KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ART AND BUILT ENVIRONMENT

DEPARTMENT OF BUILDING TECHNOLOGY

A MODEL FOR PREDICTING THE GROWTH OF SMALL AND MEDIUM SCALE CONTRACTORS (SMSC) IN GHANA: EMPHASIS ON THE THREE NORTHERN REGIONS

By

MOO FORTUNATUS

(PG9131113)

Bsc.(Hons.) Building Technology

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DECLARATION

I hereby declare that this work is the result of my own original research and that to the best of my knowledge it contains no material previously published by another author or material which has been accepted for the award of any degree of the University, except where due acknowledgement has been made in the text.

Moo Fortunatus	……	……
Student	Signature	Date

Dr. D.K. Ahadzie	……	……
Supervisor	Signature	Date

Dr. B.K. Baiden	……	……...
Head of Department	Signature	Date

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DEDICATION

This thesis is dedicated to the memory of my late mother, Monica N. Moo

ABSTRACT

Small and Medium Enterprises (SMEs) the world over form the bedrock of economic growth because of their ability to respond to the systemic economic shocks rapidly and their potential to generate jobs and income at the time when the large firm sector is undergoing a rapid decline and shedding jobs. The construction industry which is numerically dominated by SMEs is a strategic asset for employment generation, poverty reduction, redistribution of wealth and improvement in quality of life due to its forward and backward linkages with other sectors of the economy. Studies on the growth of SMEs in the construction industry in developing countries and Ghana in particular, have been generally scanty. However for SMEs to be well positioned to make the much needed economic impact there is the need to understand the factors that influence their growth so that policy guidelines can be formulated accordingly. Thus this study sought to identify key factors that influence the growth of Small and Medium Scale Contractors (SMSC) in Ghana and a model for predicting their growth developed thereof. The study adopted a mixed research approach where preliminary interviews were conducted and subsequently the resource base theory of business growth was adopted in developing questionnaires which were answered by SMSC in Ghana. The data from the quantitative survey was analyzed using multiple regression analysis (stepwise option). An R^2 value of 0.619 was realized, suggesting that 61.9% of growth of SMSC in Ghana is accounted for by the findings. The findings show that *lack of government support, unprofessional conduct of consultants, Delayed payment for work done, High staff turnover, Low educational level of contractor and Poor management expertise* all show negative correlation with the growth of SMSC and thus tend to impede the growth. The findings also show that *absence of politics in contracting, upgrading staff, availability of capital, comparing performance with peers in the industry* all show positive correlation with the growth of SMSC and thus tend to enhance growth. The findings provide empirical evidence for adoption by policy makers and SMSC in Ghana that could enhance growth of SMSC.

Key words: SME, **SMSC**, Growth, Ghana, Framework

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 INTRODUCTION

This chapter gives a general overview of the thesis in relation to the background of the study as well as the problem underlying the study. The questions which the study attempts to answer in pursuit of addressing the research problem are presented here. Research aims and objectives geared towards answering the research questions are also presented here. A summary of methodology adopted in carrying out the study is briefly elucidated herein. The chapter concludes with a brief description of the organization of the succeeding chapters.

1.2 THE BACKGROUND OF THE STUDY

A lot of scholarly research has identified the construction industry as the back bone of most economies all over the world, as the industry provides employment and the fixed assets requirements of various sectors of the economy (Osei, 2013; Laryea, 2010; Thwala & Mvubu, 2008). Aniekwu (2013) reported that the global expenditure in the construction industry in 2011 was US$4.6 trillion and its global total worth was approximately US$ 7.5 trillion.

In Ghana, the construction industry accounted for an average of 9.1% of gross domestic product (GDP) between 2001 and 2011 placing third after agriculture and government service which respectively accounted for 35.99% and 9.98%, of GDP (Osei, 2013). This is consistent with Ghana's Growth and Poverty Reduction Strategy report (2005) which showed that the construction industry accounted for 8.8% of GDP in 2003 and 2004 consecutively. Also between the periods of 2001-2011, the average construction industry's contribution to the overall industrial sector output was 35.9% (Osei, 2013). Studies across most developing

countries suggest that the industry is numerically dominated by small and medium scale contractors, who form an average of 90% of the market (Aniekwu, 2013; Amoah et al, 2011; Laryea, 2010; Thwala and Phaladi, 2009). This is not by accident, as there is very little or no barrier to entry into construction business (Klonowsky, 2012; Bakar et al, 2012). The industry is perceived as a cheap source of getting rich quick (National Council for Construction of Zambia, 2004). This perception coupled with the low entry barrier drive adventurous entrepreneurs into the industry thereby heightening the competition amongst all categories of contractors. Studies have however shown that the mortality/bankruptcy rate of small and medium scale contractors is high across developing economies (Bakar et al., 2012). For instance in South Africa, Thwala and Mvubu (2008) reported that small and medium scale contractors do not survive beyond the first five years due to a myriad of challenges. Notable amongst the numerous challenges that militate against the survival/growth of these small to medium scale contractors in developing countries including Ghana has been the dominance of large expatriate firms in the industries in Africa. These expatriate firms have always dominated in the execution of all large and juicy projects since the colonial times to the disadvantage of their local counterparts (Aniekwu, 2012). This report is consistent with the report of Laryea (2010) that Ghanaian local contractor's low access to finance makes them incapable to compete with their expatriate counterparts in the industry. Adams (2007) posited that expatriate firms undertake 95% of civil engineering and 85% of building projects in Africa, leaving only 5% and 25% of civil engineering and building projects respectively for indigenous contractors. The construction industry in Ghana and for that matter Africa can best be described as having pyramidal shape with a multiplicity of small firms and few large companies, (Aniekwu, 2013; Ofori, 2012; Ofori, 1991). They however argued further that the picture is like a reversed pyramid with the few large firms under taking a disproportionately large percentage of the amount of work in financial terms although not necessarily in terms of

the number of projects. This position is reinforced by a study of Aniekwu and Okpala carried out for the World Bank in 1989 and cited by Aniekwu (2013) which indicates that expatriate firms who form about 9% of the market dominate the construction industry in Africa in terms of the financial value of construction projects undertaken. According to the National Council of Construction in Zambia (2004), a myriad of challenges including capacity constraints stifle active participation of indigenous contractors in the construction activities in Afraica. Since the construction industry is widely acclaimed as an engine for socio-economic development, the development and growth of the local construction industry should therefore not be seen as an abstract concern to government but it should be viewed as economic and a strategic asset (Aniekwu, 2013).

The World Bank is committed to developing SMEs as a strategic sector capable of stimulating economic growth, jobs creation and poverty reduction. (Mosbah & Debili, 2014; Ryana et al., 2014; Anton, 2013; Osei, 2013; Anaman & Osei-Amponsah, 2007; Ayyagari et al., 2007). Sustained growth of SMEs comes with jobs and wealth creation, economic wellbeing, self-fulfillment and general improvement in quality of life (Bartik & Erickcek, 2014; Insah et al., 2013; Hussain et al., 2012; Seck, 2012; Dobbs & Hamilton, 2007). This is consistent with the stand of (Cacheche et al., 2015; Webster & Ivanov, 2014; Gerritsen & Høj, 2013; Piergiovanni et al., 2012; Weinzimmer, 2000) that growth of firms results in increased profit, ability to overcome challenges in the market and increased in the share of the market. Firm size and geographical location have significant influence on the growth of businesses. (Boswel, 2014; Fort et al., 2013; Bakar et al., 2012; Kalemli-Ozcan et al., 2012; Hurst & Pugsley, 2011; Neumark et al., 2011).

In some jurisdictions, there exist agencies and policies that guide the growth and performance of indigenous contractors to benefit from the vast potential of the local construction which is

often exploited by large expatriate firms under the guise of trade liberalization (Aniekwu, 2013; Ofori, 2012; Zhao et al., 2012; Thwala & Phaladi, 2009; Adams, 2007).

In South Africa for instance, government, under what is known as the black empowerment programme, build the capacity of ingenious contractors and redistribute wealth through concessionary contracts awards to local contractors (Thwala & Phaladi, 2009). This means that the construction industry is being used as a medium for black emancipation in South Africa.

Currently in Ghana there is a lack of policy direction towards steering the growth of the construction industry which has implication on Ghana's economic growth (Osabutey et al., 2014; Osei, 2013; Ofori, 2012). There is therefore the need for the factors that influence growth of SMEs (which numerically dominate the construction industry) to be clearly identified and monitored for improvement to enhance the growth of SMEs in the construction industry.

1.3 THE RESEARCH PROBLEM

Historically, small and medium enterprises (SMEs) the world over form the bedrock of economic growth (Love & Roper, 2015; Cravo et al.,2012; Coad & Tamvada, 2012). Majority of developed and developing countries rely on dynamism, resourcefulness and risk tasking of small and medium enterprises to trigger and sustain the process of economic growth (Wright et al., 2015; Muritala et al., 2012). SMEs in developing economies recover quicker from the systemic economic shocks than large firms and also generate more jobs at the time when the large firms may still be recovering from economic shocks and shedding jobs (Cravo et al., 2012; Arafat & Ahmed, 2012; Hashi & Krasniqi, 2011). In developing and emerging economies, SMEs offer individuals a livelihood and a source of independent revenue (Coad & Tamvada, 2012; Naqvi, 2011; Kongolo, 2010). According to Naqvi (2011),

Japan, Taiwan and Korea owe their current global economic prominence to the SMEs sector. Naqvi (2011) argued further that these Asian economic powers build up from grass root level of SMEs to the heights of success. In Nigeria, Ayanda & Laraba (2011) reveals that the SME sector is a source of economic growth and quality of life. They form over 95% of registered businesses in South Africa and the Nigerian manufacturing industry is made up of 70% SMEs Nigeria (Abor & Quartey, 2010). In Ghana, about 92% of businesses are SMEs who contribute 70% of the GDP (Ahiawodzi & Adade, 2012). Also, in South Africa, SMEs provide about 61% of employment and account for about 55% of GDP (Aigbavboa & Thwala, 2014).

Studies on the growth of SMEs in the construction industry in developing countries and Ghana in particular have been generally scanty (Damoah, 2013; Ofori, 2012; Gamsey et al., 2006; Ofori, 1991). Indeed studies on the growth and challenges of the construction industry in developing countries have in the past and recent times often concentrated on the capital and big cities with large firms being the main focus (Hagos et al., 2014; Ahadzie et al, 2011). However firm's size and geographical location of businesses have significant influences on the growth of firms (Bakar et al., 2012; Minai & Lucky, 2011; Kala & Guanghua, 2010). Currently in Ghana, there exist no specific national policy aimed at developing the onstruction industry as a strategic asset to meet the the national development agenda (AGI, 2013; Ofori, 2012). This study could therefore serve as a good foundation for public policy fomulation aimed at harnessing the potential of the construction industry in job creation and poverty reduction particularly in the poverty skrickened northern Ghana.

1.4 RESEARCH QUESTIONS

Research questions are the fundamental core of a research project, study, or review of literature. They focus the study, determine the methodology, and guide all stages of inquiry, analysis, and reporting. Thus for this study the following research questions are posed:

- What factors influence the growth of small and medium enterprise (SMEs) in Ghana?
- What peculiar factors influence the growth of Small and Medium Scale Contractors (SMSC) in Ghana particularly those in Northern Ghana given the deprived nature of the area?
- How is the growth of SMEs in the construction industry assessed in Ghana

1.5 RESEARCH AIM

To understand the impact of the variables that influences the growth of SMEs in the construction industry in Ghana.

1.6 RESEARCH OBJECTIVES

Research objectives specify specific actions that need to be taken in order toanswer the research questions. Thus for this study the following research objectives were set:

- Identify key factors which influence the growth of SMEs in Ghana.
- Identify factors peculiar to the construction industry which influence the growth of SMSC .
- Develop a model using regression analysis for predicting the growth of small and medium scale contractors (SMSC) in Ghana.

1.7 THE RESEARCH METHODOLOGY ADOPTED

A mixed research approach was adopted in carrying out the study. Literature review set a roadmap for a study and make it possible to compare current studies with previous ones

(Creswell, 2009). Thus elaborate literature on business growth generally and the construction industry in particular was reviewed to establish appropriate methodologies in answering the research questions and by extension, addressing the research problem identified. Small and Medium scale contractors (D3K3 and D4K4 contractors) formed the focus of this study. In Ghana, class D contractors are those licensed to execute building projects while K contractors are licensed to execute civil engineering projects (Ofori, 2012; Eyiah, 2004). Thus D3K3 and D4K4 refer to small and medium scale contractors (SMSC) who are registered to execute both building and civil engineering projects. As studies on business growth in the construction industry particularly in the Ghanaian context is generally scanty (Damoah, 2013; Ofori, 2012; AGI, 2013), a qualitative inquiry was conducted to established key business growth variables that could be peculiar to businesses in the Ghanaian context. The qualitative inquiry involved face to face interview of twenty small scale contractors and five construction industry consultants operating within the three regions in Northern Ghana which generally lag behind the rest of the country in terms of socioeconomic development and quality of life (see section 2.4.1). The data gathered thereof was analyzed using a triangulation of word auto-summary, manual summary and Nvivo 8 (a qualitative data analysis software). The findings from the qualitative inquiry together with issue immerging from literature formed the bases for structured questionnaire developed to gather quantitative data from a larger sample of small and medium scale contractors. The questionnaire basically asked SMSC to rank on a five point lerkurt scale various variables which influence their growth and the data subjected to multiple regression analysis (stepwise method) with the aid of statistical package for social sciences (SPSS) version 17. The optimum number of variables which influence the growth of SMSC were churned out from the analysis and these were used to develop a model for predicting the growth of SMSC in Ghana.

1.8 SCOPE OF THE STUDY

The study focused on registered small and medium scale building and civil engineering contractors (D3K3 and D4K4) who operate within the three regions in Northern Ghana that is Upper West, Upper East and Northern Region. The study sort to elicit information from the SMSC that border on their growth. Construction industry consultants were also interviewed just to corroborate the responses from the contractors

1.9 THE ORGANIZATION OF THE STUDY

The study is organized into five chapters. Chapter one opens the study with a brief introduction and background of business growth particularly in the construction industry. This is followed by a problem statement identified from literature briefly reviewed in the background statement. The problem statement is followed by research questions, aims and objectives statement all geared towards addressing the research problem. The brief statement of the methodology adopted in carrying out the study is stated here. In chapter two, relevant literature on small business growth theories were reviewed concentrating on factors which influence the growth of SMEs in the construction industry. This is followed by chapter three which gives an elaborate statement of the methodology adopted for the study. Here philosophical standpoint, design of research instrument, sampling procedure and the procedure for data collection is treated here. Chapter four treats the presentation and analysis of data as well as discussion of findings of the study. Chapter five concludes the study with a summary of the study, review the research objectives and make conclusions and recommendations.

1.10 SUMMARY OF CHAPTER ONE

Studies on the growth of SMEs in the construction industry in developing countries and Ghana in particular have been generally scanty. As a consequence public policy on the

development of the construction industry in Ghana is sketchy if it exist at all. There is thus the need to identify the factors which influence the growth of small and medium enterprise (SMEs) generally, and factors peculiar to the construction industry which influence the growth of SMEs in the industry in Ghana.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews literature relevant to the subject area. First the chapter looks at the various theories of business growth from literature. This enabled the researcher to place the current study in an appropriate theoretical realm of business growth and then discuss the factors determine business growth. The factors that manifest growth of businesses are also reviewed. This is then followed by a review of the characteristics of SMEs with emphasis on those in the construction industry. Evolution of indigenous contractors in Ghana is reviewed next. Socioeconomic development profile of Ghana and Northern Ghana in particular is also reviewed. The chapter concludes by looking at the contribution of the construction industry to the economy of Ghana.

2.2 FIRMS GROWTH THEORIES

The growth of enterprises has been defined differently by different authors based on what they view as indicators of growth. Growth is defined in terms of the value addition, quality of product, increase in production output, share of market, employee size, goodwill of customers, geographical spread etc (Gupta et al., 2013; Mateev & Anastasov, 2010; Kruger, 2004). Peng (2003) argued that the growth of a firm is a multidimensional construct, which basically entails increase of firm's size which is manifested in increases in assets holding, employees' size; sales or production value, improved quality of product, introduction of new economic functions or more lines of products and services. According to Insah et al (2013) business growth can be defined both qualitatively and quantitatively. They posited that the level of revenue generated and volume of production over a given period gives a quantitative measure of growth of a firm. Qualitatively, they inform further that growth is measured based

improvement in quality of the product, loyality of customers, and share of the market the firm controls. Theoretical and empirical studies of industry dynamics have extensively focused on the business growth processes. Theory suggest that for a business to overcome market challenges and grow to achieve outstanding performance, then it must aim at efficiency, profitability and good financial management (Levanon et al., 2015; Karlsson & Orselius, 2014; Bianchini et al., 2014). Additionally, in the construction industry the financial classification is often used as a measure of growth of business (Eyiah, 2004; Amoah et al., 2011). Of essence, a contractor who starts as class D4K4 and move to D3K3 gives an indication of growth since the requirement of the two classes differ significantly (Eyiah, 2004). Consistent with previous studdies, in the current study which aims at developing a model for predicting the growth of SMSC in Ghana, growth means an enterprise over a given period has increased in its employement profile, financial class, and annual turnover or value of works executed or has jobs across a wide geographical area (Levanon et al., 2015).

