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Determinants of Activity Based Costing Effectiveness in Amhara Region Large Scale Farms

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**DETERMINANTS OF ACTIVITY BASED COSTING EFFECTIVENESS IN
AMHARA REGION LARGE SCALE FARMS**

Thesis

**Submitted in Partial Fulfillment of the Requirements for the Degree of Master
of Science in Accounting and Finance**

By

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January, 2018

Bahir Dar



The thesis entitled “Determinants of Activity based costing effectiveness in Amhara region Large scale farms “by Belaynesh Tesema is approved for the degree of “Master of Science in Accounting & finance.

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DECLARATION

I, Belaynesh Tesema, hereby declare that the project work entitled “Determinants of activity based costing effectiveness in Amhara region large scale farms.” submitted by me for the award of the degree of Master of Science in Accounting and Finance of Bahir Dar University, is original work and it hasn’t been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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Acronyms

- ✓ ABC Activity Based costing
- ✓ ABCE Activity based costing effectiveness
- ✓ AR Adequate Resource
- ✓ IT Information Technology
- ✓ OC Organizational Culture
- ✓ OS Organizational Structure
- ✓ SPSS Statistical Package for Social Science
- ✓ TMS Top Management Support

Abstract

The main purpose of this study is to investigate on the determinant factors of activity based costing effectiveness in the Amhara region large scale farms. That is to show the relationship if any between top management supports, adequate resource, organizational culture of firms, Organizational structure of firms with the activity based costing effectiveness in the Amhara region large scale farms. The study comprises 6 large scale agricultural farms in Amhara region. The management teams , the finance team and other workers which have relationship with the job of activity based cost allocation of those farms are the source for the required data. The study adopts quantitative research approach by employing survey research as a strategy of inquiry. Survey for the quantitative strategy was used through distributing self-administered questionnaires to main managers, pack-house managers, production managers, finance managers, accountants and data collectors of 6 different agricultural farms in Amhara region. The Multiple Regressions was used to analyze the data obtained via a structured questionnaire of a 5point Likert-scale. According to the regression output the result indicates that management support, the existence of adequate resource and structured organization have a significant contribution for the activity based costing effectiveness in the Amhara region large scale agricultural farms.

Keywords: *Cost allocation, Activity based costing effectiveness, Top management support, adequate resource, organizational culture, and organizational structure and Amhara region large scale agricultural farms.*

CHAPTER ONE

1. Introduction

This chapter introduces the research agenda of this study. It outlines the background of the study, statement of the problem, research objectives, and research hypothesis, significance of the study and scope & limitation the study.

1.1 Background of the study

The objective of any cost accounting system is to provide relevant and timely information to management for effective and efficient decision making. According to Adamu and Olotu (2010), this information supports better management of organizational resources in the production of products or provision of services, and improves competitiveness in terms of costs, quality and profitability. Also Ofurun and Ogbonna(2008) stated that managers in every field of human endeavor need information that is relevant, objective and timely for planning, decision making and controlling of business activities in order to achieve the goal of the organization.

Appah (2004) pointed that cost accounting information is designed to suit particular organization, product, process and personality for organizational decision making. However, the complex nature of business organizations in the 21st century has made traditional costing accounting system ineffective and inefficient. Drury (2004) suggested that over the years the increased opportunity cost information, and the decreased cost of operating more sophisticated cost systems, have increased the demand for more accurate product costs. Elhaman (2012) stated that activity based costing technique has been successfully developed to avoid the deficiencies of the traditional costing techniques of using direct labor to assign indirect cost. It is against this background that activity based costing (ABC) emerged. Therefore, Omoregie (2004) argued that ABC seeks both to allocate overheads to product costs on a more realistic basis other than production volume basis, as well as, showing the correlation between overhead costs and the activities that caused them.

ABC was promoted as a method for reducing the inaccuracies with traditional cost Accounting systems that arise from prevalent technology and competition (Dodd andLavelle, 2002). The perceived deficiency of traditional cost accounting method (absorption costing) is the use of a

single cost driver for assigning overhead costs of Products. As a result, this costing system fails to account for the changes occurring to Cost structures in the modern business environment, where direct labor is no longer accounting for the majority of a products cost (Khana, 2002). Khana (2002) argues that the primary defects of traditional costing systems are the inability to provide useful feedback or understand and allocate overhead costs. Doyle (2002) also argued that traditional systems have the potential inability to account for the size and diversity of products, as a larger or more complex item that may produce more revenue, may also consume a larger than presumed overhead.

Activity-based costing is a system that constitutes a reliable system of providing accurate cost information (Cooper & Kaplan 1989). It offers a solution to the short-comings of the traditional costing systems.

ABC was developed in 1988 by Kaplan and Cooper the professors from Harvard Business School. Their main aim was to provide an alternative approach for assigning overheads to products and computing product cost. ABC is a system that allocates resource costs to products based on the activities which are the factors causing work and incurring costs used by the products or customers (Turney 1996). Kaplan (1988) posits that product costs based on ABC system are claimed to have more accuracy than those of the traditional costing systems. Mishra and Vaysman (2001) confirmed that ABC has become the accepted remedy for the significant limitations of traditional costing systems.

Information derived from ABC empowers managers to make better decisions. Product costs reported by the ABC system are more accurate than those by the traditional costing systems in many situations including diversity of product size or volume. According to Morrow and Ashworth (1994), ABC helps management to have an understanding of the organization's activities, their costs and how they link together to form a chain of value-creating activities for an organization. Furthermore, ABC does not only provide a basis for calculating more accurate product costs but is also used as a mechanism for managing costs

Roya, Reza, Hossain and Maghsoud (2015) highlighted the following as the advantages of Activity base costing. ABC system is a very valuable tool of control. It offers a number of advantages to the management and the following are the main advantages:

- ✓ It brings accuracy and reliability of the costing data in determination of the cost of the products
- ✓ It facilitates cause and effect relationship to exercise effective cost control.
- ✓ It provides necessary cost information to the management to take decisions on any matter, relating to the business
- ✓ it is much helpful in fixing the cost and selling price of a product.
- ✓ It facilitates overhead costs allocated directly to the specific product.
- ✓ It focuses on managing activities rather than costs.
- ✓ It helps to remove all types of wastages and inefficiencies.
- ✓ It provides valuable information to evaluate on the relative efficiencies of various plants and machinery.
- ✓ Cost Driver Rates will help in significant impact on the development of new products or modification of existing products (Makepeace, 1997).

Thus, activity based costing in the agricultural sectors are expected to have great contribution to accurate costing data, provides necessary cost information, provides in fixing and selling price of the product and have other uses for decision making.

Large scale agricultural firms are exports which are competing to the world market to be profitable so to have accurate cost information make them to be competitive so by using activity based costing effectively which enables useful cost information for improvement and decision making contributes a lot to the achievement of organizational goals. Therefore, in view of realization of the significant value of effective activity based cost allocation, the proposed study is an attempt of examining factors which determine activity based costing effectiveness in the Amhara region large scale farms. Specifically, how top management support, adequate resource, organizational culture, and organizational structure of farms affect activity based costing effectiveness in the Amhara region large scale farms.

1.2 Historical Back ground of Agriculture in Ethiopia

Large scale agricultural farms that depend heavily on capital investments require rational allocation of the available resources and efficient utilization of the existing production

technology. The accurate and reliable computation of cost per unit of product is crucial for the evaluation of the economic performance of the enterprises and the investigation of the optimal allocation of the production factors in different activities. Activity-based costing (ABC) is a costing methodology that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each.

Agriculture in Ethiopia contributes significantly to the national income and employment for the country. The agriculture sector accounts for approximately 45 percent of Gross Domestic Product (GDP) and provides employment for 80 percent of the population. About 90% of export earnings are generated from agricultural products. The major agricultural commodities include coffee, hides and skins, oilseeds, pulses, live animals and flower. The crop production is estimated to contribute on an average 60 percent, livestock accounts for 27 percent and forestry and other sub-sectors account for 13 percent of the total agricultural value. The total land area under private peasant holdings is estimated to be about 16 million hectares and operated by more than 13 million agricultural households and about 14 million agricultural holders. The average holding sizes per household and holder are 1.18 and 1.15 hectares, respectively. On the other hand, the average cropland area is about 0.96 hectare per household and 0.93 hectare per holder. Regarding grain crops, from the cereal group, Teff (indigenous crop to Ethiopia only), maize, wheat, barley, sorghum and millet are dominant which cover about 80 percent of area under grain crops and from pulses, Faba beans, haricot beans, field peas, chick peas, lentils and vetch are widely grown, covering about 13 percent of the area under grain crops. From oilseeds, Niger seed, linseed sesame and rape seed cover the remaining 7 percent. To a lesser degree, vegetables, root crops and permanent crops are growing and contribute the nation's economy. Among this group, coffee, and chat (a stimulant plant) are the major contributors to the export economy.

Amhara region is one of the regions in Ethiopia which have large scale farms producing crops and flowers by using advanced machineries, production equipments and producing intensively for local and largely for export sales. Large scale farms in amhara region produce above 3500 tons per year and have income of above 8 million dollar per year.

1.3 Statement of the problem

In today's advanced competitive environment, accurate costing information is crucial for all kinds of businesses. Argued to be superior to the traditional volume-based costing system,

Activity-Based Costing system (ABC) has increasingly attracted the attention of practitioners and researchers alike as one of the strategic tools to aid managers for better decision making. Due to its ability in providing more accurate costing information and enhancing firms' performance, ABC is becoming more and more popular, aims to provide accurate costing information to managers to allocate activity costs to products and services by applying cost drivers (Zhang Yi Fei and CheRuhana Isa,2010). Academics who advocate ABC, such as, Cooper and Kaplan, and Swenson argue that it provides more accurate cost data needed to make appropriate strategic decisions about product mix, sourcing, pricing, process improvement, and evaluation of business process performance. These claims have led many firms to adopt ABC systems (Zhang Yi Fei and CheRuhana Isa,2010). Due to its ability in providing more accurate costing information and enhancing firms' performance.

