers as others General Insurance Business portfolios.					
7	Overall growth of AI Business/Covers is not at the desired level in Ethiopia.					
8	AI covers are riskiest or have high loss ratio than General insurance Business in Ethiopia.					

*Thank you very much for your keen collaborations to fill the questioners!!*

## Appendices C

### Questionnaires to be filled by Farmers (Commercial & Small holders)

**Note that:** Two Parts (Part I & II) of Questioners are there her under!

#### PART I: Demographic Information

1. Age: 18-23  24-29  30-35  36-40  Above 40
2. Experience in Farming in years: Below 5  5-10  11-15  Above 15
3. Education level: Illiterate Literate (read & write only)  Attended primary   
Attended High School  Certificate Diploma
4. Owners of the Farm in terms of sex? Male  Female
5. Family size? I have  Male and  Female
6. Are you have Insurance Cover for your Farm? NO  Yes

**If yes!** What type of Agricultural insurances do you covered for your Farm?

- 6.1 Micro-Insurances (AYII, WII, VII, Livestock-Mortality)
- 6.2 Commercial Agricultural Insuarnces(CAI)(Crop,Livestock,Cofee,GH Insuarnce Policies)

6.3 **If No!** what is your possible reason for not using insurance cover for your Farm?

- 6.3.1. Scope of Cover /limited perils
- 6.3.3 No incentive subsidy
- 6.3.4 Poor financial capacity to pay premium
- 6.3.5 Poor trust of EIC
- 6.3.6 Accessibility and prompt service
- 6.3.7 All the Above

7. Size of land covered with crop last year or season (in square meter or hectares)?

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8. Approximate amount of capital invested on crop production/Livestock project last year in Birr? (Questions for Commercial Famers)

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9. Sum-Insured amount of Agricultural Insurances Covered (Miro-Insurance/CAI) last year in Birr?

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10. Amount of last year's yield in quintals and/or profit from crop production project?

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11. Total revenue earned from crop products sold last year in Birr?

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12. Net profit earned from Crops sold last year in Birr?

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**PART II: Please state your level of agreement or disagreement for each given statement using the following scales:**

1 = strongly disagree      2 = disagree      3 = Neutral      4 = Agree      5 = strongly agree

S/no.	Factors affecting growth of AI Business/covers	Levels of Agreement				
		1	2	3	4	5
<b>1. Product design alternatives &amp; Scope of Covers (PDASC)</b>						
1.1	EIC's doesn't have enough product alternatives					
1.2	EIC's doesn't design the product /customizations based on customers request or market need					
1.3	EIC's Commercial AI policies in terms of Extendable/additional Peril covers are limited					
<b>2. Procedures, Delayance &amp; Bureaucracies (PDB)</b>						
2.1	EIC's is rigid with the policy procedures, terms and conditions					
2.2	EIC's delayance in underwriting issues & Claim settlement services are keeping me from buying the AI policies					
2.3	EIC's does not execute estimated loss adjusted value & follow good parameter when their customers faced damages on their Firm on time.					
2.4	EIC's doesn't replies for customer's criticisms which happened during claim is materialized.					
<b>3. Awareness (A)</b>						
3.1	I don't know enough about AI policy covers (CAI& Micro-Insurances)					
3.2	I don't know the benefits and importance of AI Business (CAI& Micro-Insurance covers)					

3.3	I never heard of the EIC advertising on AI business/covers					
3.4	My poor knowledge and awareness about AI covers is keeping me from buying the Business policy					
<b>4. Subsidy(S)</b>						
4.1	EIC's doesn't offer incentive & push to Concerned Government bodies for subsidies to Smallholders to buy Micro-insurance products like AYII, VII, WII& Livestock-Mortality II.					
4.2	EIC's have no room for premium rate discount for its AI business/covers when compared to other private Insurance companies					
4.3	EIC's as Government insurance Institutions doesn't allow subsidy for smallholder Famers in order to support &involve Fair-Social responsibility in its side					
<b>5. Financial Capacity (FC)</b>						
5.1	EIC's premium rate allocation for AI product is expensive to the Farmers					
5.2	EIC's doesn't have credit facilities available for its customers to Buy AI Business/covers to the Farmers					
5.3	I will buy if EIC decreases the premium discharge rate for AI product covers					
<b>6. Trust(T)</b>						
6.1	EIC's staffs doesn't inform us what we need to know about the terms and conditions of the policy during buying AI covers/underwriting period					
6.2	AI Business policy text/clause is not with common local languages clearly, it is with foreign language (English) so that difficult to understand duties & responsibilities of both Insured and Insurer sides too.					

6.3	EIC's doesn't have well transparent & proofed Claim calculations & field Assessment activities which done by Surveyor.					
6.4	EIC's staffs doesn't willing to assist the formal manner & solve confusion in need of customers regarding information to underwriting issues & Claim settlement services.					

*Thank you very much for your collaborations to fill the questioners!*