Even though several theories abound in the organizational management literature on enterprise growth, these theories have remained an issue of much debate amongst researchers as these theories contradict each other (Gupta et al., 2013; Pitelis, 2009; Coad, 2007; Geroski, 1999) There is no consensus amongst researchers as to which theory in particular best describes the predicators of business growth (Geroski, 1999). While some researchers contend that firm growth is characterized by random variables which make it difficult to predict, others argue that firm growth is linear and can really be predicted (Gupta et al., 2013). However, Geroski (1999) advanced arguments that firm growth follow a random or opportunistic pattern and largely contradicts most of these theories which suggest that firm growth is predictable and can be planned. These opposing arguments have made the theory of firm growth largely under developed (Pitelis, 2009). Notwithstanding the many theories

and debates on this subject, about three growth theories have featured prominently in the enterprise growth literature. These are reviewed briefly below.

2.2.1 Optimum size theory

The theory suggests that there is an optimum size to which a firm can grow beyond which it ceases to grow due to decrease in profitability (Coad & Tamvada, 2012; Becker-Blease et al., 2010). At its optimum size, profit accrues to the firm as a result of economy of scale of large production offset the cost of coordinating large bureaucratic organizations (Cordes et al., 2011; Costas, 2009). Beyond the optimum size, managerial inefficiency goes high and cost of coordinating the large bureaucratic organizations exceeds the profits that accrue from economy of scale of large production (Schiersch, 2013; Cordes et al., 2011). This means that as small firms grow, all things being equal their profit margin increases progressively until it reaches the optimum firm size where profit reaches its maximum. Relating this to the current study which looks at the growth of SMSC in Ghana, this will mean, small firms have the potential to grow to reach their optimum size.

2.2.2 Life cycle theory

The life cycle theory of enterprises was proposed by Greiner (1972), who posited that enterprise growth goes through five smooth stages interspaced with management crises. These five stages of growth are as presented in Figure 2.1 by Greiner (1972)

Figure 2.1: Phases and crises of growth (Greiner, 1972)

The five stages of firm's growth are creativity, direction, delegation, coordination and collaboration. Greiner (1972) posited that a firm goes through two stages of evolution and

revolution. The ability of a firm to go through these life cycle stages depend on the vision, commitment and management expertise of the business owner (Adizes, 1979). Building on Greiner's work, Churchill & Lewis (1983) also posited that in the growth process a firm goes through five process

Figure 2.2: Stages of an enterprise growth (Churchill and Lewis 1983).

At the existence stage the firm struggles to begin without a formal structure with the business owner taking control of every business decisions and activity. After the existence stage, Churchill & Lewis (1983) contend that the firm gets to the survival stage where more capital is injected into the business with the need to engage more hands. At this stage the entrepreneur aims at breaking even in order to stay in business. At the success stage the firm begins to earn profit. The firm has enough capital to inject into other business opportunities or continue at the same pace of growth. They contend that depending on the entrepreneur vision he/she may at this stage focus on team building and human resource development. It is their view that at the takeoff stage the firm focuses on expanding further, accessing new business avenues with work being a bit more formalized, defined with possibility of work being delegated. Then finally when the business matures, the firm is no ceases to be a small enterprise and the focus here will be quality and financial controls with an aim to carve a niche for itself in the industry. However, more recent researchers (see Levie & Lichtenstein, 2010; Bridge et al., 2003; Blundel & Hingley, 2001) are of the view that it is not necessarily the case that a firm goes through distinct stages of growth as posited earlier by Greiger (1972) and later by Churchill & Lewis (1983). For instance (Bridge et al., 2003) posited that a firm goes through a broad spectrum of growth with the possibility to stagnate and decline or

bounce back to growth within the spectrum. Also Blundel & Hingley (2001) argued that a firm may grow faster, slowly or not at all and thus may not go through these stages depending on the growth aspirations and enbling factors of the enterprise. Levie & Lichtenstein (2010) also posited that there exist no clear cut path for the various stages of growth and the predicators for the transition fron one stage to the other are also not clear. Notwithstanding reports from these recent studies, Chaston (2010) also recently identified five stages (chasm) that a firm goes through in the growth process. These stages he identified as launch capacity, expansion, organizational formalization, succession, and long-term growth (Figure 2.3).

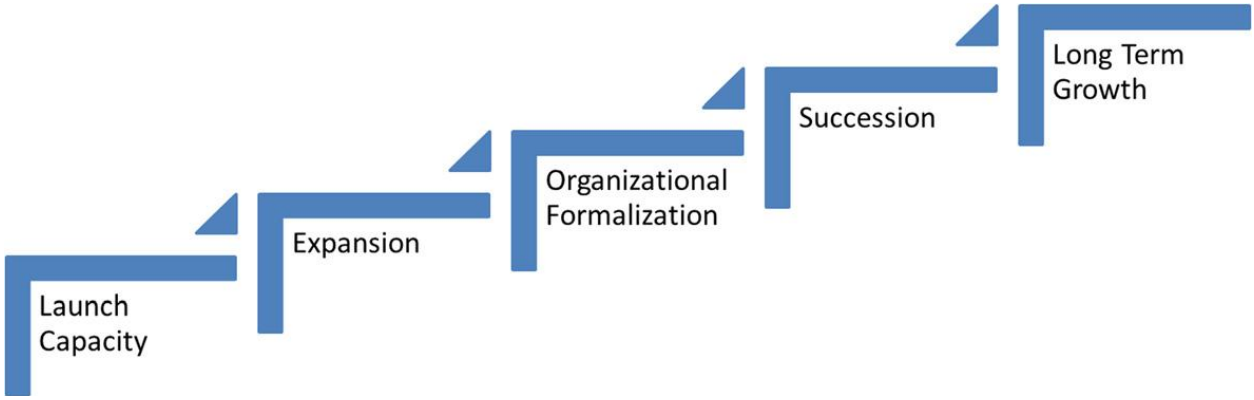

Figure 2.3 Chasms of growth by Chaston (2010)

To grow from the first stage to the second stage, requires entrepreneurial skills to capture the market and increase revenue from sales. According to Chaston(2010) capacity expansion will move the business from stage two to three and then producing enough to meet market demand is important to reach the success stage. He argued further that formal organization structure is necessary to match the demand with appropriate supply and that a competent successor is the cornerstone of a well established business.

2.2.3 Resource base theory

This theory was proposed by Penrose (1959) who argued that enterprises have a limit to which they can grow but there exist no limit to the size of the enterprise. She argued that the growth of an enterprise depends on how effectively management utilizes internal and external resources to harness growth opportunities. In her opinion the existing human resources within the firm provide an impetus for growth and the limit to the rate of the growth. She explained further that there was a continuous process of interaction between the market avenues available to the firm and the factors of production internal to the firm. Geroski (1999) building on Penrose's work, posited that firm growth is a development process which entails the building up of skills and competencies that are unique to the firm which can be learned over a period through mutual sharing which is beneficial in extending the firm's productive opportunities. Foss & Stieglitz (2010) and building on the resource based theory, argued that firm gain competitive urge over their competitors if they control resource that ar valuable, rare, and costly to imitate and substitute

In relation to the current study, a small scale contractor's ability to grow resides in its internal and external resources. This means that the entrepreneurial ability and skills of the contractor as and his/employees as well as his/her relations with bureaucratic institutions could be key inducements to the growth of SMSC.

2.2.4 Theoretical bases of this study

Having reviewed the theoretical bases of enterprise growth in literature, it is significant at this juncture to place this current study in a particular theoretical realm. Extant literature suggests that SMEs in the construction industry are faced with serious challenges which militate against their growth (Aigbavboa and Thwala, 2014; Ive and Murray, 2013; Bakar et al., 2012; Amoah et al., 2011; Enshassi et al., 2006; Jafaar & Abdul-Aziz, 2005; Eyiah & Cook, 2003).

There is generally high bankruptcy rate of businesses in the construction industry with SMEs who hardly survive the first five years being the highest victims of this phenomenon (Thwala et al., 2012; Thwala & Phaladi, 2009; Jafaar & Abdul-Aziz, 2005). It therefore stands to reason that SMEs in the construction industry hardly reach their optimum size before they go bankrupt. Thus the optimum size theorem as discussed in 2.1.1 cannot be applied to this current study since SMEs in the industry hardly survive long enough to reach their full potential. Construction enterprises the world over and Ghana in particular are categorized based on a set criteria (resources holding) for classifying businesses. Thus contractors are categorized into four classes, D4K4, D3K3, D2K2, D1K1 with the least in size being D4K4 and largest being D1K1. This thus gives a picture that resembles both the life cycle and optimum size theory of business growth. However studies show that registration and classification of contractors in this manner in Ghana is not mandatory, but is only necessary for bidding for government projects (Amoah et al., 2011; Eyiah, 2004). Additionally, the class assigned to a business at the time of registration depends on the resource holding capacity of the business (Eyiah, 2004). It is therefore not the case that a contractor must of necessity begin from the lowest class at the point of registration. This therefore makes the life cycle and the optimum size theories again inapplicable to the current study. Classification of businesses in the construction industry is based on the resource holding capacity such as human, financial, equipment resources of the enterprise (Eyiah, 2004). Also a contractor gains a competitive urge over its peers depending on its ability to manage its resources, both internal resources including political connection and mitigate the challenges that confront businesses in the industry (Ameyaw et al., 2012; Islam et al., 2011; Jafaar & Abdul-Aziz, 2005; Anvuur et al., 2006). This current study seeks to amongst other things develop a model for predicting the growth of SMEs in the construction industry in Ghana. To do this, the factors influencing the growth of SMEs in the construction industry are identified. These

factors include both challenges and drivers which form the resources for business growth and consistent with the resource base realm of business growth. Thus this study is of essence based on the Penrose (1959) resource base theorem of business growth. The next section, basing on the resource based theory, discuss the factors (resources) which influence the growth of SMSC in Ghana.

2.3 DETERMINANTS OF BUSINESS GROWTH

There exist many determinants of firms' growth. Firm's growth determinants may vary according to the firm's size, prevailing economic conditions and the geographical location within which the firm operates (Obeng et al, 2014; Bakar et al., 2012;). There are basically two schools of thoughts about the determinats of firm's growth. That is the industrial organizational and resource base schools of thoughts. The industrial organization model sees growth of firms from an external perspective, that is, environmental/external factors, instead of resources and capabilities that are internal to the firm, dominant role on a company's growth and strategic actions of a firm (Hitt et al., 2011). According to this model a business enterprise must first consider the external environment (the industry in which it operates) and search the one that is most attractive to the firm and design a strategy that fits to (is required by) the characteristics of the industry. Then it must be able to successfully implement that strategy to increase its level of competitiveness so that it generates above average return (Hagos, 2014).

On the other hand, the resource based view considers unique resources and capabilities owned and controlled by each firm to be the sources of ability to generate above average return or higher growth than competitors. The argument of resource based view is that all firms face the same external environment (Mullins et al., 2014). However, firms with strong internal capacity (tangible and intangible resources) not only exploit environmental

opportunities but also can succeed to challenge any external threats and challenges. This implies that while firms with unique resources and capabilities earn superior profits, firms with marginal resources can only expect to breakeven (Mullins et al., 2014; Kalasin et al., 2014)

From the stand point of the two schools of thoughts, a lot studies have gone on to establish the determinant factors influencing SMEs growth. Generally, these factors relate to entrepreneurial, firm, inter-firm characteristics and external factors. Factors relating to the entrepreneur such as sex, age, level of education, previous work experience, management skill, economic background and marital status determine the growth of SMEs (Janda et al., 2013; Mbugua et al., 2013; Osinde, 2013; Habtamu, 2012; Chirwa, 2008; Mulu, 2007;). Other studies (Tiruneh, 2011; Enock, 2010; Mulu, 2007; Clover & Darroch, 2005;) found that firms related factors including age, size, initial capital, location, formality, type of business to be the most determinant factors affecting the growth of SMEs. Many empirical studies (Habtamu, 2012; Haftom, 2013; Ishengoma & Kappel, 2008; Mulu, 2007) found that Male-headed firms grow faster than that of female-headed, but Chirwa (2008) indicated that male-owned enterprises tend to grow more slowly in terms of employment than female-owned ones. Younger owner/manager of SMEs is more likely to grow than the older counterparts (Janda et al., 2013; Hackett et al., 2007). Growth of SMEs improves with increasing in education (Ahiawodzi & Adabe, 2012; Mulu, 2007). However, limited studies revealed the effect of increasing educational level of the owner/operator on the growth of SMEs is to some level (Habtamu, 2012). Some studies (Mulu, 2007) reported that a firm with more years of work experience typically have faster-growing than their counterpart. Other empirical studies (Janda et al., 2013; Mulu, 2007) argued that young SMEs are more likely to grow faster compared with larger firms that have existed longer period. On the other hand, Mateev and Anastasov (2010) revealed that there is positive relation between firm age and its growth by

assuming firms may benefit from learning which enables them to develop expertise in production, management, and marketing. Start- up capital of a given firm has significant positive effect on the growth of MSEs (Ahiawodzi & Adabe, 2012; Habtamu, 2012). The growth determinants of SMEs is also associated with external factors such as access to credit, infrastructure, market, working place, technology, social services and other legal and regulatory frameworks (Ahiawodzi & Adabe, 2012; Gichana & Barasa, 2013; Hove & Tarisai, 2013; Ishengoma & Kappel, 2008; Kefale & Chinnan, 2012; Kinda & Loening, 2008; Mbugua et al., 2013; Mulu, 2007). Habtamu (2012) argued that growth of SMEs is affected by inter firm related factors like linkage, network, and competition. With regard to the sector-growth relationship firms engaged in manufacturing and service sector grow faster than their counterparts **(**Mulu, 2007; Habtamu, 2012).

The overall growth of businesses in general and in the construction industry in particular is influenced by macro-economic policies of government (Osei, 2013; Anaman & Osei-Amponsah, 2007; Chan et al., 2005). Globally, Aniekwu (2012) observed that the construction industry in the global arena is dominated by richer nations in the various stakeholders in the industry such as contractors, design consultants, materials producers with the poorer countries only dominating in the labour resource sector. Even in the labour trade where the poorer countries seem to dominate, they dominate as employees of the richer countries. Developing countries face a major hurdle in building the capacities of their indigenous contractors to be competitive and break the aged old dominance of expatriate in the industry (Aniekwu, 2013).

Firms with growth potential tend to recoil due to the difficult they face in accessing external sources is fund which are critical ingredients for business growth. (Thwala & Mvubu, 2009). Significantly, the construction industry in developing countries is under performing and is slow in growth due the absence of reliable source of funding of projects. Contractors are

constrained in their mobilization of labour and equipment by limited access to external source of finance (Osei, 2013; Amoah et al., 2011).

Growth and success of enterprise are greatly enhanced by having consistent access to the markets and external sources of funding, technical expertise, appropriate previous industrial experience and acquisition of new skills from larger firms, innovation and good risk management (Thwala & Mvubu, 2009). This argument is consistent with the stand of (Kamal & Flanagan, 2012) that in the prevailing complex socioeconomic atmosphere, firms require external resources in addition to their own internal resources to enhance growth and remain competitive in the market. They argued that every organization needs to take advantage and learn emerging technology from other organizations.

Baker et al (2012) argued that good management expertise, developing skills of workers, good quality control of products, market specialization and strong capital base are deemed as important growth factors to the company. The current study is underpinned by the fact that geographical location of business has significant effects on the growth of businesses (Hessels & Parker, 2013; Baptista & Preto, 2011). Also determinants of firm growth vary from one industrial sector to the other and between small and large businesses. Thus the next section examines industry specific factors that influence the growth of SMSC in Ghana.

2.3.1 Factors Influencing Growth SMSC in Developing Countries

Research has identified several factors that impede the growth of construction business. Some of these challenges are briefly reviewed

2.3.1.1 Difficulty in accessing Credit

The problem of SMEs access to finance has received wide recognition in academic literature. (Klonowski,2012; Akorsu & Agyapong, 2012; Abor & Biekpe, 2009; Anaman, 2006; Abor & Biekpe, 2006; and Mensah, 2004). Economic growth depends on how effectively SMEs

firms are progressing from one stage of growth to another. This transitioning in development is however contingent on the availability of capital which has been cited variously as a major obstacle to the growth of the SMEs in developing countries (Klonowski, 2012). The key source of funding for SMEs is either debt or equity sources or a combination both (Akorsu & Agyapong, 2012). The choice between debt and equity financing however is determined by the life cycle theory, information asymmetric and agency costs (Abor & Biekpe, 2009). The theory of life cycle approach suggest that newer firms tend to rely on owners' initial equity since they are new to finance providers and their investment proposals may not be attractive enough to convince finance providers (Berger & Udell, 1998).