There are still accounting researchers who suggest that accounting researchers should pay more attention to cost accounting systems in the agricultural sector (Athanasios, Stergios, &Laskaridou, 2010). Athanasios et al., (2010) stated that the agricultural sector almost neglected from accounting researchers and practitioners, because of the low level of managerial sophistication and lack of economic means in agriculture firms. Practicing cost accounting systems in the agricultural firms has several advantages. According to Luening (1989) and Allen (1994), (as cited in (Argilés &Slof, 2001), implementation of cost accounting systems in agricultural firms can improve farm management and lead to better farm performance.

Few studies are concerned with the study of factors that influence the practice of cost accounting systems in the agricultural firms including Juchau (1986) who mentioned to the significance of practicing cost accounting systems in the agricultural sector to rationalize managerial decision making processes, and assist firms to use the scarce resources in a proper way. Juchau (1986) argue that for a large farm that produces several products, the landlord needs to implement management accounting systems to improve his decision. Many accounting researchers in other sectors (manufacturing and service) ensured Juchau's opinion, such as Al-Omiri and Drury (2007). However, none of the researchers examined the influence of these factors on agricultural firms.

In recent years, many production units have improved their cost management by utilizing the ABC system, a tool for providing accurate and relevant cost information (Lee and Kao, 2001).

Activity-based costing (ABC) is a costing methodology that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each.

In terms of the success that can derive starting from the correct determination of cost and arriving at an effective support to management, several studies has shown its success in business practice and an increasing rate(Anna Maria Moisello,2012). On the other hand various empirical analyzes of the models implementation reveal a lower than expected success rate regarding its benefits, different opinions about its effectiveness and some studies on ABC refers that the number of organizations adopting is not growing and it stopped at a lower than expected level.

Most of the papers addressing managerial accounting issues refer to manufacturing companies costing, agriculture is not addressed (PiataRomana, Bucharest, Romania 2007). The importance of ABC in agricultural systems is justified in large modern production units of non- processed and processed products that have a significant share of indirect costs however its applications in primary sector are still very limited (Athanasios, Stergios, &Laskaridou, 2010)

Large scale agricultural enterprises that depend heavily on capital investments require rational allocation of the available resources and efficient utilization of the existing production technology. The accurate and reliable computation of cost per unit of product is crucial for the evaluation of the economic performance of the enterprises and the investigation of the optimal allocation of the production factors in different activities. So effectively applying Activity Based Costing methodology, which is of great importance in the system of cost accounting allows the allocation of indirect costs to specific activities and individual products.

I am working in one of the large scale farm in Amhara region so I know how ABC is challenging to our organization because it needs materials, it takes time ,it needs reconciliation works, in addition to accounting in needs advanced ms_excel knowledge, we are still striving to have accurate unit cost for each production type so we always search in what way all the overhead costs are allocated to unit cost system for generally our company needs to have effective cost allocation of production thus studying its effectiveness help managers to get the benefit from ABC.

Therefore, the proposed study is an attempt of examining factors determining effectiveness of cost allocation practice in agricultural farming in Amhara region at large scale agricultural enterprises.

Furthermore, to the best of my knowledge, this study is unexplored area in identify factors determining the effectiveness of cost allocation practice in agricultural farms at large scale farms. Hence, through a carefully examination of those factors such as organizational, behavioral, structural factors determining cost allocation effectiveness in agricultural farm. The study could fill the gap to the literature in general and in Amhara region context particularly through providing empirical evidence that increase the body of knowledge in understanding the factors that influence the effectiveness of cost allocation in large scale agricultural farms. Furthermore, the study uses the agricultural institutions particularly to understand factors which determine the effectiveness of cost allocation on activity based costing.

1.4 Objectives of the study

The general objective of the study is to identify determinant factors of activity based costing effectiveness in large scale farms of Amhara region which apply ABC.

Specific objectives

Specifically, the researcher tries to examine

- The effect of top management support on activity based costing effectiveness.
- The effect of organizational Culture on activity based costing effectiveness.
- The effect of organizational structure on activity based costing effectiveness.
- The effect of the adequate resource on activity based costing effectiveness.

1.5 Research Hypothesis

Study is intended to examine the determinants of activity based costing effectiveness in high scale farming in Amhara region. Therefore, after reviewing the related literatures focus in the area the researcher designed the following four directional hypotheses.

1. Top Management Support

H1: Top management support is positively related to the activity based costing effectiveness in the Amhara region large scale farming

2. Organizational culture.

H2: Organizational culture is positively related to the activity based costing effectiveness in the Amhara region large scale farming

3. Organizational structure

H3: Organizational structure is positively related to the activity based costing effectiveness in the Amhara region large scale farming

4. Adequate resource

H5: The presence of adequate resource is positively related to the activity based costing effectiveness in the Amhara region large scale farming

1.6 Significance of the study

Advantages of activity-based costing are advocated to be advantages. Activity-based costing increases the accuracy of cost allocation to products, resulting in a more detailed view of the true costs and activities of individuals. It is also argued that greater processing of costs information and subsequent realization of accurate and relevant cost measurements are beneficial for making sound decisions and consequently taking appropriate actions. Hence, the researcher believes that findings of the study will shed light on the improvement areas of cost allocation practice of activity based costing practice in the Amhara region agricultural farms. The study would enable the institutions particularly large scale agricultural firms to understand factors which determine

their cost allocation effectiveness in their cost management. Furthermore, the findings and recommendation of this study will be valuable for the management of agricultural firms as it gives them an insight on how they can enhance the effectiveness their cost allocation practice and how they can use it most effectively and efficiently. In line with this, the study will help the management to examine and revise the cost allocation policies and procedures towards improving their cost allocation activity. Furthermore, the finding of the study will provide the cost accountants of agricultural farms an insight which could help them to improve their cost allocation activity in collaboration with the organization. The study would also contributes to the body of literature by providing empirical evidence that increase the knowledge in understanding the factors that determine activity based costing effectiveness in large scale agricultural farms.

1.7 Scope and limitation of the study

The study focuses on the identification of determinant factors for cost allocation effectiveness particularly activity based costing effectiveness for large scale agricultural farms in Amhara region. There are 10 large scale agricultural farms (horticulture and floriculture) in Amhara region. From those, 6 agricultural farms (both horti and flori) because both uses intensive capital for production are included in this study as the rest 3 are not active farms and one is far from the sample area. The study attempts to cover almost all active farms in Amhara region of around Bahirdar to get more comprehensive data for analysis. Again the study focuses on getting sufficient data from managerial level till data collectors in the farms. Even though there are 6 new large scale farms in Amhara region all are under construction and do not start production yet. Hence, due to its similarity with other farms in Bahirdar and the distance to area, time and budget constraints the researcher finds it difficult to encompass one large scale farms in the study which is around kobo town.

1.8 Future work

In Amhara region the number of large scale Agricultural firms are increasing from time to time and as it is expressed above there are firms which are under construction now that means they do not start production and export rather they are facilitating themselves for future production and export because large scale farms use intensive capital for production it takes time to start production so for future if research is done including the rest farms and other variables the limitation of this research can be filled.

CHAPTER TWO

2. Related Literature Review

2.1 Over view of cost accounting system in Agricultural farms

Business organizations need cost information (Ning, 2005), especially large and multi-product farms. (Juchau, 1986) argues that for large agricultural firms that produce several products, management accounting systems for decision making is obviously needed. (Argiles&Slof, 2003; Hannan, 2008; Manalo, 2005; Wijewardena&Zoysa, 1999) stated that firms can benefit from cost accounting systems information in many ways, such as cost management, managerial decision making, product pricing, performance evaluation, budgeting and budgetary control, and preparing of financial statements.(Kaplan & Cooper, 1998) cost accounting systems achieve three goals including, the measurement of the cost of goods sold, valuation of inventory for financial reporting. It provides operators and managers with economic feedback about process efficiency; it determines the cost of activity, services, products, and customers. In brief, the agricultural firms can gain many advantages from the use of costing systems. It helps in making better administrative decisions in several ways, such as allocating overhead costs on cost centers in the fields, especially if a farm plants different types of crops and uses many kinds of machines. Cost accounting opens up new ways of looking at farming operations. It can provide a breakdown of income and expenses by acre and yield units, and enable comparison of performance of different fields, determine why one block may be producing more than another and analyze optimal use of land. According to Jack and Jones (2007), farmers who practice costing systems perform better than farmers who do not apply costing systems.

2.1.1 Overview of Activity based costing on Agriculture

In the 1980's much criticisms were raised regarding the ability of traditional costing to provide relevant, timely and accurate information to the management. According to Innes and Mitchell (1996), there should be a gradual alteration in the nature of production overhead cost to reflect predominantly costs, which are influenced by the diversity and complexity of output rather than simply by volume of output. There were also increasing concern for the need to employ an overhead costing approach, which more adequately reflects the cause-effect relationship between products and the consumption of the resources, which have been acquired by the organization

through overhead expenditure. ABC has emerged during this period, to ensure that overhead cost utilization is achieved in such manner. Since then ABC has received substantial attention from various parties and many parts of the world. Studies that were conducted have shown that ABC benefits organizations and businesses.

Activity-based costing is a two-stage process. In the first stage it assigns all costs of resources to the activities in activity centers based on the resource drivers (Lucey, 2004). The amount paid for a resource and assigned to an activity is called a cost element (Omoriegbe, 2002). A cost pool is the classification of cost elements associated with one activity. According to Appah (2004), a cost pool does not have to contain only one activity. It can be formed by classifying a large number of activities into a few groups. In the second stage, costs are assigned to cost pools and then assigned to the products based on the products consumption activity and then level of the activity in the activity-based costing hierarchy. However, Drury (2004) argues that the design of activity-based costing involves four stages of identifying the major activities that take place in an organization; creating a cost pool/cost centre for each activity; determining the cost driver for each major activity; and assigning the cost of activities to products according to the product's demand for activities.

Large scale agricultural enterprises that depend heavily on capital investments require rational allocation of the available resources and efficient utilization of the existing production technology. The accurate and reliable computation of cost per unit of product is crucial for the evaluation of the economic performance of the enterprises and the investigation of the optimal allocation of the production factors in different activities. The concept of Activity Based Costing methodology, which is of great importance in the system of cost accounting, allows the allocation of indirect costs to specific activities and individual products, overcoming the drawbacks of the traditional method of cost accounting.

The Farming Process

To fully understand how cost allocations are achieved in a farming operation, the farming Process must be understood.

A crop year- Once harvest is complete, anything done to a field there after is considered to be for the next crop production. Therefore, applying lime and tilling the land after harvest is considered to be preparation for the following year's crops. A crop year is thus determined and based on the year that the crop will be harvested, not necessarily on the year that the inputs go into the ground to prepare for the crop.

Fertilizing, tilling, and discing- Fertilizer is a growth supplement. It will be applied to the ground after the prior year's harvest. The typical fertilizer used in Ethiopia is lime. In amhara region, the farmer will choose to apply fertilizer in the fall after harvest is complete. In order to maximize yields (i.e., the amount of crop produced per acre), a third party Professional can provide valuable assistance. An agronomist or another third party company is qualified to determine how best to treat the soil in each particular field. They will make Suggestions as to what type of fertilizer should be used, how much fertilizer should be used, and when to apply the fertilizer. These suggestions are used by the farmers at their own discretion.

Scouting- In early spring, before planting, scouts will head out to the fields. Scouts are employees that will inspect the fields for any weeds that have sprouted over the winter months. They will spray any weeds with a burn down herbicide.

Planting- Although fertilizing, tilling, discing, scouting are important processes, planting the crops is the vital process. Planting the crops occurs at different times depending on what crop is being planted. In this case, planting corn and soybeans will usually take place in April. Planting is done by using large machinery called "planters." These planters carry the seed and plant numerous rows at a time. Farmers can decide how many rows to plant in each pass. There are different size planters available for purchase: six row planters, twelve row planters, twenty four row planters, and so forth. The seed used in the planting process usually is purchased from a seed dealer. The farmer meets with a seed dealer and picks which variety of seed will be planted and carried by the planters. After placing the seed in the ground, nitrogen and water are applied to aid in the growth of the crop.

Application- In the early summer months, nitrogen is applied to the fields. Farmers usually call this process implicating or application. Application is done with a machine that allows the Nitrogen to be inserted beneath the soil. The fields usually require only a single pass of nitrogen per season. After the nitrogen is applied, water is needed. Water can be supplied to a field both

by man and by nature. If the field is irrigated it will have a pivot in place as the main water supply. Irrigated ground usually has a well and a generator to power the pivot and supply the water. These pivots circle around the field in a determined pattern. Irrigated ground usually produces higher yields and stronger crops than non-irrigated fields. A non-irrigated field is a field that solely depends on Mother Nature's rainfall for its main water supply. Whether the field is irrigated or non-irrigated, the water is still necessary. The soil absorbs the water and the water is then mixed with the nitrogen that was applied to the field. This mixture is supplied to the plant and aids in growth.

Spraying- Farmers need to protect their crops and can do so by spraying fields. This is necessary to keep the bugs and weeds from stunting the growth of crops. The fields must be scouted once again and the scouts will make sure there are no bugs or weeds that are damaging crops. In order to prevent any bugs from harvesting their eggs, the fields are sprayed with pesticides. These pesticides are recommended by an agronomist and they are field specific based on findings from the scouts.

Harvesting- The final process of farming is to harvest the crops. The harvest process happens after all of the moisture is out of the crop. During this process, combines are used to harvest the corn or soybeans. There is a small area for the combine to hold the grain being harvested. Once this area is near full, an attached auger is used. This auger releases the grain from the combine and is dropped into a grain cart that also has a limited amount of storage for the crops. Once the grain cart is near full, its auger is used to drop the grain into a semi trailer. Semis then haul the grain into a local elevator or offsite storage facilities

2.1.2 Large scale farming

In large-scale agriculture, the land is used to grow a few varieties of a few different crops across many acres in the effort to produce a consistent product and the highest yields possible for the greatest profit. To support these large farms, industrial agriculturists often use pesticides and chemical or mineral fertilizers in large quantities. Seeds are often planted by machines, and irrigation systems water the crops, use greenhouses for production of nursery and others, big generators, big man holls, big generators, refrigerators, tractors, packing machines, Combiners and others. Large machines are often used to harvest the crops and prepare them for sale. Large-scale farms are often owned by a large company and managed and run by employees, while

small-scale farms are often run by the farmers themselves, with assistance from a smaller group of family members. Often, large-scale farming yields large amounts of one crop, but may actually produce less than could be produced by small-scale farmers who may use products and methods that are less damaging to the soil, produce fewer greenhouse gases and consume fewer natural resources.

2.2 Empirical Review

2.2.1 Activity Based costing effectiveness

In this section some empirical studies that are made on Activity based costing effectiveness are reviewed.

Deciding that some variable defines success depends on the individual value placed on the ABC system. There can be a diverse number of variables that may be used to measure ABC success. Examples of ABC success measures tested in prior research include - decision use, decision actions taken, dollar improvements and manager evaluation (Foster and Swenson 1997); user attitude, technical characteristics, perceived usefulness in improving job performance and organizational process impact (McGowan 1998); management evaluation and dollar improvements (Shields 1995); employee satisfaction (McGowan and Klammer 1997); overall use and accuracy (Anderson and Young 1999); and increase in firm value (Kennedy and Affleck-Graves 2001).

While measures of ABC success such as “dollar improvements” or “increase in firm value” are empirically appealing they are fraught with possible confounding variables that are extremely difficult to control. Kennedy and Affleck-Graves (2001, 20) admit “despite the strong and robust evidence in this paper, it is not possible to prove definitely that there is a causal link between ABC implementation and subsequent increases in shareholder value”.

Shields (1995, 153) states that “Providing a definition, however, was problematic as the literature is vague about what constitutes success, and discussions with ABC experts during construction of the survey did not result in consensus about a tangible definition.” The approach that Shields (1995) adopted was to allow the user to rate the degree of success with whatever definition they deemed relevant. It has been argued, for example, that if a user perceives satisfaction with an

information system per se, then the system is successful, consequently user satisfaction can be a proxy for system success (McGowan and Klammer 1997; McGowan 1998).

McGowan (1998, 30) argued that if users' attitudes toward a system are unfavorable, it is likely that they will not accept it. She posited that "measures that describe the users' reactions to the innovation, such as attitudes and satisfaction, are appropriate surrogates for assessing the success of an information system". This view of success has provided the most robust basis for ABC success measurement in research to date, and is therefore the one adopted in this study.

2.2.2 Top management support: for activity based costing effectiveness

Chenhall and Langfield-Smith (1998) surveying five manufacturing corporations found that top management support influenced the successful adoption of new management accounting innovations. The loss of top management support is seen to be a major cause of ABC implementation failure (Cokins, 1999). Top management support has been found to be critical to the initial success of ABC implementation in that top management can focus the resources, goals and strategies on initiatives they deem worthwhile (Shields and Young, 1989; Shields, 1995; Foster and Swenson, 1997; McGowan and Klammer, 1997). Gosselin (1997) suggested that when top managers commit to a new system they exert control to ensure its success. Top management support is also directly associated with local management involvement that is seen as important is garnering local union support (Anderson and Young, 1999). Baird et al. (2007) examining different levels of activity management adoption and found that from the three top management support was crucial to all levels according to their financial controller respondents.

The notion of top management support is also linked to issues of power and politics. England and Gerdin (2008) illustrate that through the lens of power and politics successful and unsuccessful implementations can be explained. Whether it be resistance from one fraction or group (as in the case of Major and Hooper, 2005) or whether employees were concerned with their operations being visible and therefore subject to greater scrutiny of employers (as in the case of Malmi, 1997) or the positive where managers delighted in being involved and were encouraged by the extra attention to their operations (as in the case of Bhimani and Pigott, 1992). They conclude the political perspective by arguing that "support from management, unions and informal champions, training and linkage to rewards and strategies may prevent conflict from

emerging in the first place”. Hoozzee and Bruggeman (2010) also found that leadership and collective worker participation impact on ABC outcomes. There for this study proposes that top management support continues to be critical to users of ABC

2.2.3 Adequacy resources for activity based costing effectiveness

(Krumwiede, 1998) surveyed U.S manufacturing firms study how contextual factors, such as the potential for cost distortion or size of firms; organizational factors, such as top management support, training or non-accounting ownership, affect each stage of ABC implementation process. His findings showed that the different factors affected the various stages of implementation of ABC and the degree of importance of each factor varies according to the stage of implementation.

In South Africa, (Sartorius, 2000) carried out a mail survey to investigate the effect of organizational factors such as top management, adequate resources, coherence with organizational goals and strategy on ABC success. They found top management support and resources were the crucial factors in explaining ABC success.

Rattanaphaphtham, KanyanatUssahawanitchakit, Phapruek(2010) Corporate resource facilitation refers to the sufficient resources available to complete the ABC implementation including financial resource, timing, commitment, information technology, and training of employees (Shields 1995; Gunasekaran, Marri and Yusuf, 1999). The process of designing and implementing an ABC requires companies to provide adequate resources, a significant amount including financial, human and organizational (Arnaboldi and Lapsley, 2005). The implement of ABC to gain effectiveness often take more time. The amount of time necessary to reach the usage stage varies with ABC effectiveness. (Shield and McEwen (1996) found that having adequate employee resource is one of the most important factors for ABC effectiveness. Tait and Vessey (1988) found training is a very important element toward the efficient use of the information provide by a system and they suggest that organizations should have sufficient training resource available to prevent their employees from feeling pressure by process of change. Training is important to ensure that employees understand activity management practices, to reduce resistance to change and to sustain successful performance (Krumwiede, 1998). Associations between training and activity based costing success have frequently been

found (Foster and Swenson, 1997; McGowan and Krumwiede, 1998). Thus, corporate resource facilitation is likely to have a positive and direct influence on ABC effectiveness.

Anderson and Young (1999), the relationship between organizational and contextual variables, such as organizational structures, task characteristics, management support, information technology and ABC success was examined. The result confirmed the importance of organizational factors (top management support and adequacy resources) during the ABC implementation stage. There for to have adequate resource have positive linkage with activity based costing.