In normal contractual arrangements, contractors are reimbursed for work properly executed, valued and certified by the client's professional advisors. This then means that the contractor refinances the project to a stage before he is paid. Mobilizing funds to bridge the gap between expenditure and revenue often proves very burdensome to SMSC in developing countries. (Rameezdeen et al., 2010). Eyiah (2001) opined that one of the most pressing problems of small and medium scale contractors is obtaining the 'working capital' required for a project. Financing construction projects is a great challenge in developing countries and has left most of the infrastructure in a sorry state (Oyedele, 2013). According to Eyiah(2008), access to finance is the most critical of all the numerous challenges facing small and medium scale contractors in Ghana and this has limited their active participation in construction activities .

2.3.1.2 Delayed Payment

Under normal contractual arrangements contractors are reimbursed by the client for work properly executed, valued and certified on agreed stage bases (Hackett et al., 2007).

Most cases contractors are entitled to payment for the work properly executed as well as materials present on site for the work. However materials not on site including those

substantially prefabricated and assembled offsite are not paid until they are to site. (Motawa & Kaka, 2009). This according to Motawa and Kaka (2009) affects the contractor's cash flow negatively. The overall growth of businesses in general and in the construction industry in particular is influenced by macro-economic policies of government (Chan, et al., 2005). In Ghana where government remain the largest employer in the construction industry, several studies have revealed a persistent delay in payments for work properly executed by contractors and duly valued and certified by the clients (Government) representative (Osei, 2013; Badu et al., 2012; Amoah et al., 2011; Laryea, 2010; Eyiah, 2003; Eyiah, 2001). This congenital payment delay partcularly by the major client in the industry post serious cash flow challenges to constractors particularly SMSC and this impact negatively the growth of their businesses (Badu et al., 2012; Amoah et al., 2011).

2.3.1.3 Firm age and firm growth

New firms arguably face more challenges and more susceptible to failure than older firms (Damoah, 2013). The proponents of this argument derive their strength from the theme of newness liability which was first advanced by Stinchcombe(1965). He argued that young firms lack reliable network ties and as such face difficulties in accessing business services such as loan finance and supplier credit. More recently, Acquaah & Eshun (2010) also argued that new firms often face the problem of striking the necessary acquaintances with officialdom and this impact negatively on their growth and performance. This is more so in the costruction industry which often suffers the manipulations of politcal authorities particularly in Africa (Aniekwu, 2013) Newly-established firms usually experience much difficulty in dealing with industry barriers, which limits its performance in the short-term (Leonidou, 2000).

2.3.1.4 Ownership structure.

The ownership structure of a firm determines the development and growth agenda of the firm. This is because the ownership structure has a cascading influence on the asset base of the firm, the competitive arena within which the firm operates and ultimately the direction and governance mechanism of the firm (Damoah, 2013). Several dimensions of ownership structures abound in academic literature which stimulates growth of firms at varying degrees. These dimensions of ownership include but not limited to family ownership, cooperate ownership, independent ownership, public ownership etc (Ferna´ndez & Nieto, 2006; Hall & Tu, 2003; Javalgi & White, 2000).

According to Obeng, et al (2014) and Mensah (2004) SMEs in Ghana are often established by one individual who doubles as the manager with very limited formal education, who takes all key decisions. They argued further that the owner-managers of SMEs have limited access to information on the market and emerging technology, and their access to credit from the financial market is severely constrained. (Ahiawodzi & Adade, 2011; Abor & Quartey, 2010). The weak management expertise of owner-managers makes it difficult to have a strategic plan for the growth of SMEs (Akorsu & Agyapong, 2012; Acquaah, 2005).

2.3.1.5 Firm's Size

The size of a firm has a direct link with its skills and capabilities, resource base, employee size, risk tolerant level, technological edge amongst others all of which have a direct influence on growth and performance, (Damoah, 2013). Given the composition of small firms, because of their low skills and capabilities they are unable to benefit from economies of scale and scope which will offer them performance and growth advantages compared to large firms (Adams, 2007). Also smaller firms lack the financial might to invest in state-of-the art technologies which are essential growth stimulants. It is further argued that small

firms, because of their low resource capacity, are more likely to be less risk tolerant and so they are unable to absorb competitive pressure and combat the threat of demise (Baptista & Preto, 2011; Klonowski, 2012). Therefore, lack of adequate and appropriate size will constitute negative consequences for a firm because small-sized firms, for example, may have difficulties with regard to competing for skilled labour with large organizations that offer better wages and more attractive benefits to employees (Anton, 2013; Ayamda & Laraba, 2011). So because small firms are less likely to attract better qualified workforce owing to their inability to remunerate a qualified workforce, their performance and growth levels are likely to be affected relative to their counterparts' large firms. Large-sized firms are seen as wielding more power in bargaining with suppliers and having the necessary resources to maintain good customer relationships (Amoateng et al., 2014; Abdurahman et al., 2003; Ayyagari et al., 2007; Acquaah, 2005).

2.3.1.6 Location of business

The location of business/firm which could be either rural or urban centre or municipality or metropolitan city has an influence on the growth of the firm. (Minai & Lucky, 2011; Kala & Guanghua, 2010). This is so because quality labour force, social amenities/services, bueacratic instituions and even assess to jobs and clients/customers which are necessary ingredients for firms growth could be located in particular area that informs the firm choice of location. Firms usually seek to locate their business in markets with an existing cluster of firms in the same industry, with greater concentrations of upstream suppliers or downstream customers, and with a larger proportion of college-educated workers in the local labour supply (Artz et al., 2014; Brinckmann et al., 2010)

2.4 MEASUREMENT OF GROWTH (GROWTH INDICATORS)

The indicators for measuring business growth have been an issue of much debate in academic literature. In most cases however the indicators have always included returns from sales, volume of production, market share, returns on investment, employees' size, and number of production/production/operation outlets and extent of geographical coverage (Ofori, 2000). A firm's growth can be measured in terms of its capital investment, value of assets, market capitalization, economic value added elements) or outputs (sales, revenues, profit). Each of the measures illustrates some feature of growth and each is subject to limitations as a growth indicator. (Bakar et al., 2012). In the construction industry, a contractor who moves from one financial class to the next higher class is assumed to have experienced growth. In essence a class D4 contractor who moves to D3 over a period of time has experienced growth (Eyiah, 2004).

2.5 CHARACTERISTICS OF SMEs IN GHANA

Small and medium scale enterprises have been defined differently by different researchers from different geographical locations across the globe. This according to (Eyiah, 2004) is due to the fact that there are variations amongst firms of their levels of investment on capital and revenue generation as well size of labour employed. He also argued that across the globe there are variations in countries levels of economic development. This argument is in concord with (Ayamda & Laraba, 2011) who posited that the definitions of SMEs emerge the SMEs governing policies in a particular country and purpose those definitions are supposed to serve. There appear to be a consensus amongst researchers that key parameters applied across countries in classifying businesses include investment on plant and equipment; employees size and volume of revenue generated (Sannajust, 2014; Ayamda & Laraba, 2011; Mckelvie & Wiklund, 2010; Becker-Blease et al., 2010; Brinckmann et al., 2010; Ayyagari et al.,2007)

According to (Ive & Murray, 2013), in the European Union (EU) SMEs are defined in terms of numbers employed and then either sales or assets thus:

• Micro firms: employ fewer than 10; sales less than 2m Euros or assets less than 2m Euros

• Small firms: employ 10 or more but fewer than 50; sales of 2m Euros or more but less than 10m Euros or assets of 2m Euros or more but less than 10m Euros

• Medium firms: employ between 50 and 249; sales greater than 10m but less than 50m Euros or assets greater than 10m but less than 43m Euros

In a report on the promotion of SMEs in East Africa (Ernst & Young, 2009) reported that amongst the Community of East African countries, SMEs are defined based on number of employees, capital investment and annual turnover.

However in Ghana, Amoateng et al.(2014), Selase (2014) and Mensah (2004) categorized and defined SMEs as follows:

Micro enterprises: Those employing up to 5 employees with fixed assets not exceeding the value of $10,000

Small enterprises: Employ between 6 and 29 employees with fixed assets of $100,000

Medium enterprises: Employ between 30 and 99 employees with fixed assets of up to $1 million. Abor and Biekpe(2006) simply defined SMEs as firms which employ not more than 100 persons and whose total asset base, excluding land and building does not exceed the cedi equivalent of $1 million in value (GH¢250,000, at the current exchange rate of GH¢4 to US$ 1).

For the purpose of this study, the definition of Abor and Biekpe (2006) is adopted since it gives a larger range of employees' size which caters for all the subdivisions of businesses

under study which are herein referred to as SMEs. Classifying businesses by size, it is observed that the private sector in Ghana; as is the case in other countries worldwide; is highly skewed with 90% of businesses employing less than 20 persons (Obeng et al., 2014; Mensah, 2004). This is consistent with the report of Akorsu and Agyapong (2012) that 90% of companies registered at the registrar general's department in Ghana are micro, small and medium enterprises.

In China, SMEs represent 99.3% of formalized businesses, they account for 55.6% of GDP, 62.3% of export, 46.2% of revenue through taxes and create 75% of job avenues (Nguyen et al., 2015; Doh & Kim, 2014; Wu et al., 2008).

In the United states of America, (Thwala & Mvubu, 2009) cited Abdelsamad and Kindling (1978) as positing that SMEs who constitute about 95% of registered businesses, account for 60% of job opportunities and are responsible 50% new technologies developed in the 20th century. In a more recent study, Sannajust(2014) advanced arguments that support the earlier findings that the SMEs sector is indeed a driving force of the economy of the USA.

Globally, it is acknowledged that a healthy and robust small and medium-sized enterprise (SME) sector is vital for sustainable competitive advantage and economic development in both developed and newly industrialized economies (Nguyen et al., 2015; Doh & Kim, 2014; Etuk et al., 2014; Wu et al., 2008).

Recent studies (Amoateng et al., 2014; Abots et al., 2014; Selase Asamoah., 2014) chronicled the common profiles of SMEs in Ghana as follows:

- They are, dominated by one person, with the owner/manager taking all major decisions. The entrepreneur possesses limited formal education, access to and use of

new technologies, market information, and access to credit from the banking sector is severely limited,

- Management skills are weak, thus inhibiting the development of a strategic plan for sustainable growth.
- This target group experiences extreme working capital volatility.
- The lack of technical know-how and inability to acquire skills and modern technology impede growth opportunities.

2.6 EVOLUTION AND PROFILE OVERVIEW OF THE GHANAIAN CONTRACTOR

The term ‘contractor’ refers to an individual professional, a business minded person or an organization, enterprise or firm who undertakes to supply all the necessary resources such as labour, equipment, materials, services and technical expertise needed to execute a project to meet a client desired requirement (Laryea & Mensah, 2010). As a construction project comprises several specialist areas such as electrical, plumbing, painting etc, some contractors specialize in these areas and take up subcontract works from the main contractor commonly referred to as the general, principal or main contractor (Nawaz & Ikram, 2013; Dadzie, et al., 2012). Indigenous commercial construction business did not start in Ghana until the 1950s when the Ghana National Construction Cooperation (GNCC), a state owned venture was established as a local competitor in the construction industry which at the time and even now is dominated by European firms (Ofori, 2012; Ahadzie, 2010). Ahadzie (2010) informs further that the GNCC was renamed State Construction Company(SCC) which undertook more than 60% of public sector jobs at the time and went international, at least within the African continent. The SCC eventually went defunct in the 1990s in the face of a myriad of challenges. Currently the construction industry in Ghana as is the case in other developing countries is numerically dominated by Small and Medium Scale Contractors who

characteristically lack the capacity to put up the kind of competition against foreign firms witnessed during the days of the SCC (Osei, 2013; Ofori, 2012, Ahadzie, 2010; Laryea, 2010). Ofori (2012) argued that the construction industry in Ghana has a pyramidal shape in terms of numbers with small firms being the base of the pyramid with a few large and mostly foreign firms forming the top of the pyramid. However in terms of value of jobs executed (turnover) they give the picture of a reversed pyramid with few large firms executing a disproportionately high value of projects. This indeed is the trend in most developing countries. Anniekwu(2013) argued that even though foreign firms form only about 9% of the market in the construction industry in developing countries, the value of works they do far exceed the rest of the 91% who are mostly SMSC and locally based. This situation is often worsened where the local contractor does not receive any support from central government in the form policies or subsidies (Osei, 2013; Ananman & Asei-Amponsah, 2013). In Ghana consensus is being built amongst researchers and policy makers for the establishment of an agency for the development of the construction industry that will make the Ghanaian contractor competitive locally and internationally (see Osei, 2013; Ofori, 2012; AGI, 2012; Ahadzie, 2010).

2.6.1 Classification of Contractors in Ghana

The Ministry of Water Resources, Works and Housing (MWRWH) used the criteria of financial capacity, experience, profitability, asset structure/equipment holding and management structure to classify contractors into K1D1, K2D2, K3D3 and K4D4 (Owusu-Manu et al., 2014; Amoah et al., 2011; Eyiah & Cook, 2003). This mode of classification is consistent with the general criteria for classifying businesses. There is however no consensus amongst researchers regarding the classes of contractors that are regarded as large, medium or small scale contractors in Ghana. For instance Badu et al., (2012) regard D4K4 and D3K3 as small scale contractors, D2K2 as medium scale and D1K1 as large scale contractors.

However Menu et al., 2014; Amoah et al., 2011 and Eyiah & Cook (2003) regard D4K4 and D3K3 as small and medium scale contractors respectively while D2K2 and D1K1 as large scale contractors. In this study, small and medium scale contractors refer to class D4K4 and D3K3 respectively.

Classifying contractors based on standard guidelines is not only beneficial to clients and other partners in hiring contractors; it also informs the contractor of its position in the industry relative to others (Osei, 2013; Amoah et al., 2011).