2.2.4 Organizational Culture for activity based costing effectiveness

Culture is defined as a “pattern of shared beliefs and values that give members of an institution meaning, and provide them with the rules for behavior in their organization” (Davis, 1984). Gosselin (2007) indicates that organizations that adopt and implement ABC are bureaucratic. In the same vein, Baird et al. (2004) suggest that organizations that are outcome-oriented and innovative are attracted to new management practices, such as ABC, to improve processes and enhance performance and competitiveness

Organizational culture is defined as shared meanings, patterns of beliefs and expectations that guide the thinking and behavior of an organization's members (Glaser, Zamonou, and Hacker 1987). The extent to which participants think favorably of the existing organizational culture might affect their attitudes towards an ABC system that may change the status quo.

Shield and McEwen [1996], who argued that a significant cause for unsuccessful implementations of ABC of several companies could be due to the emphasis of architectural and software design of the ABC system and less attention given to behavioral and organizational issues, which were identified by Shield. Krumwiede and Roth (1997) also stated that barriers of ABC implementation can be overcome if firms could give importance to behavioral and organizational variables identified by Shield. Similarly, Norris (1997) agreed with Shield's [3] findings that the association between ABC success and behavioral and organizational variables is stronger than with technical variables.

Organizational culture still produces significant on ABC success, as Skinner (1998] pointed out uncaring culture leads to the failure of ABC. Baird et al. (2008) used outcome orientation, team

orientation and a propensity to innovate, attention to detail, as well as innovation to examine the relationship between activity management success and organizational culture.

(McGowan ,1997) used four perspectives to measure Activity-Based Costing Management, namely users' attitude, technical characteristics rating, perceived usefulness in improving job performance and impact on organizational process. This measure subsequently adopted by Byrne et al. (2004) to test ABC success implementation in Australian context.

- ✓ Outcome orientation: Outcome-oriented companies emphasize accomplishment, results, and actions important values.
- ✓ Innovation: Organizations that have innovative cultures are adaptable, flexible, and experiment with new tools and ideas.
- ✓ Team orientation: Firms with a team-oriented culture emphasize cooperation and collaboration among employees.
- ✓ Attention to detail: Companies with a detail-oriented culture pay attention to details and emphasize precision.

One of the latest studies about the relationship between ABC success and organizational culture carried out by Baird, Harrison and Reeve (2007). In their study, survey questionnaires were sent to randomly selected managers among Australian business units. The result indicates that organizational culture is associated with the ABC success implementation

2.2.5 Organizational structure for activity based costing effectiveness

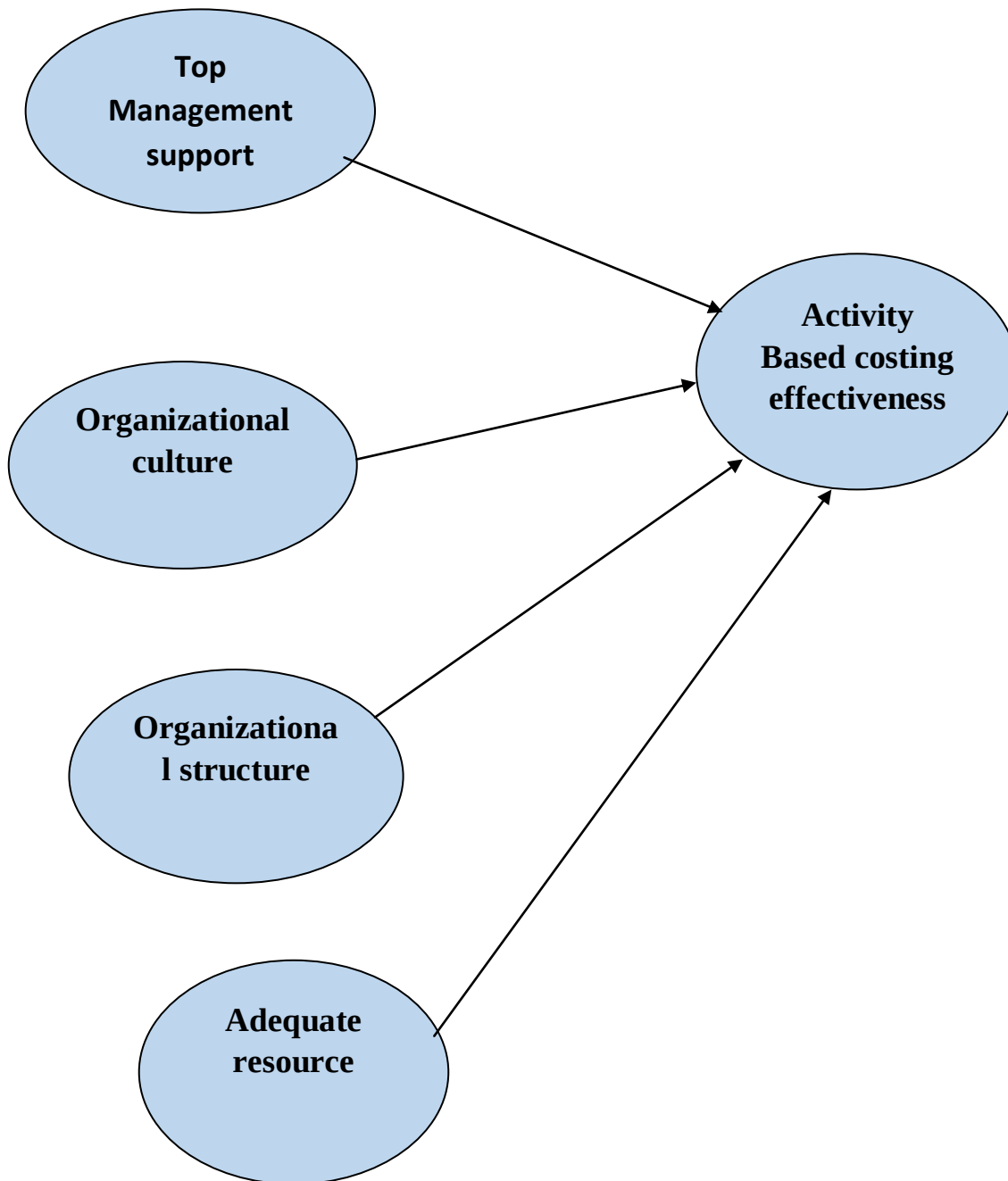
According to organizational change theory, changes in organizations could be classified into four categories: technology, products, structure, and culture. Gosselin(1997) categorized ABC implementation stage as the administrative procedure. Therefore, ABC could be considered as a structural change and its success is determined by top-down approach.

Whether a company can adopt and implement a management innovation can be significantly affected by organizational structure. Burns and Stalker (1998) classified organizational structure into mechanistic and organic, mechanistic organizations have higher level of centralization and formalization than that of organic structure, and mechanistic organizations always formalize its rules, policies and procedures, whereas organic organizations favor informal control systems (Gosselin, 1997).Gosselin(1998) found that ABC can be more successfully implemented in

mechanistic organizations. Centralization and formation will be treated as indicators for organizational structure

Two dimensions of organizational structure, centralization and formalization were used to test the impact of organizational structure on ABC success implementation. The instrument in this study employed Robbins's (1983) measure, which was subsequently adopted by Gosselin (1997) to investigate the impact of organizational structure on activity management. So organizational structure have impact on activity based costing effectiveness.

2.3. Conceptual Framework



The conceptual framework of current study was adopted from previous study done in area of activity based costing effectiveness by Zhang Yi Fei and CheRuhana Isa (2010) and Gosselin(1997) to examine the impact of top management support, adequate resource, organizational culture and organizational structure variables on ABC success.

CHAPTER THREE

3. Research Design & Methodology

3.1 Introduction

The aim of the study is to examine the determinant factors of cost allocation specially the activity based costing effectiveness in the Amharic region large scale farming. Accordingly, this chapter discussed the research procedure that is used to carry out the study. The chapter starts by discussing research design followed by the nature and instruments of data collection and sampling design, sampling techniques. The subsequent section focuses on the definition of the study variables with presentation of their measurement. Finally, it presents the discussion about the method of data process & analysis and specifications of the model.

3.2 Research Design

The study is a quantitative survey method which examines the determinants of cost allocation specially the activity based costing effectiveness in the Amhara region large scale farming. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). The chief advantage of this approach is that numbers are easy to work with data are readily collected, coded, summarized and analyzed (Creswell, 2009). Further quantitative research approach has the advantage of being able to generalize for a broader population based on findings from the sample. The study uses a cross sectional data which can be collected using the self- administered structured questioner which was send to and collected from managers, Pack house managers, marketing managers, accountants, finance managers and data collectors of the six large scale agricultural firms under the study.

3.3 Sampling Techniques

As the aim of the study is to examine the determinant factors of cost allocation specially the activity based costing effectiveness in Amhara region large scale farming the target population for the study all 6 active large-scale farms which have above 50 hectares of land found around Bahir Dar in Amhara region which are under operation until the 2017/18 fiscal year. From the list of the farms found from Amhara region investment commission in Bahir Dar of active farms survey comprises main managers, packhouse managers, marketing managers, finance managers

and accountants, cost accountants and data collectors reside in the Bahirdar the reason for the selection is they are directly responsible for the cost allocation calculation process and the managers are the users of the cost for decision making and to judge the cost. However, due to its similarity with other farms and less land holding from other farms and the geographical distance the researchers find it difficult to encompass one farm. Therefore, based on the fact that the operational and functional activities of the large scale farming are quite similar the researcher uses a sampling that is to take a sample of 6 farms selected using a comprehensive sampling method.

3.4 Sample size

There are 16 large scale farms in Amhara region from them 7 are active farms which are on job. The six are incorporates because they have land of above 50 hectares. The excluded one is A.S.K Greens & Flowers PLC which has less than 50 hectares of land and also for the reason that they have no branch in Bahir Dar city which is one of the main location of the study in addition it is similar with other farms.

The researcher chooses; that main managers, Pack house managers, marketing managers, production managers, finance managers, accountants and all data collectors of each farm are included in the study, the sample size is 66 (Sixty six) in number.

Samples

1. Ethio Agri Ceft PLC
2. Tana Flowers PLC
3. Tal PLC
4. Koga Veg. Agricultural Dev. PLC
5. Giovanni Alfano Farm
6. Condor Farms PLC

3.5 Data Collection Instrument

The study uses a primary data which was collected using a self-administered structured questioner adopted collectively from the previous study of Zhang Yi Fei and CheRuhana Isa (2010) and (McGowan, 1998; Byrne et al., 2009). The questioner developed has two parts; part

one deals about the activity based costing effectiveness (the dependent Variable) and part two deals about the factors that determine activity based costing effectiveness (independent Variable) which is filled by those persons which are related with the cost allocation function. Those are main managers, pack house managers, marketing managers, finance managers, accountants, cost accountants and data collectors.

The questioner was developed according to 5 point likert-scale developed by Rensis Likert in 1932 (showing respondents' agreement or disagreement from least to most by asking people how much they agree or disagree) by constructing into five point scale where the lowest scale represent strongly disagree and the highest scale represent strongly agree.

3.6 Data Analysis Method

Quantitative procedure was used in analyzing the data collected. The data was analyzed using multiple regression analysis method to determine the relationship among the variables and to test the correlation between variables. Descriptive statistics was also be used to provide details regarding the demographic variables and the various factors that affect the effectiveness of activity based costing effectiveness. Furthermore, in order to assess the reliability and consistency of the instrument the Cronbach's Alpha (α) analysis was conducted. The Statistical Package for Social Sciences (SPSS) version 20 and Excel were used to analyze the data.

3.7 Model Specification

The aim of this study is to examine the determinants of activity based costing effectiveness in Amhara region large scale farming. Standing from the previous research works conducted on activity based costing effectiveness , this study also use activity based costing effectiveness as a dependent variables whereas top management support, adequate resource, organizational Culture and organizational structure as independent variables. These variables and the model employed were chosen since they are widely existent in the study area of activity based costing effectiveness. Accordingly, this study adopts a model that existed in most literature as follow,

$$ABCE = \alpha + \beta_1 TMS + \beta_2 AR + \beta_3 OS + \beta_4 OS + e_i$$

Where,

ABCE = Activity based costing effectiveness,

TMS = Top management support,

OC = organizational Culture,

OS = organizational structure,

AR = Adequate resource

α = is a constant, represents the effectiveness of ABC when every independent variables are Zero. B1-4 = Coefficients in which every marginal change in variables on Activity based costing effectiveness affects correspondingly.

e_i = The error term

From the equation positive results of the variables are expected.

CHAPTER FOUR

4. Research Findings: Analysis and Discussion

4.1. INTRODUCTION

As indicating in the previous chapter, the main attempt of this study is to investigate the determinants factors of activity based costing effectiveness in Amhara region large scale farms. Therefore, this chapter presents the analysis and discussions of research findings obtained from the data collected using the structured questionnaire. The chapter reports the investigation results obtained from Main manager, finance manager, farm manager, Production managers, Cost accountant, accountant and data collectors which are covered in the questionnaire.

4.2. Descriptive Statistics

4.2.1 Response Rate

The questionnaires were distributed to the Main manager, finance manager, farm manager, Production managers, Pack-house manager, Cost accountant, accountant and data collectors of six different farms. A total of 66 questioners are distributed both to the management and other workers and from which 53 questioners were responded and collected .Giving the response rate of 80.30%. This shows good response rate has found.

4.2.2 Respondents Profile

The table given below describes the general findings regarding the respondents age, sex, field of study and level of education and current position of the respondents. The respondents are 47(88.7%) were males and 6(11.3%) were females. The majority ages of respondents of the companies falls under the age of 30 - 39(32, 60.4%), 20-29 (18, 34.0%), and the rest falls in the age interval of 40–49 (2, 3.8%) and 50-59 (1, 1.9%)

In the case of field of study the respondents field of study were composed of Accounting (16, 30.2%), Management (16, 30.2%), Economics (2, 3.8%), and others fields (19, 35.8%). In terms of the level of educational background, most managers and accountants have bachelor's degree (27, 50.94%) and Masters Degree (3, 5.7%) respectively followed by diploma (12, 22.64%) and (11, 20.8%) for other fields.

Table 4.1 Respondents general Profile

Demographic Questions		Responses	
		Frequency	Percentage
Company Name	Koga veg	11	20.8
	Ethio agri ceft	9	17.0
	Tana flora	9	17.0
	Tal	9	17.0
	Giovani	9	17.0
	Condor farms	6	11.3
	Total	53	100
Gender	Male	47	88.7
	Female	6	11.3
	Total	53	100
Age	20 to 29	18	34.0
	30 to 39	32	60.4
	40 to 49	2	3.8
	50 to 59	1	1.9
	Total	53	100
Field of Study	Accounting	16	30.2
	Management	16	30.2
	Economics	2	3.8
	Others	19	35.8
	Total	53	100
Level of education	Diploma	12	22.64
	Bachelor's Degree	27	50.94
	Masters Degree	3	5.7

	Others	11	20.8
	Total	53	100
Current position in your company	Main Manager	10	18.9
	Other managerial staff	16	30.2
	Finance manager	6	11.3
	Accountant	13	24.5
	Cost Accountant	3	5.7
	Data collector	5	9.4
	Total	53	100

4.3. Summary of descriptive statistics for dependent and explanatory variable

4.3.1. Dependent variable

Activity based costing Effectiveness

In order to measure the dependent variables of activity based costing effectiveness (ABCE) in terms the ability of activity based costing contribution and the value they add to the achievement of organizations' goals and the useful reports they provide for improvement, the researcher employed 16 factors which is shown below. The result of the questioner which is shown in Table 4.2 below highlights that the level of significance given by respondents to each factors. The arithmetic mean of the response of the respondents to ABCE is high reached to (4.18) and the standard deviation is (0.8) which fulfills the assumption of none zero variance

Table 4.2 Summery of descriptive statistics for dependent variable (ABCE)

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
Activity based costing provides information on problems in the activity or control systems in the organization	53	2	5	4.06	.864

Activity based costing meet the expectations I have from the department.	53	2	5	4.21	.927
The evaluation of cost reports made by individuals in managerial positions who were external auditor & other external authorities are positive	53	2	4	3.60	.660
Cost reports identifies risks and input evaluates control systems, there by becoming a gatekeeper.	53	2	5	3.64	.922
The finance department and its employees are reliable and behave with integrity.	53	2	4	3.60	.631
The professional qualifications and training of employees are high to address the corporate risk management problem in the organization.	53	2	5	3.98	.951
Cost reports is a source of valuable data and information for the decision makers in the organization.	53	3	5	4.68	.673
The information provided by finance department is vital to organizational operations.	53	3	5	4.40	.840
All cost allocation that were approved in the cost allocation process are performed completely	53	3	5	4.23	.724
The number of complaints about the cost analysis is very low.	53	2	5	3.94	1.008
The time that passes between completing the cost allocation process and submitting the final report is too short	53	3	5	4.26	.711
The reports of cost allocation are very significant for the achievement of organization objective	53	3	5	4.49	.724

The reports of cost are always based on documents and reliable data	53	2	5	4.17	.893
The recommendations of the finance department can be easily implemented	53	3	5	4.62	.657
The cost reports are professional and of high quality with clear & well presentation	53	3	5	4.45	.798
The management's decision-making process is strongly affected by the reports and cost department	53	3	5	4.53	.749
Total				4.18	0.80

4.3.2 Independent Variables

❖ Top management support

To measure the independent variable of top management support the researcher employed five factors and the survey result pertaining to questioner and the level of significance given by respondents to each factors are shown in Table 4.3 below.

The arithmetic mean of the response of the respondents' regarding management support is high reached to (4.15) and the standard deviation is (0.90) which fulfills the assumption of none zero variance.

Table 4.3 Summery of descriptive statistics for Top Management Support

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
Management perceives Activity based costing as the important part of cost analysis to achieve the organizations objective.	53	3	5	4.21	.743
I have regular and direct working relations with the general manager and the managerial	53	2	5	4.00	1.109

team.					
Top management does provide me with the support I expect to have.	53	2	5	3.87	.921
Management is sufficiently aware of the needs of activity based costing as demonstrated by the enough budget assigned to the department.	53	2	5	4.34	.876
Management does provide enough support and encouragement for training and development of the activity based costing process staff.	53	3	5	4.36	.834
Total				4.15	0.90

❖ Adequate Resource

To measure the independent variable of adequate resource the researcher employed three factors. The result of the questioner pertaining to the level of significance given by respondents to each factors are shown on Table 4.4 below.

The arithmetic mean of the respondents answer regarding adequate resource of ABCE is high reached to (4.22) and the standard deviation is (0.76) which fulfills the assumption of none zero variance.

Table 4.4 Summery of descriptive statistics for Adequate Resource

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
Activity Based costing requires detailed data so to collect the data it takes many paper works so there is enough materials are	53	3	5	4.36	.710

available for data collection					
Enough number of employees delegated to collect data, to book it in excel	53	3	5	4.13	.735
Activity based costing needs detailed data to be summarized in professionals of computer or accountants_ the company have enough IT equipments	53	3	5	4.17	.826
Total				4.22	0.76

❖ Organizational culture

To measure the independent variable of organizational culture the researcher employed four factors. Level of significance given by respondents to each factors are high as the result of the questioner shown in Table 4.5 below.

The arithmetic mean of the respondents answer pertaining to organizational culture is reached to (4.07) and the standard deviation is (0.73) which fulfills the assumption of none zero variance.

Table 4.5 Summery of descriptive statistics for organizational culture

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
ABC implementation usually involves great amount of work of collecting data and selecting suitable cost drivers which require a lot of attention to details. Data collectors	53	3	5	3.75	.757

have the culture for giving attention to detail.					
Workers of the company have culture of thinking the effect of Activity based costing on organizational goal.	53	3	5	4.40	.660
At each level of ABC multi-functional team can function well	53	3	5	4.26	.763
At each level of ABC here is culture of team orientation.	53	3	5	3.85	.744
Total				4.07	0.73

❖ Organizational Structure

To measure the variable organizational structure three factors were employed. The level of significance given by respondents to each factors are high as is shows in Table 4.6 below.

The arithmetic mean of the response related to the organizational structure satisfaction is high reached to as (4.17) and the standard deviation is (0.71) which fulfills the assumption of none zero variance.