Various economic, social and political situations could dictate the number of construction firms registered and the degree of competition for construction works (Laryea, 2010; Enshassi et al., 2006). The entry point for small scale contractors into the industry is relatively low as skills and resources required at this stage are quite minimal (Thwala & Mvubu, 2009). Small contractors can be powerful instruments of generating job opportunities as small contractors can perform small projects at different and remote geographical locations that might be unattractive to big firms or too costly for the big firms; low overheads enable small contractors to work at more competitive prices (Thwala & Mvubu, 2009) concomitant

2.7 SOCIO-ECONOMIC DEVELOPMENT PROFILE OF GHANA

The first country in sub Saharan Africa to gain independence from British colonial rule in 1957, Ghana have had a checkered history of economic boom and burst concomitant with intermittent military regimes (Apter, 2015; Knowlton, 2014; Osei, 2014; Fosu, 2013; Anaman & Agyei-Sasu, 2012). The country witnessed the worse of economic stagnation between the mid seventies and mid eighties within which period political turbulence was at its crescendo, with GDP reaching record low values of -13.5 to -7.5 % (see Fig. 2.4) (Knowlton, 2014; Alagidede et al., 2013; Ackah & Baah-Boateng, 2012; Laryea & Akuoni, 2012). Following the restoration of political stability from 1984 and the intervention of the

World Bank groups, the country began to recover from its economic quagmire with GDP values appreciating steadily from then +2% upwards (see Fig. 2.4) (Apter, 2015; Alagidede et al., 2013; Laryea & Akuoni, 2012)

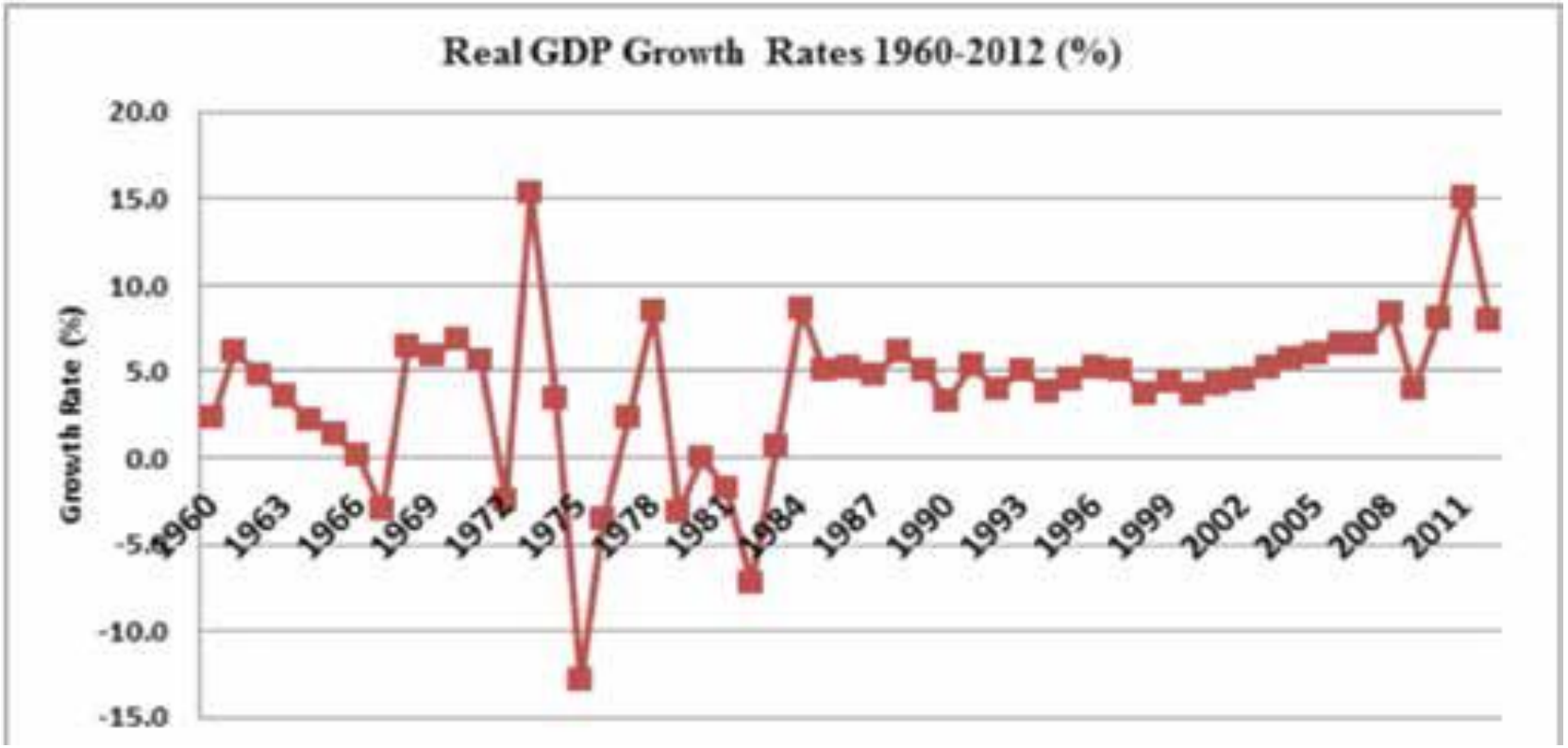

Figure 2.4: Trend of GDP from 1960-2012

(Source: Ghana Statistical Service and used by: Alagidede, et al., 2013)

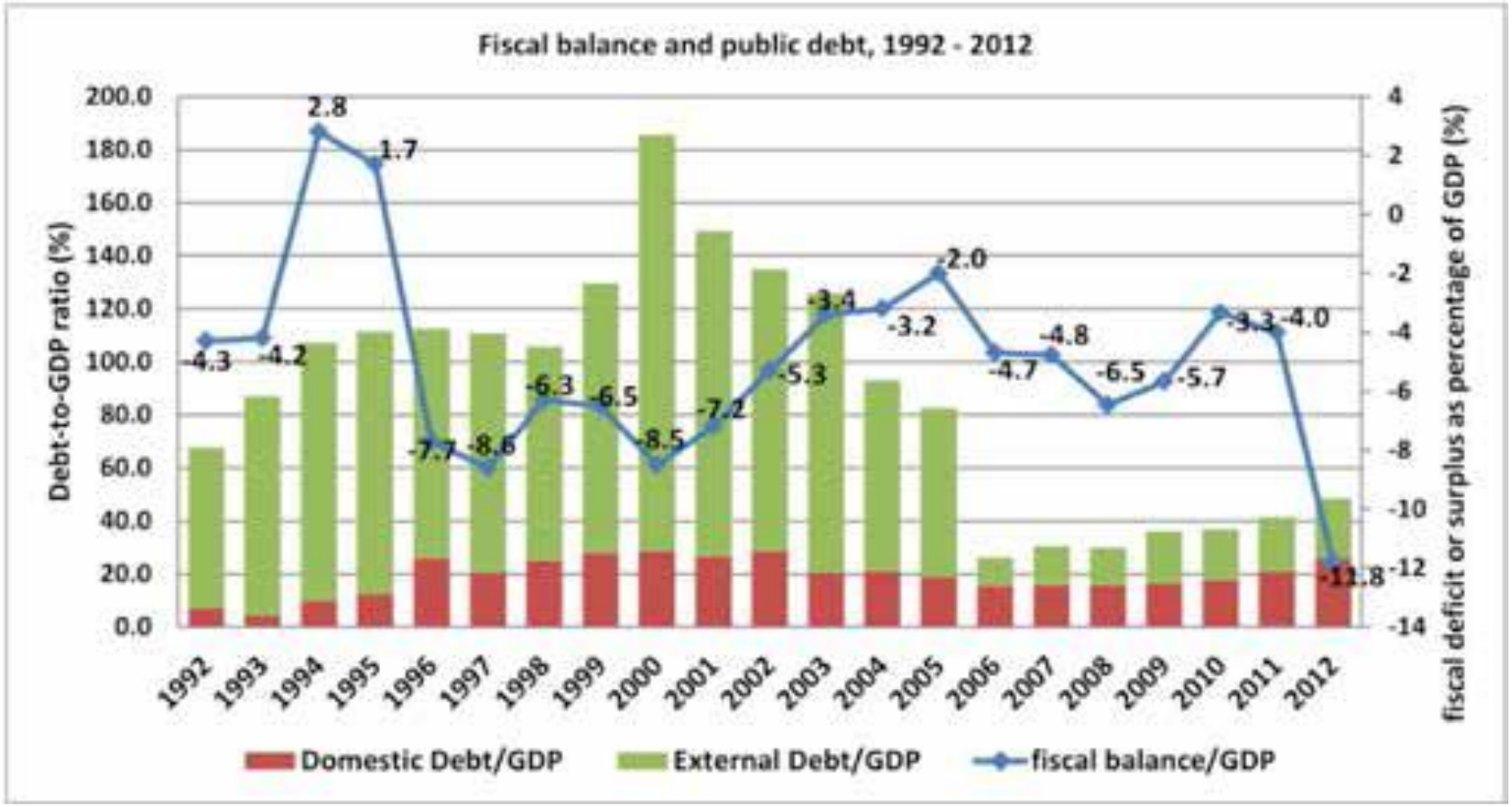

Figure 2.5: Trends of fiscal balance and public debt in Ghana, 1992–2012

(Source: Annual reports and quarterly bulletin of Bank of Ghana and used by: Alagidede, et al., 2013)

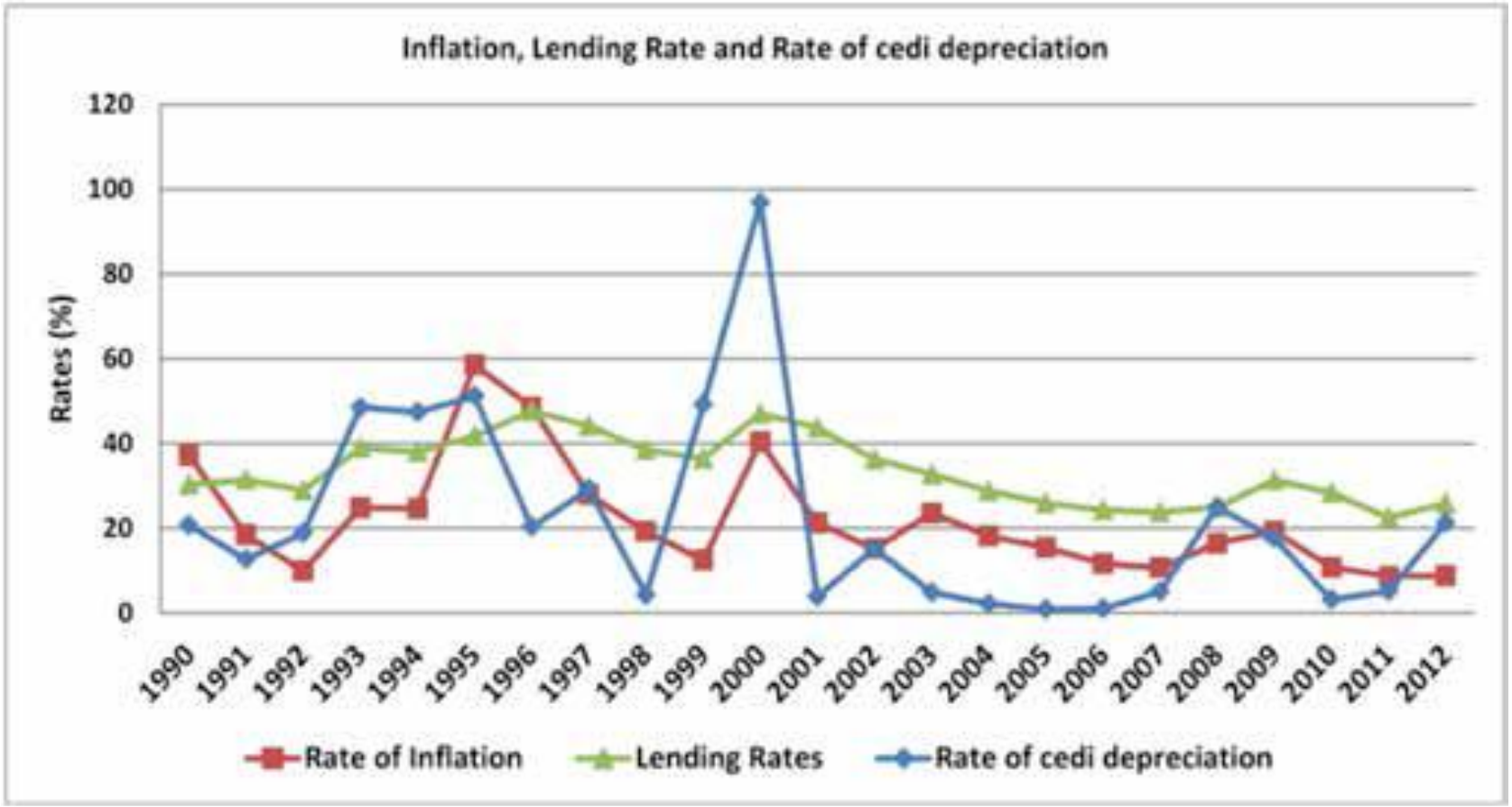

Figure 2.6: Trends of inflation, lending rate and rate of cedi depreciation

Source: Annual reports and quarterly bulletin of Bank of Ghana and used by: Alagidede, et al., 2013

Ghana remains an agrarian economy with about 65% of the population engaged in agriculture much of which is subsistent in nature (MOFA, 2007). The economy, since the early 1990s, has been characterized by high rates of inflation, high interest rates, continuous depreciation of the currency (cedi), dwindling foreign reserves, excessive public debt overhang and stagnant economic growth (Alagidede et al., 2013; Ofori & Ephraim, 2012; GoG, 2003), (See Fig. 2.5 and figure 2.6). One of the fundamental problems that have faced the country is the persistent reliance on the export of a few primary products with little or no value added (cocoa, gold, timber and others). This has made the economy vulnerable to price fluctuations dictated by buyers in the developed economies (Langan, 2014; Hühne et al., 2014; Aryeetey & Peretz, 2005). The low earnings from primary products have meant low revenue to the country. This in turn has made it difficult to create meaningful wealth in the country (Langan, 2014; Hühne et al., 2014). Notwithstanding these challenges, in the last quarter of 2010, Ghana became a lower middle income country. With abundant natural resources, the per capita output of Ghana is twice that of the poorer countries in the Economic Community of West Africa (ECOWAS) and remains one of the world's leading producer of gold and cocoa (Alagidede et al., 2013; KPMG, 2012). Other sources of foreign exchange earnings include diamond, timber, bauxite, manganese, petroleum and foreign remittances from individuals. (Alagidede et al., 2013; Mhango, 2010). Since independence in 1957, the manner in which development has been pursued by successive governments has not been very different from that of the colonial governments. The colonial administration depended on resources from two key sectors, mining and agriculture with focus on the cocoa sub-sector and other cash crops to run the country. Special attention was therefore given to the development of these sectors mainly in the southern half of the country while the potentials of the north remained untapped. (Wardell & Fold, 2013; Nyewie, 2010)

2.7.1 Northern Ghana Development

A number of development oriented studies identified Northern Ghana to comprise Upper East, Upper West and Northern Regions owing to similarities in climatic conditions, culture, and socio-economic development challenges (Dietz et al., 2013; Mancini, 2009; Songsore, 2009; Kendie & Guri, 2007; Overseas Development Institute (ODI), 2005; Tsikata & Seini, 2004;). For the purpose of this study, Northern Ghana here refers to Northern, Upper East and Upper West Regions of the republic of Ghana (See Fig. 2.7).

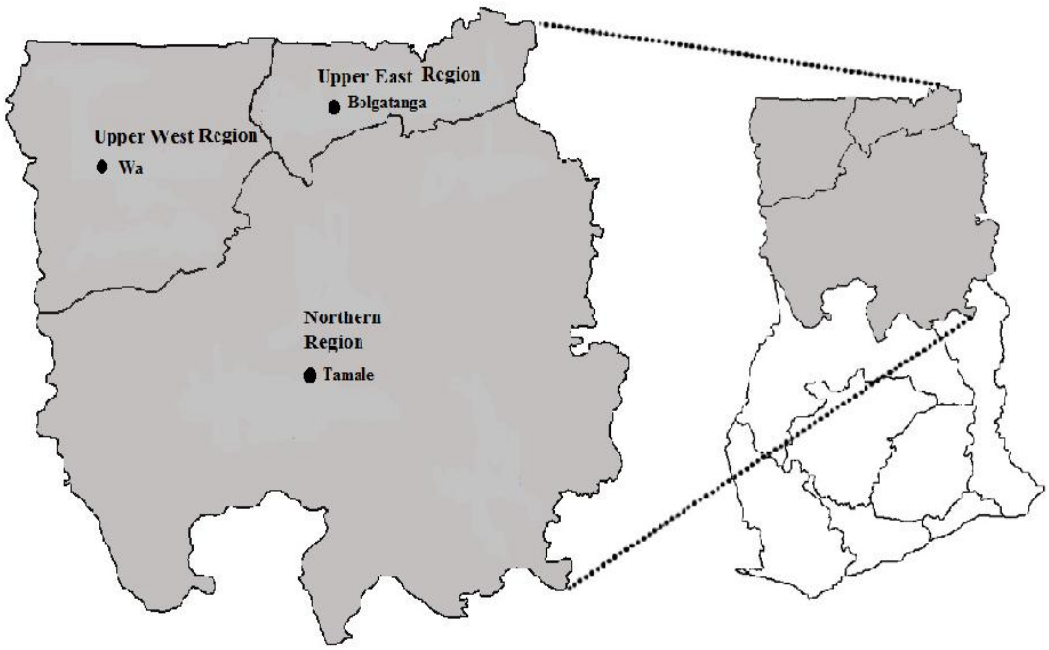

Figure 2.7: Geographical Map of Research Area

(Source: Dietz, et al., 2013)

Across the West African sub-region, the general observation is that there are widening inequalities between a more developed south coastal area and an underdeveloped periphery in the sahelian north (Tsikata & Seini, 2004). This trend according to Tsikata & Seini(2004) permeates in intraregional/state differences within countries. There is a glaring north-south

development dichotomy, with northern Ghana trailing relatively behind in terms of levels of economic development and quality of life (Dietz et al., 2013; Kursah, 2013; Mancini, 2009). Climatic conditions and natural endowment are not favourable in Northern Ghana for the production of the key export commodities of cocoa, timber or gold (or recently oil) (Dietz et al., 2013; ODI, 2005). Northern Ghana has received much lower inflows of remittances, and participated much less in trading and construction activities compared to the south, (Castaldo, et al., 2012; ODI, 2005;). There is very high income inequality between the three northern regions (Northern, Upper East and Upper West Regions) and the rest of the country to the extent that annual economic growth in the three northern regions is about one percent, (Anaman, 2006). This is in concord with the stand of ODI (2005) that there is a strong geographic disparity in income to the extent that the poverty rate is about 20 percent in Southern Ghana, compared to about 60 percent in the North. The International Fund for Agriculture Development, IFAD (2012) also observed that even though poverty at the national level reduced by 12.8% between 1990-1998 and again by 11% between 1998-2006, the poverty levels in the three Northern regions has remained virtually the same over the same periods (see chart 2.1). A more recent study by Agyeman, et al.(2011) also agreed that poverty is generally higher in the three northern regions than the rest of the country. Several studies have suggested that a key ramiphication of the north-south development and poverty dichotomy in Ghana is the internal north-south migration of mostly the youth with its attendent social challenges created in the southern cities (Agyei et al., 2015; Rademacher-Schulz et al., 2014; Awumbila et al., 2014; Castaldo et al., 2012). Addressing this geographic dichotomy in development is critical in achieving holistic socioeconomic growth and development (ODI, 2012). The government of Ghana, in an effort to bridge this north-south poverty and development dichotomy, established the Savana Accelerated Development Authority (SADA) in 2010, under Act 805, 2010 with the view to initiating poverty reducing

intervations in the poverty endemic savannah ecological zones of nothern Ghana (Government of Ghana, 2010).