Table 4.6 Summery of descriptive statistics for Organizational structure

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
The company have written formalized rules, policies and procedures	53	3	5	4.45	.637
Top management directly control the execution of decision	53	3	5	4.23	.776

Employees of the organization are pushed to follow the rules, policies and procedures of the company	53	3	5	3.83	.727
Total				4.17	0.71

4.4. Reliability Analysis

To measure the consistency of the questionnaire particularly the 5 point Likert-scale the reliability analysis is essential to make sure the overall reliability of the questioner used for the study. Among the varies methods used to make a reliability test the researcher uses the Cronbach's Alpha (α) as it is the most common measure of scale reliability and a value greater than 0.700 is very acceptable Cohen and Sayag (2010). However, according to Cronbach's (1951), reliability value (α) which is greater than 0.600 is also acceptable.

Table 4.8 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.774	5

From table 4.8 above, the value for Cronbach's Alpha (α) was 0.774 for all variables. Hence, as the calculated reliability values (α) is 0.774 which is large enough compared to the minimum value (α) 0.600 and (α) 0.700 advocated by Cronbach's (1951) and Cohen and Sayag (2010) respectively. Therefore, it is concluded that the responses generated for all of the variables' used in this research were reliable enough for data analysis.

4.5 Assessment of Multicollinearity

Independent variables are supposed to be highly correlated with the dependent variables than with other independent variables. However, multicollinearity occurs as a result of the highly correlation of independent variables with one another or it exists when one independent variable

is at linear combination with other independent variables (Keith, 2006). When independent variables are highly correlated with one another there exists a multicollinearity problem increase the standard errors of the variables coefficient and thereby makes some independent variables statistically not significant and it affect the predictive power of the model. A correlation analysis has been carried out in order to clarify the relationship among all the variables and Pearson's correlation was used to examine the correlation coefficient between the independent variables.

Furthermore, Table 4.9 below presents the Pearson's correlation coefficients between independent variables. This was conducted before testing hypothesis with the aim detecting multicollinearity through determining the extent of correlation among the independent variables. The values of Pearson's correlation exhibit the relationship between independent variables, this serve as a method for diagnosing multicollinearity (Allison, 1999). According to Allison (1999) that any correlation that is 0.8 or higher is problematic. Multicollinearity exists when there are strong correlations among the predictors that are greater than 0.80. The result shows the acceptable reliability of the research variables in which, the correlations among predictors were not high (i.e. it is less than 80) that indicates there are no series multicollinearity problems among variables.

Table 4.9 Pearson Correlations Matrix

	ABCE	Topmanagmentsup port	Adequateresour ce	Organizationalcult ure	Organizationalstruct ure
ABCE	1	.634**	.750**	.095	.585**
Topmanagmentsup port	.634*	1	.508**	.064	.392**
Adequateresource	.750*	.508**	1	.199	.442**
Organizationalcult e	.095	.064	.199	1	.163
Organizationalstruct ure	.585*	.392**	.442**	.163	1

Another way to verify the issue of multicollinearity is through the examination of Variance Inflation Factors (VIF) and tolerance values via regression result. Tolerance is a statistics used to indicate the variability of the specified independent variable that is not explained by the other independent variables in the model. The rule of thumb for a Variance Inflation Factors (VIF) larger value is ten (10); any VIF that is above 10 and smaller values in the aspect of tolerance is an indication of multicollinearity (Keith, 2006). Similarly, any VIF values that exceed 10 and tolerance values that is less than 0.10 indicates potential multicollinearity problem (Hair et al., 2010). Therefore, to avoid multicollinearity problem, the VIF values should not exceed 10 and the tolerance values should not be less than 0.10. Thus, Table 4.10 below exhibits the Tolerance and Variance Inflation Factors (VIF) values of the independent variables.

Table 4.10 the Tolerance and Variance Inflation Factors (VIF) values of the independent variables.

Variables	Collinearity Statistics	
	Tolerance	VIF
Top management support	.704	1.420
Adequate resource	.656	1.525
Organizational culture	.950	1.053
Organizational structure	.760	1.316

As shown in the Collinearity statistics table 4.12 above, the tolerance levels for all variables are greater than 0.10 and the VIF value are less than 10. This result indicates that there were no multicollinearity problems that alter the analysis of the findings; rather it leads to the acceptance of r value, tolerance and VIF values.

4.6 The Regression Results and Hypothesis Testing

The regression results that are obtained by regressing the activity based costing effectiveness on the top management support, adequate resource and organizational structure of agricultural firms as significant factors affecting the activity based costing effectiveness. Finally, the hypothesis tests were undertaken based on the proposed hypothesis and the regression output results.

4.6.1. Regression Results for ABCE

Therefore, the regression result shows that the overall contribution of top management support, adequate resource, organizational culture and organizational structure of agricultural firms accounts for 70.3% ($R^2 = 0.703$) of the variation in the activity based costing effectiveness, whereas the rest 29.7% are explained by other variables which are not included in the study.

The report on Table 4.11 (appendix C) which shows the regression results that attained by regressing the dependent variable (activity based costing effectiveness) on independent Variables (top management support, adequate resource, organizational culture, organizational structure). The regression results for the three explanatory variables indicate that variables have positive correlation and statistically significant but the fourth variable that is organizational culture is not statically significant in my analysis. The regression output displayed in table 4.11 and as it is attached in appendix C the model is significant at ($F = 28.45028.450$, $R\text{ Square} = 0.703$, $P = 0.000$).

The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). The adjusted R square ($R^2 = 0.679$) value in the table 4.11 below indicates that the 67.9% of the total variability of activity based costing effectiveness is explained by the model, so it can be concluded that the independent variables provide explanatory power. Furthermore, the variable with the level of significance (sig) value less than 5% could make a significance unique contribution to the predicted value of the dependent variable, beyond this level of sig. ($p > 0.05$) the variable are not making a significance contribution for the prediction of the dependent variable (Pallant, 2007). Hence, the regression with F-statistic (28.450) and the p-value of zero imply that the independent variables in the model are able to explain variations in the dependent variable.

Table 4.11 Regression result for ABCE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.839 ^a	.703	.679	.2914346	1.811

a. Predictors: (Constant), Organizationalstructure, Organizational
lculture, Adequateresource, Top management support

b. Dependent Variable: EFFECT

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.527	.555		.948	.348
Topmanagmentsupport	.253	.085	.278	2.969	.005
Adequateresource	.419	.080	.505	5.205	.000
Organizationalculture	-.091	.111	-.066	-.821	.415
Organizationalstructure	.289	.099	.264	2.925	.005

Therefore, based on the coefficients of the dependent variable (β sign) that three hypotheses (TMS, AR, & OS) proposed by the researcher are acceptable as previously hypothesized that they were positively related with the dependent variable. Furthermore, the independent variables (TMS, AR,& OS) are statistical significances at ($P < 0.05$) level of confidence over the dependent variable at 5% level of significance.

Thus, the regression result implies that the top management support (TMS), adequate resource (AR) and organizational structure (OS) are determinant factors of activity based costing effectiveness (ABCE) in which the agricultural firms should give more emphasis in their cost allocation function.

4.6.2. Hypothesis Test

The regression analysis whose results are presented in table 4.11 above and appendix C provides a more comprehensive and accurate examination of the research hypothesis. Therefore, the regression results obtained from the model were utilized to test the previously stated hypotheses. The hypotheses sought to test for a significant influence of top management support (TMS), adequate resource (AR), organizational structure (OS) of large scale farms to activity based costing effectiveness (ABCE) which was measure in terms of the contributions and the value they add to the achievement of organizational goals through proving useful reports or useful data for improvements and judgment of the cost of the company.

As can be seen in table 4.11 above the p-value for the TMS, AR, and OS are statistically significant at ($p < 0.05$) which suggests a strong support for hypothesis 1, 2, and 4. Therefore, the following hypotheses test were conducted based on the regression results of the activity based costing effectiveness obtained from the regression output stated on table 4.13 above.

H1: The top management supports are positively related to the activity based costing effectiveness in Amhara region large scale farms.

The first hypothesis of this research is that the effectiveness of activity based costing is directly related with the extent of the management support it receives. The regression result shows that there is correlation relationship between the ABCE and the management support i.e. the positive beta sign and a statistically significant result of management support related with the activity based costing effectiveness ($\beta = 0.253$, $t = 2.969$, $P < 0.05$) support the proposed hypothesis which indicating management support is the determinant factor for activity based costing effectiveness. This means that agricultural firms which have a strong support of the management in terms of giving trainings let them familiar with new technologies, providing enough facilities and encouragement for training has a positive effect in enhancing the effectiveness of activity based costing effectiveness.

Emmanuel KojoOseifuah (2013) A common trend identified in the literature is that under appropriate “enabling conditions”, ABC can provide organizations with improved cost information for improved decision-making and improved performance. The enabling conditions include top management support; linkage of the cost management system to competitive

strategies; linkage of the cost management system to performance evaluation and compensation; training in designing, implementing and using cost management systems; non-accounting ownership; and consensus about and clarity of the objectives of the cost management systems.

Thus management can contribute for the effectiveness of the activity based costing effectiveness through their support in terms of continuous training for their staff, fulfilling the necessary materials and facilities that the staff needs. Thus, the result of the study confirms the proposed hypothesis that there is a positive relationship between management supports to activity based costing effectiveness (H1).

H2: Adequate resource for the activities of cost allocation is positively related to the activity based costing effectiveness.

The second hypothesis of this research which is assumed to be the determinants of activity based costing effectiveness was the adequate resource. As shown in the regression result in table 4.11 above there is a positive relationship between adequate resource and activity based costing effectiveness at ($\beta = 0.419$, $t = 5.205$) and statistically significant at ($P < 0.05$) which support the proposed hypothesis that adequate resource availability of the activity based costing allocation staff has positive effect on activity based costing effectiveness. Therefore, supply of adequate resource that is enough man power, material and the giving time for the data collection has a positive contribution to promote effective activity based costing effective.

Michela and Irvine (2005) investigated the effect of ABC on the efficiency in the UK health system. They found that several factors influence the successful implementation of ABC. These are; corporate strategy; adequate resources, the presence of a champion for ABC; external consultants; team size and heterogeneity; a competitive environment; training and interaction with existing systems.

Emmanuel KojoOseifuah (2013) in his study of the enabling factors of activity based costing effectiveness adequate resource is one factor.

Thus, the result of this study confirms the prior studies which hypothesis that there is a positive relationship between adequate resources of activity based costing staffs and activity based costing effectiveness. Therefore, the adequate resource provided to the staff can contribute for the effectiveness of the activity based costing effectiveness through supply of adequate resource

that is enough man power, material and the giving time for the data collection. Therefore, result of the regression supports the alternative hypothesis that the adequate resource provided to staff are positively related with activity based costing effectiveness (H2).

H3: The presence of good organizational culture is positively related to the activity based costing effectiveness in Amhara region large scale farms

The third hypothesis of the study is that existence of good organizational culture is positively related with activity based costing effectiveness. The regression result on table 4.11 above shows that there is a negative relationship between organizational culture and the dependent variable ABCE at ($\beta = -0.091$ and $t = -0.821$) and with a statistical insignificance level of ($P > 0.05$) which donot supports the proposed hypothesis of organizational culture is the factor for activity based costing effectiveness. That staffs giving attention to detail, culture of team orientation, culture of thinking the effect of Activity based costing on organizational goal have no significance in this study or the staffs have no shared value.

KarimCHARAF(2013) states that from the variables used to measure the factors of success of ABC only variables in bold labeled: “importance of costs for decision-making”, “innovative culture” and “Out-come oriented culture” are significant the others of team orientation and attention to detail are not significant factors. Our tests therefore suggest that there is a significant relationship between on the one hand some organizational and cultural factors, and the adoption of ABC, on the other hand. This result seems surprising since it is likely that these two variables are positively associated with the adoption of ABC, as shown in the previous research on the subject (Krumwiede, 1998; Groot, 1999; Dearman& Shields, 2001; Cagwin&Bouwman, 2002; Ittner et al., 2002; Gupta & Galloway, 2003; Bescos&Rahmouni, 2007). However, the result we obtained is consistent with Al-Omir and Drury (2007) and Abernethy et al. (2001). We can nevertheless explain this difference by the fact that our sample is relatively homogeneous in size of the companies surveyed.

Zhang and Isa (2009) called for studies on examining the impact of organizational culture and structure on ABC implementation, especially in developing countries context because of cultural difference between developed and developing countries.

H4: Organizational structures are positively related to activity based costing effectiveness in Amhara region large scale farms

The fourth hypothesis of the study is that existence of good structure or organizational structure has positively related with ABCE. The regression result shows that there is a strong positive relationship with the dependent variable ABCE with a beta and t value of ($\beta = 0.289$ and $t = 2.925$) and at statistical significance level of ($P < 0.05$) which is highly supports the proposed hypothesis indicates that organizational structure of large scale agricultural farms is the determinant factor for activity based costing effectiveness.

CHAPTER FIVE

5. Conclusion and Recommendation

5.1. Summary of Major Finding

According to the regression output all variables except organizational culture are positively contributed to the effectiveness of activity based costing in Amhara region large scale farms. Therefore, the large scale farms in Amhara region should give great emphasis to those determinant factors to make their cost allocation effective, efficient and economical throughout their offices. Moreover, the management support, adequate resource and organizational structure were the major determinants of ABCE in Amhara region large scale farms.

The finding of the current study is a composite measure of management support, adequate resource, organizational structure, and organizational culture for 70.03% ($R^2 = 0.703$) towards the ABCE. That means, the impact of these four independent variables contributed for the dependent variable (ABCE) were 70.03%, and the remaining 29.97% were the other variables that are not included in this study.

The final portion of this research aims to conclude the finding of the study focusing on the core determinants that have significant impacts to the activity based costing effectiveness and to provide recommendations based on the research findings of the study. These conclusions and recommendations are drawn from the findings of the study particularly related to the top managements support, adequate resource, organizational structure and organizational culture of large scale farms in Amhara region.

5.2. Conclusion

Activity-based Costing (ABC) is a powerful tool for an organization to have an accurate and effective cost for its product avoiding cost distortion that may lead sustainable development and growth which is mandatory to be competitive in the era of globalization and complex business environment.

As the aim of this study was to identified factors that determine the activity based costing effectiveness in the Amhara region large scale farms and the results of the study provides evidence as to the factors which contribute to the effectiveness of the cost allocation function

management support, adequate resource, organizational structure. Therefore, Based on the regression result of the study the following conclusions are drawn by the researcher:

Activity based costing effectiveness in the Amhara region large scale farms increases, when there were a strong supports of top management, existence of adequate resource supply to cost allocation process staffs, when there exists greater organizational structure that is organized procedures, policies with strong follow up to be performed. The regression analysis on table 4.11 shows that three independent variables (TMS, AR and OS) have a significant positive contribution towards achieving an effective cost allocation.

Therefore, the overall effect of the management support, adequate resource, organizational culture and organizational structure contribute for the 70.03% of the variances of the activity based costing effectiveness, statistically at 5% level of significance.

5.3. Recommendations

Based on the above findings the researcher forwards the following recommendations to the management and board of Amhara region large scale agricultural farms.

The finding of this research proved that the management support, adequate resource to the cost allocation process, and organizational structure of farms are statistically significant and has positive relation with the ABCE in the Amhara region large scale agricultural farms. Therefore, the top level management of those farms should continue their support for the cost allocation functions through providing sufficient training and assigning enough budgets to the department which could enable it to recruit adequate and competent staff. The cost allocation function workers of those large scale agricultural farms are also recommended to continuously improve their education level and professional certification and they should also expose themselves with modern information technology in order to get together with today's digital and computerized world. Furthermore, the finding of the study shows that when there is good structured organization with procedures and identified structures and working manuals there is a chance of increase activity based costing effectiveness. Therefore, Large scale agricultural farms of Amhara region are strongly recommended that to considered cost allocation function as a stage in the career development of employees in the organization since they have opportunities to learn how these departments function and how they are managed. In line with this as payee and

benefits are one of the motivating factors which could create a job satisfaction, managements of Amhara region large scale agricultural farms are also recommended to set a competitive and attractive payee and benefit to cost allocation function workers..

However, the current study has a number of strengths, there are few constraints encountered which calls for further studies. This study concentrated only on the Amhara region large scale farms , focus on a few active farms hence, future research could be done in the area of cost allocation effectiveness including all farms in Ethiopia or in amhara region which are now in construction stage but will begin production in the near future or through incorporating other relevant variables or replicate the same in a different industries.

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Appendix A: Questionnaires

Bahir Dar University

Faculty of Business and Economics

Department of Accounting and Finance

Dear Participant: The following questionnaire is prepared for the research purpose undertaken to investigate determinant factors of cost allocation effectiveness in Amhara region large scale farms for the partial fulfillment of MSC in Accounting and Finance at Bahir Dar University. The questionnaires are distributed to 6 large scale farms in Amhara region. The results of the study are expected to contribute in identify the determinants of cost allocation effectiveness.

As previously stated the purpose of this research is to assess and identify factors that affect the effectiveness of cost allocation which will be measured in terms of finance persons contribution & the value they add to the achievement of organizational goals and the useful recommendations they provide for improvement in the organizations activities. Here, you are kindly requested to give your response to your personal profile, and to each statement related with the activity based costing ability to contribute to the achievement of organizational goals and provides useful recommendations for improvements as necessary and the added contribution by finance persons to your sector as provided in the table below and the questions related to your organization. In line with this the conclusions of the study will be drawn in aggregate terms, without any reference to specific officers or individual respondents. Therefore, please do not write your name on the questionnaire and I would also like to assure you that the information you provided will be treated as strictly confidential and used only for the purpose of this research only. Your honest and thoughtful response is valuable Thank you in advance for your support and participation.

With best regards

The personal profiles

General Instruction: Please indicate your choice by putting “√” mark in the bracket.

1. Sex/Gender/:

- ✓ Male (_____)
- ✓ Female (_____)

2. Age (in year):

- ✓ 20 to 29(____),
- ✓ 30 to 39(____),
- ✓ 40 to 49(____),
- ✓ 50 to 59(____),
- ✓ Above 60 (____)

3. Your field of study:

- ✓ Accounting (_____),
- ✓ Management (_____),
- ✓ Economics (_____)
- ✓ Other specify_____

4. Level of education:

- ✓ TVET certificate (____),
- ✓ Diploma (_____),
- ✓ Bachelor's Degree (_____),
- ✓ Masters Degree (_____) or
- ✓ Others specify_____

6. Current position in your office/sector_____

- ✓ Main Manager(____),

- ✓ Farm/Packhouse/Marketing/Producti manager (____),
- ✓ Finance Manager (____),
- ✓ Accountant(____),
- ✓ Cost Accountant (____)
- ✓ Data collector (____)

8. How do you judge the extent activity based costing is applied in your company_____

A. The questionnaire items (questions)

The Questionnaire is prepared in Likert-scale form with five (5) point scales. You are required to tick (✓) or circle the appropriate scale (point) that indicates your opinion regarding the question stated. The values of scales are 5 = strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1 = strongly disagree

Serial No.	Cost accounting contribute and the added value to the achievement of organizational goals and provides useful recommendations for improvements.	Scales				
		1	2	3	4	5
1	Activity based costing provides information on problems in the activity or control systems in the organization					
2	Activity based costing meet the expectations I have from this department.					
3	The evaluation of cost reports made by individuals in managerial positions who were external auditor & other external authorities are positive					
4	Cost reports identifies risks and input evaluates control systems, there by becoming a gatekeeper.					
5	The finance department and its employees are reliable and behave with integrity.					
6	The professional qualifications and training of employees are high to address the corporate risk management problem in the organization.					
7	Cost reports is a source of valuable data and information for the decision makers in the organization.					
8	The information provided by finance department is vital to organizational operations.					
9	All cost allocation that were approved in the cost allocation process are performed completely					

10	The number of complaints about the cost analysis is very low.					
11	The time that passes between completing the cost allocation process and submitting the final report is too short					
12	The reports of cost allocation are very significant for the achievement of organization objective					
13	The reports of cost are always based on documents and reliable data					
14	The recommendations of the finance department can be easily implemented					
15	The cost reports are professional and of high quality with clear & well presentation					
16	The management's decision-making process is strongly affected by the reports and cost department					

Serial No.	Top Management support	Scales				
		1	2	3	4	5
1	Management perceives Activity based costing as the important part of cost analysis to achieve the organizations objective.					
2	I have regular and direct working relations with the general manager and the managerial team.					
3	Top management does provide me with the support I expect to have.					
4	Management is sufficiently aware of the needs of activity based costing as demonstrated by the enough budget assigned to the department.					