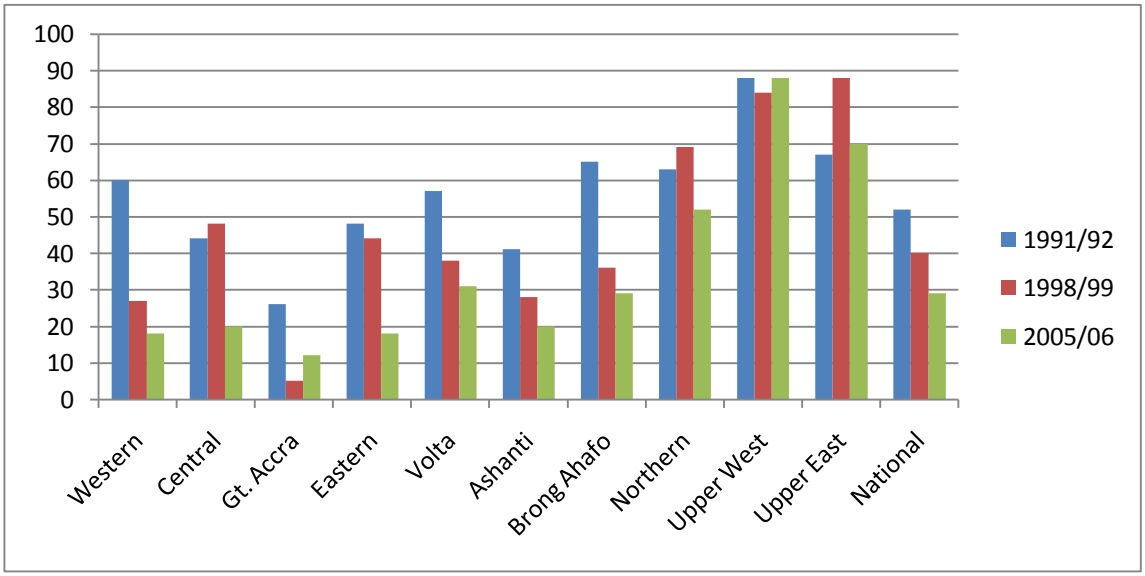

Figure 2.8: Incidence of Poverty by Administrative Regions in Ghana

(Source: IFAD, 2012)

Considering the strong linkage between economic growth and the construction industry (see Osei, 2013; Anaman & Osei-Amponsah, 2007; Anaman, 2006), it stands to reason that the construction industry is more vibrant in southern Ghanan than northern Ghana. This reasoning is suppoerted by Kursah(2013) who observed that road network in southern Ghana is more developed than the north. It has often been argued that government is the lead client in the construction industry in Ghana (Amoah et al., 2011; Laryea, 2010). Evidence also exist from research that SMEs in the construction industry particularly face serious diffulty in accessing credit and this problem is further exercibated by a congenital delay in payment by government for works executed by contractors (Badu et al., 2012). Considering the reported high income inquality between southern and northern Ghana, it is natural that private sector client participation in construction activities in southern Ghana is higer than northern Ghana. Thus contractors in southern Ghana, apart from government projects, often rely on contracts from private sector clients whilst their counterparts largely rely on the aged old major

client(government) for contracts. Additionally, SMSC in southern Ghana rely on subcontracts from big contractors who largely execute donner funded government projects located mostly in southern Ghana (Kursah, 2013; Osei, 2013). Considering the dichotomy in the construction business environment occasioned by income inqualities between southern and northern Ghana, it is curious to find out factors that influence the growth of SMSC in northern Ghana. That is why in the current study northern Ghana was selected for the data collection. To do this effectively, a qualitative inquiry was conducted with SMSC in northern Ghana as key participants, all aimed at identifying growth variables that are perculiar to northern Ghana. The findings from the qualitative inquiry and the literature reviwiew formed the theoritcal framework for this study (see section 3.3).

2.8 THE CONTRIBUTION OF THE CONSTRUCTION INDUSTRY TO THE ECONOMY OF GHANA

There exist a strong linkage between the construction industry and economic growth of a country (Ackah et al., 2014; Osei, 2013; Aniekwu, 2013; Akorsu & Agyapong, 2012; Eyiah, 2003). In Ghana, the industrial sector and for that matter the construction industry has gone through various stages of development in unison with the economy generally. The industrial sector has evolved from import substitution strategy following independence to the current private sector led industrialization (Ackah et al., 2014). The growth of the construction industry has witnessed epileptic trend over the years concomitant with the economic boom and burst experienced over the years in the country (see Fig. 2.2) (Ackah et al., 2014; Killick, 2010). From figure 2.2, the construction industry and indeed the whole industrial sector posted record negative growth in 1983 at the peak of the post independent economic downturn witnessed in Ghana (Ackah et al., 2014; Alagidede et al., 2013; Ackah & Baah-Boateng, 2012). In the industrial sector however, the construction industry has remained the second highest contributor to the industrial sector share of GDP of the economy (see Table

2.1) (Ackah et al., 2014; Osei, 2013). Indeed the construction industry is a strategic asset for socio-economic development, and if well exploited has the potential of championing the accelerated development that could take millions of people out of poverty (Ahadzie, 2010; Lopes, 2010). The industry generates substantial employment and provides a growth impetus through backward and forward linkages with other sectors of the economy (Ackah et al., 2014; Osei, 2013). With a projected annual growth rate of 7-9%, the current output of the Ghanaian construction industry is over six hundred million US dollars (US$ 600m) and employs more than four hundred thousand (400, 000) people most of whom are in the informal sector of the economy (Ahadzie, 2015 (forthcoming); Ackah, et al., 2014)

The industry is a vehicle for social change and economic empowerment (Klonowski, 2012; Thwala & Phaladi, 2009; Anaman & Osei-Amponsah, 2007). The activities of the industry have a lot of significance to the achievement of national socio-economic development goals of providing infrastructure, employment and reduction of poverty (Osei, 2013). In Ghana, the industry contributes significantly to the fulfillment of various national goals (AGI, 2013; Ahadzie, 2010; Anaman & Osei-Amponsah, 2007). These include:

- Generating more employment (as building and construction industry in Ghana mostly employ labour-intensive method);
- ·Stimulating economic growth through its presence in every development activity (be it processing of building/construction inputs; provision of physical or social needs; to stimulate other industries); and
- Generates revenue through duties on imported raw materials and payment of other taxes such as VAT, and corporate income tax (CIT).

The construction industry in any country constitute a key determinant of the nature and pace of national development, and the quality of life of the people and has a major influence on the progress towards the attainment of the millennium development goals(MDGs) (Ofori, 2010)

Indeed the construction industry contributed an average of 9.1% to Ghana's gross domestic product between 2001 and 2011, ranking third after agriculture and the services sectors (Osei, 2013; KPMG, 2012,) (See figure 2.9).

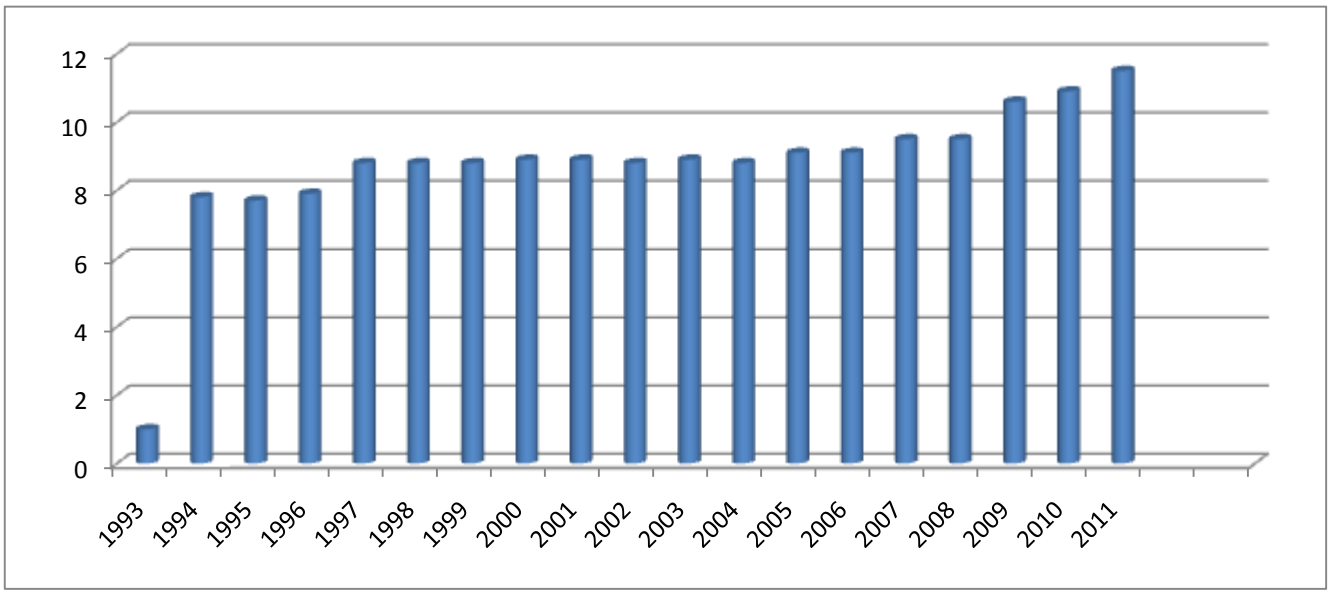

Figure 2.9.: Relative share of construction sector in Gross Domestic Product(%)

Source: Osei (2013)

The construction industry in developing countries including Ghana could contribute more to socioeconomic development, but for the numerous challenges confronting the industry which according to Ofori (2012) include but not limited to:

- Inadequate resources to improve the Industry;
- Many of the developing countries' governments do not recognize the importance and the needs of the Industry and hence do not formulate and implement programmes to upgrade the Industry.
- The inherent under-development of the Industry in these countries means that they are unable to deal with their weaknesses to make a strong case for support.

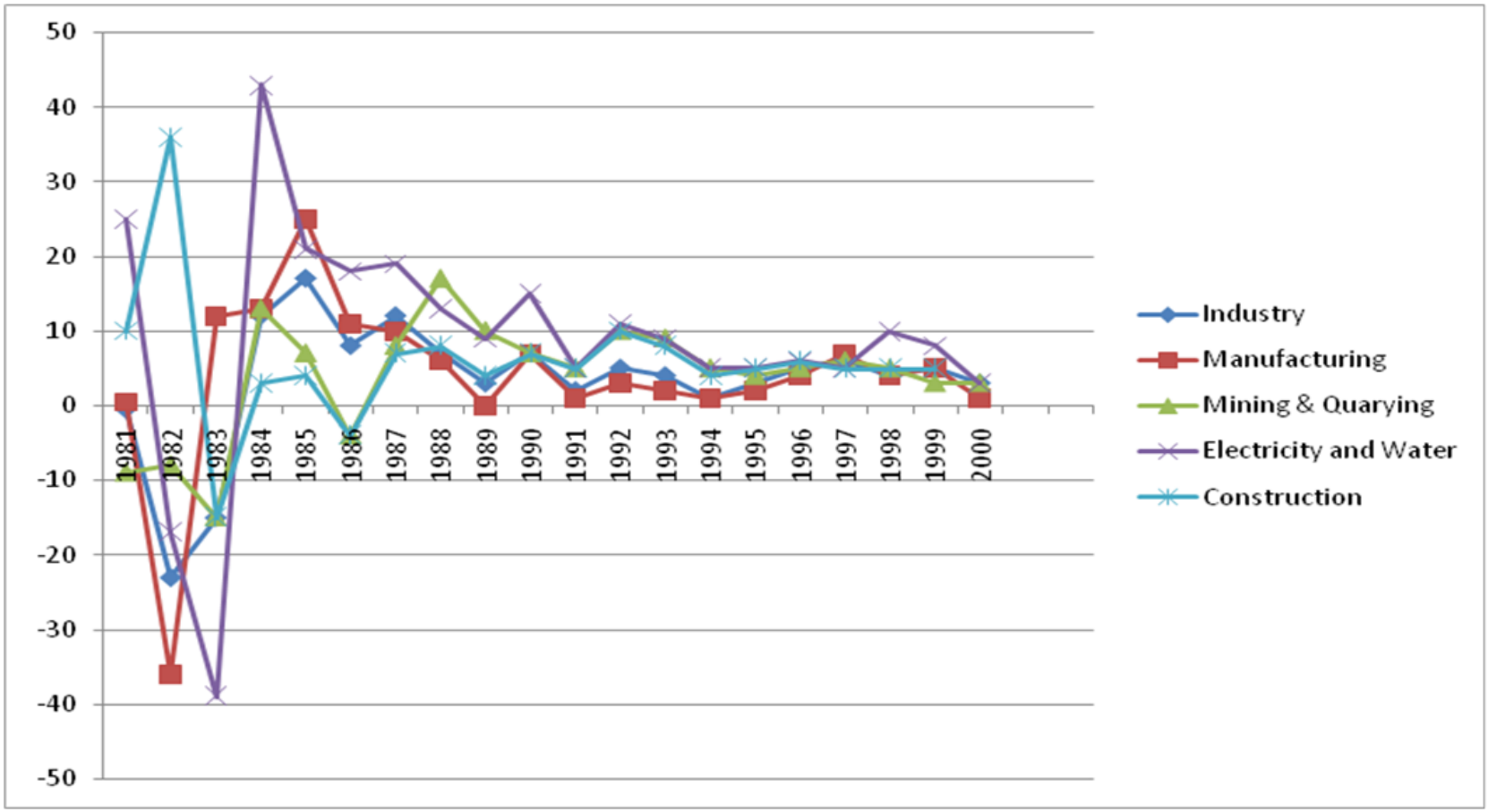

Figure 2.10: Growth rate of the industry and subsectors, 1981-2000

Source: (Ackah, et al., 2014

Table 2.1: Relative contribution of the industrial sector and its subsectors to GDP, 2001–05 (%)

Year	Total Industrial Sector (% of GDP)	Share of industrial subsectors of GDP (%)			
		Manufacturing	Mining & Quarrying	Electricity & Water	Construction
2001	24.9	36.69	21.11	10.34	31.86
2002	2.9	36.71	21.06	10.28	31.95
2003	24.90	36.57	20.96	10.19	32.28
2004	24.73	36.37	20.86	10.08	32.72
2005	24.7	36.30	20.0	10.20	33.20
2006	20.8	10.2	2.8	2.1	5.7
2007	20.7	9.1	2.8	1.6	7.2
2008	20.4	7.9	2.4	1.3	8.7
2009	19.0	6.9	2.1	1.2	8.8
2010	19.1	6.8	2.3	1.4	8.5
2011	25.9	6.7	8.5	1.4	9.2
2012	27.6	6.7	8.8	1.2	10.9

Source (Ackah, et al., 2014)

2.9 SUMMARY OF CHAPTER TWO

Several theories abound in literature regarding business growth. While some researchers contend that firm growth is characterized by random variables which make it difficult to predict, others argue that firm growth is linear and can really be predicted. This study is underpinned by the resource based theory of business growth which argues that the growth of firms much depends on how well the internal and external resource available to the firm is managed. Generally, these resources relate to entrepreneurial, firm, inter-firm characteristics and external factors. The overall growth of businesses in general and in the construction industry in particular is influenced by macro-economic policies of government. Economic growth depends on how effectively SMEs firms are progressing from one stage of growth to another. The ownership structure of a firm determines the development and growth agenda of the firm. Large-sized firms are seen as wielding more power in bargaining with suppliers and having the necessary resources to maintain good customer

CHAPTER THREE

3.1 INTRODUCTION

The direction of every research work is determined based on the philosophical viewpoint adopted, the research strategy employed, and the research instruments developed and utilized all geared towards addressing an identified research problem (Saunders et al., 2009).

This chapter seeks to:

- Discuss the research philosophy adopted for this study in relation to other philosophies and framework for the study developed thereof.
- Outline the research strategy, including the research methodologies adopted
- Introduce the research instruments developed and utilized in the pursuit of the research objectives stated in chapter one.

3.2 FRAMEWORK FOR THE STUDY

The framework of a study is underpinned by the philosophical realm within which the study is conducted and it serves as a conduit between theoretical and practical aspects of the study being undertaken (Steinitz, 2012). In order to arrive at a framework for the study, various philosophical viewpoint of knowledge are briefly reviewed in the ensuing sections.

3.3 PHILOSOPHICAL STAND POINT OF RESEARCH (RESEARCH PARADIGM)

In every research endeavour there must be a clear understanding of what to learn, how to learn it, and why there is the need to learn it (Creswell, 2009). This understanding is usually underpinned by certain theoretical framework or philosophical assumptions about the knowledge base being studied and is often referred to as ‘paradigm’ in research parlance (Mackenzie & Knipe, 2006). Indeed the choice of the research methodology, methods and

research design adopted are all dictated by the research paradigm or philosophical standpoint adopted for the research (Kraus, 2005).

The term 'paradigm' has been defined differently by different authors and researchers. It is a collection of logically related assumptions, concepts, or propositions that shape thinking and research (Bogdan & Biklin,1998). It is a belief about the nature of knowledge, methodology and criteria for validity (Mac Naughton et al., 2001). Closely related to paradigm are epistemology, axiology, ontology, rhetoric and methodology. Philosophically, researchers make claims about what is knowledge (ontology), how that knowledge become known(epistemology), what values go into it (axiology), how it is written about (rhetoric), and the processes for studying it (methodology) (Creswell, 1994).

There are two main research paradigms or philosophical assumptions in common use which directs research approach, methodology and methods. These are Positivist and Constructivist paradigms (Creswell, 2009).

3.3.1 POSITIVIST PARADIGM

Positivism is a form of philosophical realism adhering closely to the hypothetic deductive method (Ponterotto, 2005). Positivist paradigm or positivism is sometimes referred to as scientific method or science research deterministic philosophy in which causes probably determine effects or outcomes (Creswell, 2003). The main thrust of positivism is to test theory or describe an experience through observation and measurement in order to predict and control forces that surround such theory (O'Leary, 2004). Positivist examine causes that influence outcomes, such as issues examined in experiments; reduce the ideas into a small, discrete set of ideas to test, variables that constitute hypotheses and research questions (Creswell, 2009)..

Positivist believe that social observations should be treated as entities in much the same way that physical scientists treat physical(natural) phenomena (Hanson et al., 2005). Objectivity is the hallmark of the positivist philosophy in that, the observer is separate from the entities that are subject to observation (Johnson & Onwuegbuzie, 2004). That, real causes of social scientific outcomes can be determined reliably and validly (Johnson & Onwuegbuzie, 2004). According to this school of thought, educational researchers should eliminate their biases, remain emotionally detached and uninvolved with the objects of study, and test or empirically justify their stated hypotheses. (Creswell et al., 2003)

The approach adopted in carrying out research from the positivist stand point is referred to as the quantitative approach. Generally speaking, quantitative methods focus on the strict quantification of observations (data) and on careful control of empirical variables. Quantitative research often incorporates large scale sampling and the use of statistical procedures to examine group means and variances (Ponterotto & Grieger, 1999) Quantitative studies stress the measurement and analysis of causal or correlation relationships between variables (Denzin & Lincoln, 2000b).

3.3.2 CONSTRUCTIVISM

Constructivist paradigm sharply contrasts the positivist paradigm. It states that multiple and intangible realities exist, which are not governed by natural laws or by ‘structures that exist independently of the issue under study’ but rather many different interpretations can be made about an issue under study (Appleton & King, 2002). The constructivist view is that knowledge is constructed through the social interation between the learner of knowledge and the social environment within which the knowledge is learnt. This then puts proponents of this philosophy into two categories, i.e ‘cognitive/radical constructivist’ and the ‘social/realist’ constructivist (Liu & Matthews, 2005) . The congnitive constructivist contend

that knowlede is not directly transmtted from one person to the other but is constructed individually and idiosyncratically (McInerney & McInerney, 2002; Fox, 2001; Eggen & Kauchak, 1999). The social/realist constructivist are of the view that knowledge is acquired through the enculturation of the learner into the learning community based on the existent understanding through the interaction with their environment. It is the veiw of constructivist that knowledege is largely situation specific and context bound. (McInerney & McInerney, 2002; Fox, 2001; Woolfolk, 2001)

3.3.3 PRAMAGTISM

There exist inherent strength and weakness in both positivist and constructivist philosophical knowledge views with their respective quantitative and qualitative research approaches (Creswell, 2009). Combining the two research appreaches endured to itself the benefits complementary results by using the strengths of one method to enhance the other (Morgan, 1998). Also combining the two approaches help achieve cross-validation or triangulation – combining two or more theories or sources of data to study the same phenomenon in order to gain a more complete understanding of it (Sale et al., 2002). This phisophical standpoint is refered to as pramagtism.

3.3.4 RESEARCH PARADIGM ADOPTED

Where very little information is available on a research subject, a qualitative research approach is most appropriate in understaking the study (Lohfeld et al., 2002). According to Berg (2007) the main interest of the researcher in qualitative research approach is to know amongst other things how humans interact with their surroundings through symbols, rituals, social structure, social rules and so on. Where variables are unknown with very scanty theory base about a subject under study,a quality srudy can help identify what is important to be studied(Leedy & Jeanne, 2005). Literature on the growth of SMEs in the construction

industry particularly in the Ghanaian context has been generally scanty((Damoah, 2013; Ofori, 2012). In order to overcome this challenge, a qualitative method in the form of open ended interview questioning was adopted to provide some variables to work with. In order to ameliorate the issue of biases from the key participants (Contractors), independent construction industry consultants who have worked closely with these contractors over a considerable period of time were also interviewed to coroborate the issues emerging from the interview with the key participants. The identified variables eventually formed some of the key variables in designing and constructing closed ended questionnaires.

Where a key objective of a research study is the establishment of the cause(s) of (an) outcome(s) or establishing the causative links between variables then quantitative method is appropriate. (Saunders, et al. 2009; Creswell et al., 2003). The aim of the study is to develop a model for predicting the growth of small and medium scale contractors. To be able to achieve this the study sought to amongst other things esblish factors that influence the growth of SMSC. These factors factors include factors that drive and those the inhibit the growth of SMEs(*see objective 2 & 3).* Thus a case of causative link between variables arises here and this calls for the use of quantitative approach.

The use of the mixed approach in the study provided the platform for qualitative and quantitative approaches to benefit from each other thereby avoiding the inherent shortfalls in each separate approach (Creswell, 2009). Indeed the mixed approah ensures a more holistic inquiry in scrutinizing a research problem than either one of the qualitative or quantitative approach. (Creswell, 2007). Thus philosophically, the study follows the pragmatic paradigm

3.4 FRAMEWORK OF THE STUDY

3.4.1 QUALITATIVE INQUIRY

It is difficult to obtain an accurate and up to date data base of registered contractors in developing countries due to high attrition rate and poor documentation by the agencies responsible for contractor's registration in developing countries (Mahamid, 2012; Amoah et al., 2011). Thus in carrying out this preliminary survey the sampling techniques adopted were a combination of snowball, purposive and accidental (convenient) sampling. Construction industry consultants were instrumental in advising on the business profile of contractors on their list and offering directions to the 'business offices' of these contractors (snowball sampling). The scope of the study was limited to small and medium scale contractor's i.e D3K3 and D4K4 (purposive sampling). Contractors who were easily available, accessible and willing to grant the interview were those interviewed (accidental/convenient sampling). In all, twenty contractors were interviewed with fifteen of them identified as active and five have been dormant for some time. A further ten of the selected sample was from the Northern Region, and ten from the Upper West and Upper East which are both located to the extreme north of the research area. To ameliorate the issue of bias, independent expert opinions of five construction industry consultants who work closely with these contractors were sought through face to face interview. The medium of communication for the interview was a combination of English and local dialects as some respondents felt more comfortable expressing themselves in the local dialect. Due to ethical considerations, the interview could not be recorded. The researcher thus wrote verbatim (in English) the narration of respondents which lasted on average one hour. As many as the interviews were conducted in respondents' 'business offices', a few of them were conducted at construction sites due to respondents busy schedules. Indeed the interaction with construction industry consultants enabled the researcher to establish a data base of SMSCs whom they have worked with over the years,

and this formed the sampling frame for the next stage of data collection (quantitative data collection, see section 3.4.2). At the end of each interview session, the narration as written verbatim was readout to respondents for their confirmation. The data was subsequently analyzed using a triangulation of word auto-summary, manual summary and Nvivo 8.

3.4.2 THE RESEARCH PROCESS

The background of the study was based on the review of existing literature relevant to the growth of SMEs generally and those in the construction industry in particular. This was subsequently followed by preliminary survey involving interviewing of small and medium scale contractors who have been in business for more than five years. The issues immerging from the two processes reinforced the need for the study and the appropriateness of the research questions and objectives. The challenges confronting SMEs in the construction industry that militate against their growth as treated by previous studies were confirmed from .the interview. That apart new challenges peculiar to SMEs in the research area emerged from the interview. These peculiar challenges were factored in to the questionnaire design and structure for the collection of quantitative data from SMSC operating within the three regions in northern Ghana. Below is a diagrammatic view of the research process.

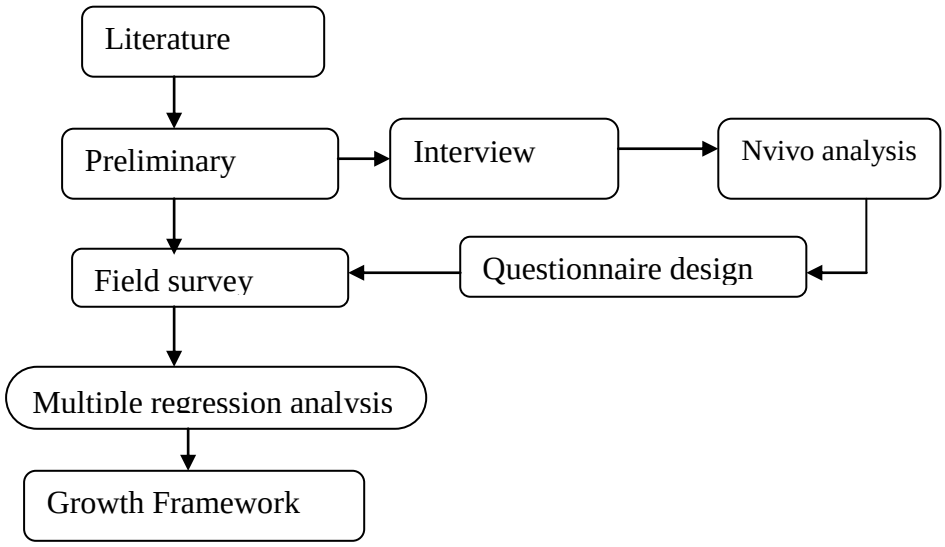

Figure 3.1: Research process.

3.5. RESEARCH METHODOLOGY

3.5.1 RESEARCH DESIGN

Research design defines a general plan and processes through which research questions in a research are answered. The research design adopted is influenced by the research questions and objectives as well as the research philosophy adopted. (Saunders et al., 2009). According to Yin (2003), research design serves as a guide for researchers in gathering and analyzing research data. Bryman (2004) posited that there are basically five research design options. These according to him include cross-sectional, longitudinal, experimental, case study and comparative research. He argued that the choice of the research design should reflect the emphasis the researcher places in the following ways; whether the results is intended to be generalized to a larger population; establishing causal relations between variables; appreciation of social phenomena and their interconnections or understanding meanings and behaviour in their natural context. However Yin(2003) classified research designs as: survey, experiment, archival analysis, history and case study. Accoding to Yin(2003) the choice of research design depends on the focus of the research whether on contemporary or historical issues, the control the researcher has over the research variables and the type of research questons that need to be answered.

According to Saunders et al (2009) a research that is time constrained and seeks to establish a relationship between variables essentially may be described as cross-sectional research design. They argued that cross-sectional research design essentially follows a survey research strategy and also the researcher has no control over the research variables.

From the direction of this study so far, cross-sectonal research design is most suitable for the study. This is principally because of the philosophical position espoused earlier which has the quantitative form of survey on a sample at one point in time and a qualitative interview at

a single period. That apart the researcher has no influnece on the research variables in this study which is consistent with the features of cross-sectional research design. Additionally the research is time bound and seeks to answer the questions of 'what'. Finally the study seeks to establish causal relations between the independent variables on one hand and dependent variable on the other hand. Finally, the results of this study can be generalized to a larger populaton small scale contractors in Ghana (Yin, 2003; Saunders et al., 2009).

To investigate the factors influencing the growth of SMSCs in Northern Ghana, a primary source of data which includes both qualitative and quantitative data were collected through interviews and questionnaires on classes D3K3 and D4K4 contractors. To this effect, 70 SMSCs were selected from each of the three regions in northern Ghana using a combination of quota, stratified, snowball and random sampling technique. In collecting, the required data the study incorporated both qualitative and quantitative approaches (mixed approach).

Thus the frame work for the study is presented in fig. 3.1. The variables were derived from literature review and the qualitative inquiry. These variables formed the bases for development of questionnaire for the quantitative data collection. The quantity data so collected were analyzed using multiple regression process (stepwise option) which churned out the optimum number of variables which were used to develop the growth a model for predicting the growth of SMSC (See equation 4.1).

3.5.2 DESIGNING THE QUESTIONNAIRE

The use of questionnaires as a tool of data collection in research has gained international recognition for a long time (Rattray et al, 2004). The use of questionnaires provide the platform for in a standardized data collection, which collected from a representative sample of a defined population, allows for generalization of the findings (Rattray and Jones, 2005). According to Rattary & Jones (2005) the key parameters that questionnaire seeks to measure

include knowledge, attitudes, sentiments, cognition, intent or conduct. Usually questionnaire are developed in such a manner that require respondents to provide answer to a series of questions or statements. Responses are then transformed into numerical format and subjected to statistical analysis. The information the questionnaire seek to espouse should be able to address the research questions, aims and objectives and at the same time be acceptable to the target group responding to the questionnaire (Brace, 2004).

Thus the questionnaires for this study were designed based on the research questions, aim, objectives (see sections 1.4, 1.5 and 1.6) literature review and results of the qualitative inquiry.

3.5.3 QUALITATIVE INQUIRY

The reason for carrying out the qualitative inquiry was to establish factors peculiar to the research area that influence the growth of SMSC. Table 3.1 gives a summary of the findings from the qualitative inquiry. Politics, material price fluctuations and the conduct of construction industry consultants immerged as factors which influence the growth of SMSC in the research area. From the qualitative data analysis (see table 3.1) it is revealing that the three most critical issues that impede the growth of small and medium scale contractors are delay in payment for work done, difficulty in accessing bank loans and other credits and politics in the award of construction contracts. Under normal contractual arrangements contractors are reimbursed by the client for work properly executed, valued and certified on agreed stage bases (Hackett et al., 2007). In essence, project finance is required to bridge the time between expenditures and revenues. Most cases contractors are entitled to payment for the work properly executed as well as materials present on site for the work. However materials not on site including those substantially prefabricated and assembled offsite are not paid until they are to site. (Motawa & Kaka, 2009).This according to Motawa and Kaka

(2009) affects the contractor's cash flow negatively. Indeed the issue of delayed payment has consistently been quoted as a bane to the performance, growth and development of the construction industry in developing countries and Ghana cannot be an exception (Amoah et al., 2011; Laryea, 2010; Eyia and Cook, 2004). The resounding chorus with which both construction industry consultants and the contractors themselves noted delayed payment as an impediment to their growth underscores the fact that the problem is indeed a dire one with far reaching ramifications. The problem of SMEs access to finance has received wide recognition in academic literature. (Klonowski,2012; Akorsu & Agyapong, 2012; Abor & Biekpe, 2009; Anaman, 2006; Abor & Biekpe, 2006; and Mensah, 2004). The main methods to access funds for SMEs are basically through debt or equity sources or both (Akorsu & Agyapong, 2012). The choice between debt and equity financing however is determined by the theories of life cycle approach, costs deriving from asymmetric information, and agency costs (Abor & Biekpe, 2009). The theory of life cycle approach suggest that newer firms tend to rely on owners' initial equity since they are new to finance providers and their investment proposals may not be attractive enough to convince finance providers (Berger & Udell, 1998). As opined by Eyiah (2001), obtaining funds for executing work on contracts can indeed proof burdensome for construction contractors. This obviously affects the growth of these contractors since their very survival in the business depends on their ability to have the necessary working capital to execute jobs.