5	Management does provide enough support and encouragement for training and development of the activity based costing process staff.					
---	--	--	--	--	--	--

Serial No.	Adequacy resources	Scales				
		1	2	3	4	5
1	Activity Based costing requires detailed data so to collect the data it takes many paper works so there is enough materials are available for data collection					
2	Enough number of employees delegated to collect data, to book it in excel					
3	Activity based costing needs detailed data to be summarized in professionals of computer or accountants_ the company have enough IT equipments					

Serial No.	Organizational Culture	Scales				
		1	2	3	4	5
1	ABC implementation usually involves great amount of work of collecting data and selecting suitable cost drivers which require a lot of attention to details.Data collectors have the culture for giving attention to detail.					
2	Workers of the company have culture of thinking the effect of Activity based costing on organizational goal.					
3	At each level of ABC multi-functional team can function well					
4	At each level of ABC here is culture of team					

	orientation.						
--	--------------	--	--	--	--	--	--

Serial No.	Organizational structure	Scales				
		1	2	3	4	5
1	The company have written formalized rules, policies and procedures					
2	Top management directly control the execution of decision					
3	Employees of the organization are pushed to follow the rules,policies and procedures of the company					

Appendix B: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.774	5

Correlations

	ABCE	Topmanagementsupport	Adequateresource	Organizationalculture	Organizationalstructure
ABCE	1	.634**	.750**	.095	.585**
Topmanagementsupport	.634*	1	.508**	.064	.392**
Adequateresource	.750*	.508**	1	.199	.442**
Organizationalculture	.095	.064	.199	1	.163
Organizationalstructure	.585*	.392**	.442**	.163	1

Appendix C:

The Regression Results for ABCE

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.839 ^a	.703	.679	.2914346	1.811

a. Predictors: (Constant), Organizationalstructure, Organizationalculture, Topmanagementsupport, Adequateresource

b. Dependent Variable: EFFECT

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	9.666	4	2.416	28.450	.000 ^b
Residual	4.077	48	.085		
Total	13.742	52			

a. Dependent Variable: EFFECT

b. Predictors: (Constant), Organizationalstructure, Organizationalculture, Topmanagementsupport, Adequateresource

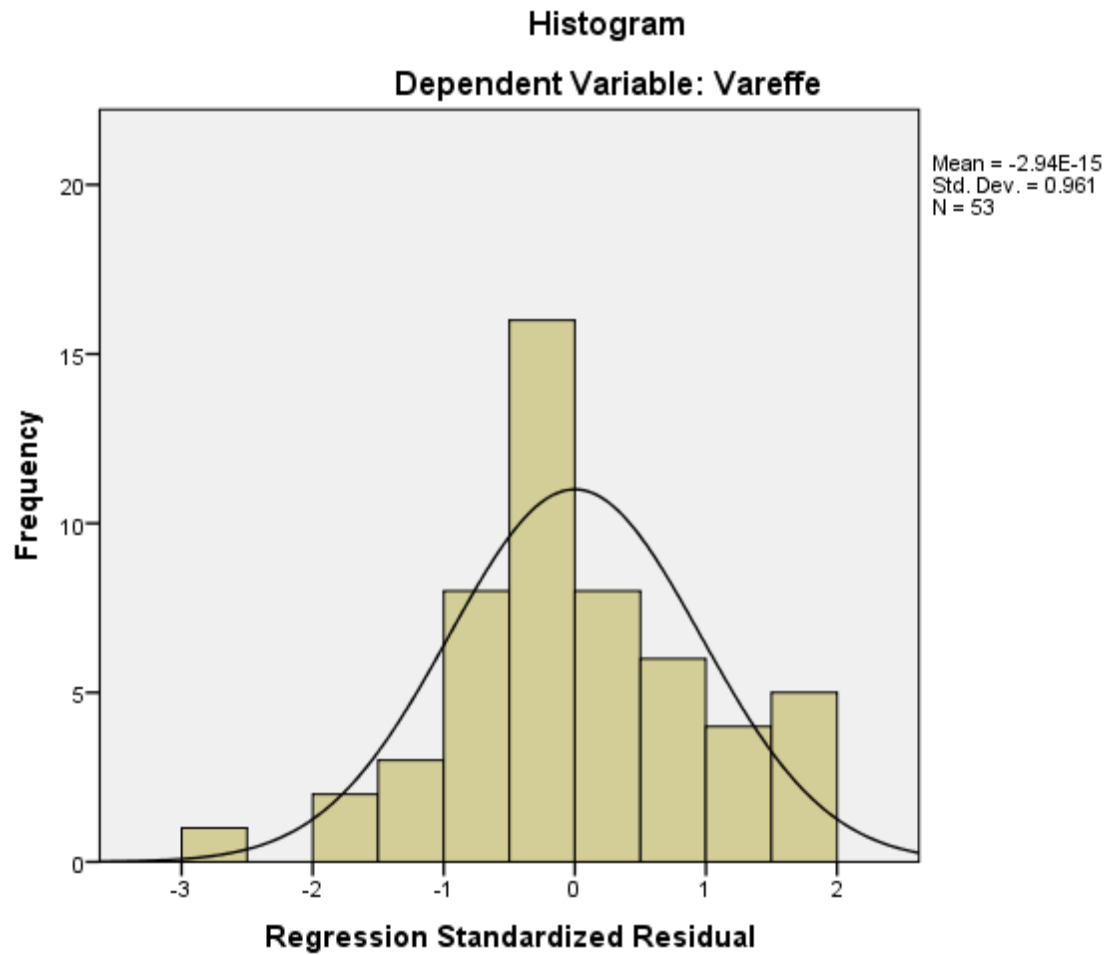
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.527	.555		.948	.348		
Topmanagementsupport	.253	.085	.278	2.969	.005	.704	1.420
Adequateresource	.419	.080	.505	5.205	.000	.656	1.525
Organizationalculture	-.091	.111	-.066	-.821	.415	.950	1.053
Organizationalstructure	.289	.099	.264	2.925	.005	.760	1.316

a. Dependent Variable: EFFECT

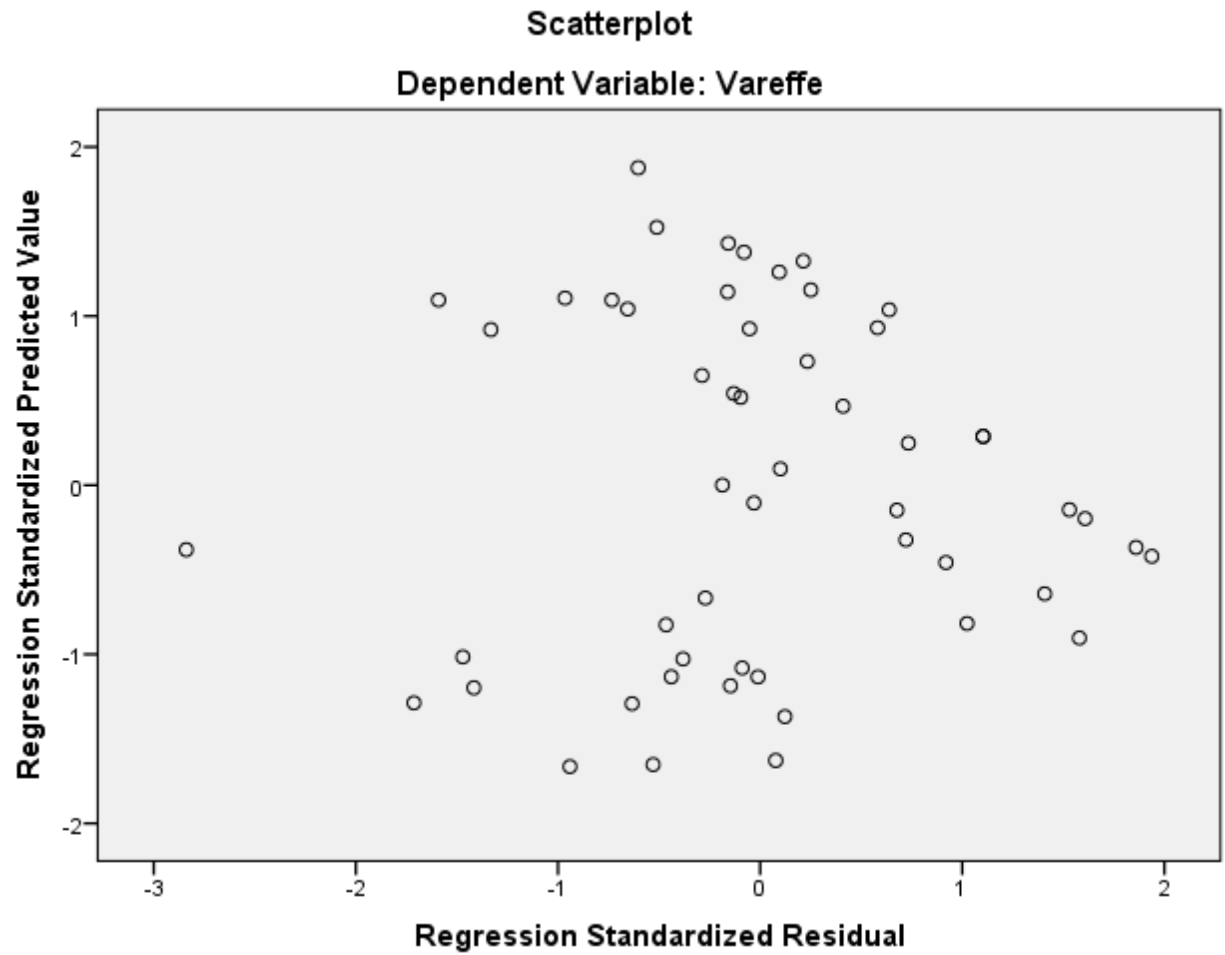
Appendix D:

Graphs for Normality



Appendix E

Graphs for Heteroscedasticity



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Vareffe