Corruption in the award of contracts has been identified as a canker and indeed a bane to the economy of most nations. This canker necessitated the public procurement reforms in Ghana culminating in the passage into law of the public procurement act, Act 663, (See Anvuur et al., 2006). Politics in the award of contracts is a clear case of corruption as projects are invariably awarded to incompetent contractors who lack what it takes to execute the jobs. In fact in many instances, a single contractor (obviously with the political connections) buys and

price all the bidding documents and contracts (or lots) awarded to the same contractor/supplier, under different contracting names (Anvuur et al., 2006). The study made a chilling revelation to the effect that construction industry consultants are often given specific instructions by political office holders to award certain projects to specific contractors in clear violation of Act 663. It stands to reason then that contractors who do not have the political connection will have difficulty in accessing projects from government who invariably remains the biggest client of these small and medium scale contractors (SMSC). It also makes sense to conjecture that contractors who get contracts on political silver platter do not manage the projects prudently enough to earn profit that is needed to spur their growth.

On the issues bordering on the ownership structure, age of firm and level of education of CEOs, as identified by construction industry consultants as impediments to the growth of SMSC, it is striking to observe that SME contractors are oblivious of their own inadequacies as impediments to their growth. This obviously smacks of bias and mediocrity on the part of the SMSCs. The reality is that, many SMSCs operate a personalized style of management with all the resources provided and major decisions taken by one person (Amoah et al., 2011; Mensah, 2004). Essentially, the ownership structure of a firm determines the development and growth agenda of the firm. This is because the ownership structure has a knock-on effect on the asset base of the firm, the competitive arena within which the firm operates and ultimately the direction and governance mechanism of the firm (see Hagos et al., 2014; Damoah, 2013).

New firms suffer newness liability as they lack reliable network ties and as such face difficulties in accessing business services such as loan finance and supplier credit, managerial networking relationships with political leaders, bureaucratic officials and community leaders and this impact negatively on their growth and performance (Acquaah & Eshun, 2010). Since the coming into effect of Ghana's fourth republican constitution in 1992, the trend so far has

been a change in political power every eight years. Strikingly this study reveals that new crop of contractors emerge, with hitherto dormant contractors resurrecting their businesses anytime there is a change in political power. It therefore stands to reason that most of the SMSCs do not survive in active business beyond eight years and the newness liability impact negatively on their growth. Level of education has consistently been quoted as a factor that influences the growth of businesses (Hagos et al., 2014; Garnsey et al., 2006). Mensah (2004) argues that SMEs businesses are usually dominated by one entrepreneur who possesses limited formal education. Construction business is typically technical in nature and thus requires some level of technical knowhow to be able to succeed. Business location has a telling effect on its growth (Artz et al., 2014; Minai & Lucky, 2011; Kala & Guanghua, 2010). This study has revealed that the location of SMSC in Northern Ghana is a disadvantage and an impediment to their growth. This is so because quality labour force, social amenities/services, bureaucratic instituions and even assess to jobs and clients/customers which are necessary ingredients for firms growth are more concentrated in more developed southern Ghana than the North (see Machini, 2009; Songsore, 2009; Kendie & Guri, 2007). Previous studies on the challenges facing the construction industry has been very silent on loaction as a challenge as most studies have often concentrated on the bigger cities of Accra and Kumasi (See Badu et al., 2012). It has often been argued that even though SMEs dominate the construction industry in developing countries(in terms of numbers) they do not necessarily dominate in terms of the value of projects executed (Aniekwu, 2013; Ofori, 2012). Local small and medium scale contratcors lack the capacity to compete with large scale contractors who are mostly foreign based (Laryea, 2010). This category of contractors execute mostly donor funded projects which are mostly of high financial value and meet contracts payments schedules (Osei, 2013). This means that SMSCs only make do with GoG and District Assembly Common Fund projects which often suffer delay in

payments and this impact negatively on their growth. Building materials obviously are the life wire of all construction projects. Prices of materials form an essential component of tender price build up and ultimately construction project cost. Thus any price hikes in building materials during the currency of a construction project apparently affects the final project cost and the profit margin of the contractor especially where the conditions of contract do not make room for price fluctuations.

The studies have revealed that the contractors adopt various strategies in order to survive and spur some growth in their businesses (Ofori, 2000). Diversification was quoted by majority of the respondents as a strategy adopted in order to survive in business. Also politics appeared

as a key growth impediment to the extent that contracts are awarded based on political leaning (respondents view) it makes business sense for a contractor to adopt a strategy of aligning with a political party in order to secure contracts. Other strategies adopted by contractors include low bid markup, good quality of work and good working relationship with clients. The indicators of business growth have been an issue of much debate in academic literature. In most cases however the indicators have always included sales revenue, volume of output, share of market, profit, number of personnel, number of branches and extent of geographical spread (Ofori, 2000). A firm's growth can be measured in terms of inputs (investment funds, employees), in terms of the value of the firm assets, market capitalization, economic value added elements) or outputs (sales, revenues, profit). Each of the measures illustrates some feature of growth and each is subject to limitations as a growth indicator. (Bakar et al., 2012) In the construction industry, a contractor who moves from one financial class to the next higher class is assumed to have experienced growth. In essence a class D4 contractor who moves to D3 over a period of time has experienced growth (Eyiah, 2004). From the analysis the indicators of growth from the perspective of the respondents

includes consistent access to jobs, wide geographical spread, increase in employment profile, increase in annual turnover, increase in assets and increase in financial classification.

. financial class to the next higher class is assumed to have experienced growth. In essence a class D4 contractor who moves to D3 over a period of time has experienced growth (Eyiah, 2004). From the analysis the indicators of growth from the perspective of the respondents includes consistent access to jobs, wide geographical spread, increase in employment profile, increase in annual turnover, increase in assets and increase in financial classification. From the literature review and the qualitative inquiry, the theoretical framework of the study is in Figure 3.2

Table 3.1: Qualitative Inquiry

S/N	Analysis Method	Major issues emerging	Respondents		Themes	Remarks
			Consultants	Contractor		
1	**Word Auto summary** Twenty contractors and five construction industry consultants were interviewed	**Factors influencing growth**				
		Delay in payments for work done	5	20	Payment delay	
		Politics in the award of contracts	5	20	Politics	
		Material price fluctuations	3	12	Price fluctuation	
		Remoteness of Northern Ghana	3	16	Remoteness	
		Competition from peers and large firms	4	18	Competition	
		Difficulty in accessing bank loans and other credits.	5	20	Access to loans	
		Ownership structure of firm	5	0	Firm ownership	Contractors are oblivious of their own weaknesses
		Level of education of CEOs	4	0	Education level	
		Age of firm	5	0	Firm age	
		Diversification	3	16	Diversification	
		Low bid markup	4	16	Low markup	
		Good relationship with clients	4	12	Relationship	
		Good quality of work	3	15	Quality work	
		Consistent access to jobs	5	15	Jobs access	
		Growth Indicators				
		Wide geographical spread	5	18	Geographical spread	
		Increase in employment profile	4	17	Employment profile	
		Increase in annual turnover	4	17	Turnover	
		Increase in assets	3	15	Assets	
		Increase in financial classification	5	18	Financial class	
2.	**Manual Summary** Twenty contractors and five construction industry consultants were interviewed	**Factors influencing growth**				
		Delay in payments for work done	5	20	Payment delay	
		Politics in the award of contracts	5	20	Politics	
		Material price fluctuations	3	12	Price fluctuation	
		Remoteness of Northern Ghana	3	16	Remoteness	
		Competition from peers and large firms	4	18	Competition	
		Difficulty in accessing bank loans and other credits.	5	20	Access to loans	
		Ownership structure of firm	5	0	Firm ownership	Contractors are oblivious of their own weaknesses
		Level of education of CEOs	4	0	Education level	
		Age of firm	5	0	Firm age	
		Diversification	3	16	Diversification	
		Low bid markup	4	16	Low markup	
		Good relationship with clients	4	12	Relationship	
		Good quality of work	3	15	Quality work	
		Consistent access to jobs				
		Growth Indicators	5	15	Jobs access	
		Wide geographical spread	5	18	Geographical spread	
		Increase in employment profile	4	17	Employment profile	
		Increase in annual turnover	4	17	Turnover	
		Increase in assets	3	15	Assets	
		Increase in financial classification	5	18	Financial class	
3	**Nvivo 8**	**Factors influencing growth**				
		Delay in payments for work done	5	20	Payment delay	
		Politics in the award of contracts	5	20	Politics	
		Material price fluctuations	3	12	Price fluctuation	
		Remoteness of Northern Ghana	3	16	Remoteness	
		Competition from peers and large firms	4	18	Competition	
		Difficulty in accessing bank loans and other credits.	5	20	Access to loans	
		Ownership structure of firm	5	0	Firm ownership	
		Level of education of CEOs	4	0	Education level	
		Age of firm	5	0	Firm age	
		Diversification	3	16	Diversification	
		Low bid markup	4	16	Low markup	Contractors are oblivious of their own weaknesses
		Good relationship with clients	4	12	Relationship	
		Good quality of work	3	15	Quality work	
		Consistent access to jobs	5	15	Jobs access	
		Growth Indicators				
		Wide geographical spread	5	18	Geographical spread	
		Increase in employment profile	4	17	Employment profile	
		Increase in annual turnover	4	17	Turnover	
		Increase in assets	3	15	Assets	
		Increase in financial classification	5	18	Financial class	

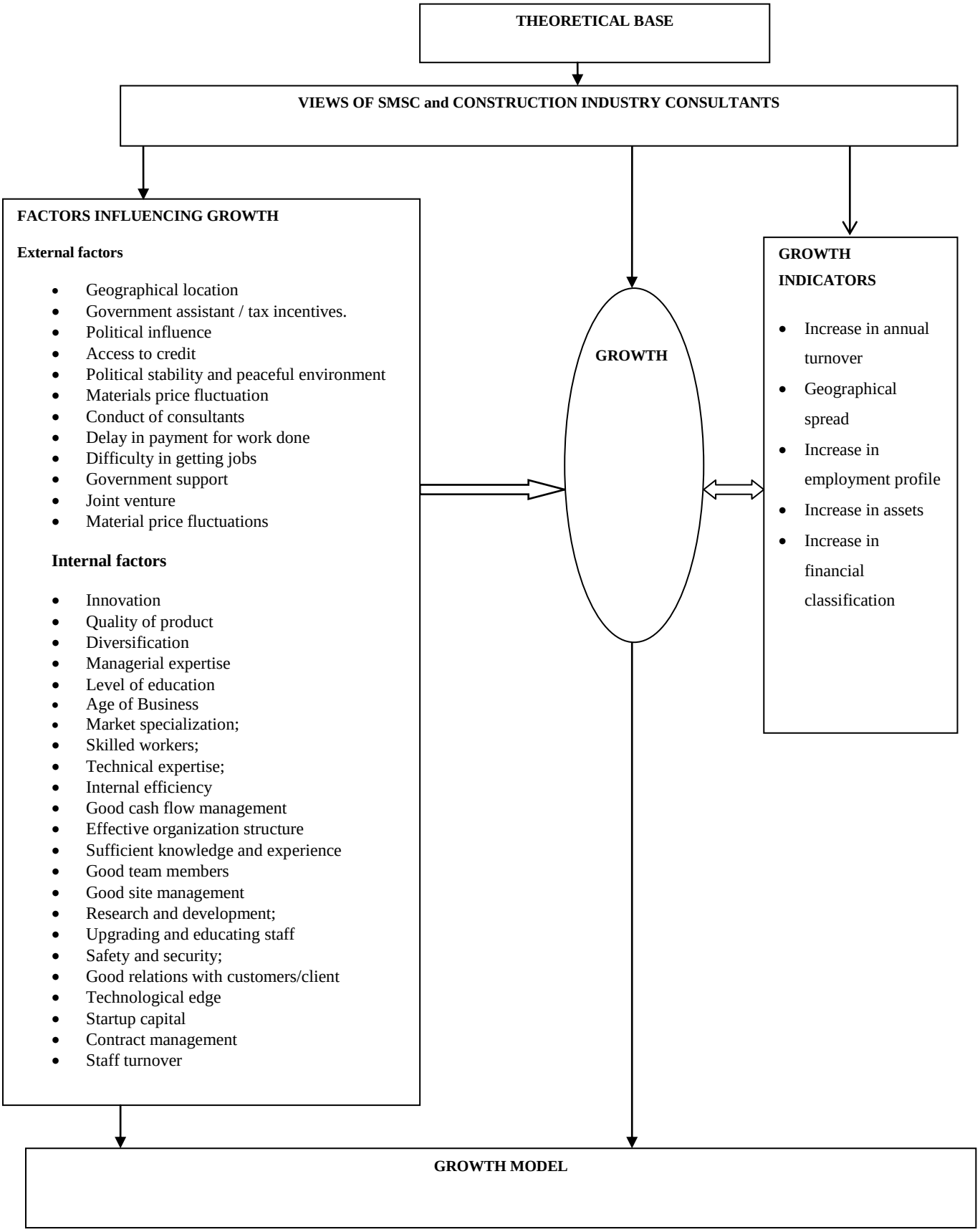

Figure 3.2: Theoretical Framework (source: author own construct)

Table 3.2 CONVERGENCE OF QUALITATIVE FINDINGS WITH LITERATURE

FINDINGS FROM QUALITATIVE INQUIRY	CONSISTENT WITH LITERATURE
Payment delay	Amoah, et al., 2011; (Eyiah, 2003)
Political influence in contracting	**Not consistent**
Price fluctuations	**Not consistent**
Geographical location	(Minai & Lucky, 2011)
Competition from peers	Laryea (2010)
Difficulty accessing to credit	Osei (2013)
Firm ownership	(Mateev & Anastasov, 2010)
Education level	(Islam, et al., 201; (Mohammed & Obeleagu-Nzelibe,2014)
Firm age	(Damoah, 2013)
Diversification	(Abor & Quartey, 2010)
Low markup	(Dza, et al., 2015)
Relationship with client	(Ahiawodzi & Adade, 2012)
Quality work	(Garnsey, et al., 2006)
Jobs access	(Garnsey, et al., 2006)
Unprofessional conduct of consultants	**Not consistent**

The findings from the qualitative inquiry revealed factors peculiar to the research area which influences the growth of SMSC. These are highlighted in table 3.2 as not being consistent with literature. For instance respondents contended that prices of building materials in Northern Ghana are higher than the rest of the country. This according to them affect the profit margin and hence their working capital. They also revealed that there exist so much political influence in the award of contracts to the extent that contractors without the needed political links find it difficult getting jobs. Responds further revealed the conduct of

construction industry consultants in the research area is affecting their growth. This is alien in business growth literature.

Questionnaire structure

Section A: Demography

Section B: Factors influencing growth

Section C: Growth

Section A seeks to establish the demographic features of the respondents to be sure they fall within the scope of the study (small and medium scale contractors i.e D3K3 and D4K4). The main crust for developing a frame work for assessing growth is the identification of variables that influence growth **(independent variables**) and then growth **(dependent variable)** (See Baker et al, 2012). From the questionnaire structure, sections B sought to establish independent variables whilst C represented the dependent variable. Multiple regression analysis of the results will establish the most critical independent and the dependent variables and these will be used to develop the frame work.

The likert-type scale use fixed choice response formats and are designed to measure attitudes or opinions (Bowling 1997). Indeed the likert-type scale assumes that the strength/intensity of experience is linear, i.e. on a continuum from not very important to very important or strongly agree to strongly disagree, and makes the assumption that attitudes can be measured (Burns and Grove, 1997). Thus the questionnaire adopted the likert-scale in eliciting the opinions of repondents on the research variables stated above

3.5.4 PILOTING QUESTIONNAIRE

Piloting research questionnaire is an integral part of every creditable research process which unfortunately is often ignored by many researchers due to time and financial constraint (Presser et al., 2004). The purpose of the pilot test is to refine the questionnaire so that respondents will have no problems in answering the questions and there will be no problems in recording the data. Additionally, pilot testing the questionnaire enables the researcher to obtain some assessment of the questions' validity and the likely reliability of the data that will be collected (Saunders et al, 2009; Collins, 2003). Bell (2005) posited that piloting questionnaire determines whether the questionnaire will succeed or not.

Piloting questionnaire entails initially asking an expert or group of experts to comment on the representativeness and suitability of the questions as well as allowing suggestions to be made on the structure of the questionnaire. This helps establish content validity and allow for the necessary amendments to be made prior to pilot testing with a group as similar as possible to the final population in the sample. Several factors influence the choice of the number of people chosen for pilot testing questionnaire. These according to (Saunders et al., 2009) are dependent on the research question(s), objectives, the size of research project, the time and money resources available, and how well the questionnaire have been initially designed. For most student questionnaires, Fink (2003) posited that the minimum number for a pilot is 10. However Dillman (2007) informs that for large surveys, between 100 and 200 responses is usual. The piloting of the questionnaire for this study begun with five experts in construction industry research including the research supervisor for the study. They made various comments and suggestions regarding the content, structure and suitability of the individual questions in the questionnaire. The necessary amendments were made taking into account the comments from the experts. The questionnaires were then given to five potential respondents

(SME contractors) to the final questionnaire to answer. Generally, the piloting exercise sought to find out from respondents:

- how long the questionnaire took to complete;
- the clarity of instructions;
- which, if any, questions were unclear or ambiguous;
- which, if any, questions the respondent felt uneasy about answering(ethical issues);
- whether in their opinion there were any major topic omissions;
- whether the layout was clear and attractive
- any other comments.

These were included as a short questionnaire at the end of the main questionnaire. Apart from a few typos, no adverse comments were made by the five SMEs contractors who were involved in the piloting. Each took and an average of 20 minutes to complete the questionnaire. No adverse comments were made possibly because, the questionnaire were developed incorporating issues that emerged from an initial qualitative survey in which the respondents were participants. The inputs of the research experts in the initial stage of the pilot could also play a part.

3.5.5 VALIDITY OF QUESTIONNAIRE

Validity of questionnaire refers to whether a questionnaire is measuring what it purports to measure (Brace, 2004). Content validity (or face validity) refers to expert opinion concerning whether the scale items represent the proposed domains or concepts the questionnaire is intended to measure (Burns & Grove, 1997). Thus in developing the questionnaire, the issues emerging from the qualitative interview of a sample of the respondents to the questionnaire as well as the independent expert opinions of construction industry consultants in the research area were factored into the development of the questionnaire. Additionally, previous studies

adopted similar questionnaire techniques which proved very successful.(see Aigbavboa & Thwala, 2014; Baker,et al., 2012; Abor & Quartey, 2010). Also pilot testing the questionnaire was another way to ensure the validity of the questionnaire. It is thus assured that the questionnaire measured what it purported to measure.

3.5.6 RELIABILITY OF INSTRUMENT

The reliability of instruments measures the consistency of the instruments (Field, 2009). Creswell (2009) considers the reliability of the instruments as the degree of consistency that the instruments or procedure demonstrates. The reliability of a standardized test is usually expressed as a correlation coefficient, which measures the strength of association between variables. Such coefficients vary between -1.00 and +1.00 with the former showing that there is a perfect negative reliability and the latter shows that there is perfect positive reliability. In this study each statement rated on a 5 point likert response scale which includes not very important, not important, averagely important, important and very important. Based on this an internal consistency reliability test was conducted in the research area with a sample of 20 SMSC and the Cronbach's alpha coefficient for the instrument was found as 0.802 which is highly reliable. Typically an alpha value of 0.80 or higher is taken as a good indication of reliability, although others suggest that it is acceptable if it is 0.67 or above (Cohen et al., 2007). Since, instruments were developed based on research questions and objectives; it is possible to collect necessary data from respondents. Then, instruments are consistent with the objectives of the study.

3.5.7 ETHICAL CONSIDERATIONS

All the research participants included in this study were appropriately informed about the purpose of the research and their willingness and consent was secured before the commencement of distributing questionnaire and asking interview questions. Regarding the

right to privacy of the respondents, the study maintained the confidentiality of the identity of each participant. In all cases, respondents were not required to indicate their names on the questionnaire thus collective names like 'respondents' were used.

3.6 DATA COLLECTION

This section discusses the procedure adopted in collecting data. Data collected was mainly primary data which was done in two phases. The first phase entailed interviewing managers of small and medium scale contractors (SMSC) as well construction industry consultants who operate within the research area. The second phase involved administering structured questionnaire to SMSC in the research area.

3.6.1 QUANTITATIVE DATA COLLECTION

The findings from the preliminary inquiry together with issues immerging from literature formed the background for the next stage of the data collection. Indeed key independent variables for business growth of SMSCs were established from the two sources and they formed the bases for designing closed ended questionnaire for the collection of quantitative data from SMSCs. The questionnaire was piloted before they were administered (see section 3.3.4). The issue is that, it is often argued that SMCSs in developing countries do not survive beyond five years due to a myriad of challenges confronting them (Mahamid, 2012; Jaafaar & Abdul-Aziz, 2005). Across the West African sub-region, there exists a sharp socioeconomic development dichotomy with the sahelian north trailing relative behind the middle forest and coastal south in terms of socioeconomic development and quality of life (Mancini, 2009; Songsore, 2009; Tsikata & Seini, 2004). SMSCs are able to operate within the remotest part of the country where large firms may not want to operate due to high overhead cost (Amoah et al., 2011). Considering the reported high income inquality between southern and southern Ghana, it is natural that private sector participation in construction

activities in southern Ghana is higer than northern Ghana. This is because of strong linkage between the construction and the econmy (See Osei, 2013; Ananman, 2005) Thus contractors in southern Ghana, apart from government projects, often rely on contracts from individuals whilst their counterparts largely rely on the aged old major client(government) for contracts. Additionally, SMSC in southern Ghana rely on subcontracts from big contractors who largely execute donner funded government projects located mostly in southern Ghana (Kursah, 2013; Osei, 2013). Considering the disparities in the construction business environment occasioned by income inqualities between southern and northern Ghana, it is curious to find out factors that influence the growth of SMSC in northern Ghana. That is why in the current study northern Ghana was selected for the data collection. To do this effectively, a qualitative inquiry was conducted with SMSC in northern Ghana as key participants, all aimed at identifying growth variables that are perculiar to northern Ghana. The findings from the qualitative inquiry and the literature reviwiew formed the theoritcal framework for this study (see section 2.8).

It is significant to state here however that, with government being largely the major client in the construction industry, the findings from this study are largely applicable to all SMSC across the whole Ghana albeit a few geographical perculiarities Thus even though the scope of the study is Ghana, the three Northern regions formed the focus of the study due to the relatively adverse economic condtions under which they operate compared to the rest of the country..

3.6.2 DEFINITION OF VARIABLES

A variable is a key characteristic in research and may be defined as a characteristic of the participant or situation for a given study that has different values or levels in that study (Saunders et al., 2009). In quantitative research, variables are basically categorized into two;

namely independent(predicator) variables and dependent (critereon) variable (Brace et al., 2009). In non-experimental research such as this one, the independent variable is refered to as any predicators, antecedent, or presumed causes or influences under investigation (Leech, et al., 2005). The the dependent variable is a measure of the effect of the indepent variable. In this study, there were two sets of independent variables(Growth challenges and growth drivers, with growth as the only dependent variable. From the literature review and the preliminary interview, a number of factors the influence the gorwth of SMSC were identified. These were factored into the questionnaire and respondents were required to rate on a five point likert scale 1-5 where one 1 stands for not very important and 2, 3, 4 5 stand for not important, averagely important, important and very important respectively. A high rating for an independent variable (Factor influencing growth) means that the particular varible influence increase in growth of SMSC. However a low rating for an independent variable means that the particular variable influence growth to lesser extend. As stated above, the dependent varible is the outcome of the independent variable. Respodents were required to rate their growth on a growth scale of not very significantly, not significantly, significantly, averagely significantly and very significantly.

3.6.3 SAMPLE SIZE DETERMNATION

In survey research generally the aim of sampling is to select a sample which is as representative of the population so that the results an be generalized to the entire population. The determination of an appropriate sample size according to (Saunders et al., 2009) is influenced by several competing factors including the following:

- The confidence the researcher has that the characteristics of the data collected will represent the characteristics of the total population;
- The margin of error or the accuracy the research require for any estimates made from the sample;

- The types of analyses that are going to be undertaken with the data as many statistical techniques have a minimum threshold of data cases for each cell.
- The size of the total population from which the sample is being drawn.

It is difficult to find an accurate and up-to-date data of registered contractors in developing countries due to poor documentation of the agencies responsible for contractors' registration and the high attrition rate of construction business in developing countries. Thus the sampling frame for this study was established from a collation of registered lists of contractors that construction industry consultants have worked with for the past five years and beyond. These construction industry consultants provide consultancy services for both public and private construction projects. Since government remains the largest employer in the construction industry, this technique was adopted in order to establish a credible sampling frame to work with. In all, a total of 532 SMSCs who operate across the three regions in northern Ghana for the past five years formed the sampling frame.

Varied techniques exist that are used for the determination of sample size. These according to (Israel, 1992) include censuring for a small population, application of statistical formulae, using well established sample size determination tables and the application of a sample size of a study being undertaken. This study applied the well acclaimed Kish formula for the determination of the sample size for the quantitative data collection (see Kish, 1965).

The formula is: $n = a / (1 + a/N)$, where

n is the sample size

N is the total population

a is given by s^2/v^2

v is the standard error of the sampling distribution

s is the maximum standard deviation of the population element

$s^2 = P*(1-P)$

P is a proportion of population element belonging to the defined class

at 95% confidence, v is given as 0.05 and P is 0.5.

$S^2 = 0.5(1-0.5) = 0.25$

Thus, $a = 0.25/0.05^2$

$a = 100$

N = 532 (see section 3.4.2)

Then $n = 100 / (1 + 100/532)$

$n = 84$

Thus 84 represent the minimum acceptable sample size for the study. However since it is highly unlikely to get 100% response rate from voluntary respondents such as this one, it is justifiable to oversample to cater for non-responsive participants (Salkind, 1997). Thus a readjusted sample size of 210 was used with a quota of 70 samples from each of the three regions in the research area. In a research study where multiple regressions is envisaged as the data analysis tool, there is a requirement that the sample size should far exceed the number of predicator variables in the study (Leech et al., 2005). In this study, the higher number of predicator variables is 48, in which case the sample size of 210 is about four times the predicator variables. Thus this sample satisfies one key requirement of the data analysis tool.

3.6.4 DATA ANALYSIS

The qualitative data gathered from the preliminary survey was analyzed using a triangulation of word-auto-summary, manual summary and Nvivo qualitative computer software. Quantitative data collected through questionnaire were analyzed using multiple regression analysis. Regression is a statistical technique used to determine the linear relationship between two or more variables. Regression is primarily used for prediction and causal

inference. In its simplest (bivariate) form, regression shows the relationship between one independent variable (X) and a dependent variable (Y), as in the formula below:

$Y=\beta_0 +\beta_1 X +C$…….3.0

The magnitude and direction of that relation are given by the slope parameter β_1 and the status of the dependent variable when the independent variable is absent is given by the intercept parameter β_0. An error term (u) captures the amount of variation not predicted by the slope and intercept terms. The regression coefficient (R^2) shows how well the values fit the data (Brace et al., 2009; Pallant, 2005,). Multiple regressions is a statistical tool that examines the relationship between more than one independent variables on one hand and a single dependent variable on the other hand (Brace et al., 2009). If there exists a relationship, then information on the independent variables will improve the accuracy in predicting the dependent variable. Hypothetically, a regression model may be defined as follows:

$Y=a+\beta_1 X_1+\beta_2 X_2+K_x K+C$……..(3.1)

Where Y= A predicted value of Y which is the independent variable, in this growth of SMSC.

a= the Y intercept

β_1= the change in Y for each unit change in standard deviation (standardized coefficient) of X_1

β_2= the change in Y for each unit change in standard deviation (standardized coefficient) of X_2

x= an X score which tries to predict the value of Y. X in this case refers to the growth challenges and growth drivers.

K= the number of independent variables

C= the error of the random variable.

Application and success of multiplication regression is underpinned by certain assumptions and requirements which must be met if the study is to make inferences from a sample to a general population (Leech et al., 2005). These include

- Y is measured as a continuous variable but not dichotomy or ordinal measurement
- The independent variables can be continuous, dichotomous or ordinal
- There is no high correlation between the independent variables
- The sample size far exceed the number of independent variables
- There should be the same number observations for each variable-any missing values for any variable in the regression should be removed from the analysis.

These assumptions are tested after the regression analysis to ensure that they are not violated. The suitability of a multiple regression equation is tested using the ANOVA and the model summary tables that are churned out from the analysis. From the ANOVA table, the F-value and its significance level determines whether the regression model can be generalized to the population from which the sample was taken (See section 4.3.3.30. The predictive strength of the regression model can be assessed by examining the magnitude of the R^2 and its corresponding adjusted R^2. The closer the adjusted R^2 is to 1, the higher the predictive strength of the regression model (See section 4.3.3.2). Non-collinearity of the independent variables are assessed using the Tolerance and Variance Inflation Factor (VIF) values in the coefficient tables generated from the analysis (See section 4.3.3.5). In regression there are basically three main methods which are distinguished by the method of entry of the independent variables into the analysis. In standard (or simultaneous) multiple regression, all of the independent variables are entered into the analysis at the same. In hierarchical (or sequential) multiple regression, the independent variables are entered in an order prescribed by the analyst. In stepwise (or statistical) multiple regression, the independent variables are

entered according to their statistical contribution in explaining the variance in the dependent variable. (Field, 2009; Leech et a l., 2005). Stepwise regression is designed to find the most parsimonious set of predictors that are most effective in predicting the dependent variable (Brace et al., 2009). Variables are added to the regression equation one at a time, using the statistical criterion of maximizing the R^2 of the included variables. The process of adding more variables stops when all of the available variables have been included or when it is not possible to make a statistically significant improvement in R^2 using any of the variables not yet included. Since variables will not be added to the regression equation unless they make a statistically significant addition to the analysis, all of the independent variable selected for inclusion will have a statistically significant relationship to the dependent variable (Field, 2009). In this study, there are a total fifty independent variables comprising growth drivers and growth challenges. Considering the large number independent variables, the stepwise method was used in the analyses in order to arrive at the most parsimonious set of predictors that best predict the dependent variable, growth of SMSC.

Qualitative data analysis is a complex process and demands clear thinking on the part of the analyst. As an interpretive inquiry, qualitative study requires the researcher to have a sustained and intensive experience with the participants (Locke et al., 2007). This thus brings to fore issues bordering personal biases, and ethical issues in the research. It is thus imperative to analyze the data in such a manner as to mitigate the effects of biases in the findings. Having this in mind summative content analysis technique using a triangulation of manual summary, word auto summary and qualitative data analysis software Nvivo 8 was used in the analysis of the qualitative data. The interview data was imported verbatim into a qualitative data analysis software package, Nvivo-8. This software is designed for qualitative researchers who need deep levels of analysis for small or large volumes of data and has always set the standard in qualitative analysis and proved efficient in previous studies

(Bergin, 2011; Bazeley, 2007). The key themes (nodes) emerging from the analysis are as presented in table 4.1

3.7 CHAPTER SUMMARY

This chapter discussed the research paradigm, approach and research design adopted. The study adopted the pragmatism research philosophy with a mixed research approach. The theoretical framework for the study together with the questionnaire design and subsequent piloting testing has been explained. Data analysis method for qualitative is a triangulation of word manual summary, word auto summary and a qualitative data analysis software, Nvivo 8. Quantitative data analysis method is multiple regression (stepwise option) in SPSS.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS

4.1 INTRODUCTION

The main aim of this study was to develop a model for predicting the growth of SMSCs in Ghana. This chapter covers the analysis of the data collected from which critical influencing factors of growth were espoused and used to develop the model. The first phase interview data is briefly discussed. This is then followed by the discussion of analysis of variables that influence growth of SMSC against the dependent variable 'growth'. This was done using the stepwise option in multiple regression analysis. Included in the regression analysis choices were descriptive statistics correlations, R2, analysis of variance (ANOVA), coefficients, multicollinearity amongst others. The key factors influencing the growth of SMSC as established from the regression analysis were used to develop the growth model. A detailed discussion of the findings was done in relation to literature.

4.2 QUALITATIVE DATA ANALYSIS

This section discussed the preliminary interview conducted with small and medium scale contractors within the research area. In order to prevent undue human influence and biases in the findings, the data from the pilot interview was analyzed using triangulation of word auto-summary, word manual summary and Nvivo 8 (software for qualitative data analysis) (Bergin, 2011; Bazeley, 2007). The results of the analysis at this stage were presented in table 3.1 and formed part of the questionnaire development.

4.2.1 PROFILE OF INTERVIEW PARTICIPANTS

Twenty small and medium scale contractors were purposely selected for this pilot interview. Construction industry consultants who work closely with these SMSC were instrumental in advising on the contractors who have been very active and those that have been dormant for

some time. A further ten of the selected sample was from the Northern Region, and ten from the Upper West and Upper East which are both located to the extreme north of the research area. From the survey, twelve of the fifteen active contractors were D3K3 contractors, while three were class D4K4 contractors. Also of the five dormant contractors, three were D3K3 contractors while two were D4K4 contractors. All the respondents undertake only building projects even though they all have the license to under both civil and building works. In order to address the issue of bias or mediocrity on the part of the contractors, five construction industry consultants were also interviewed to corroborate the issues immerging from the contractors (See details of analysis in table 3.1)

4.3. QUANTITATIVE DATA ANALYSIS

This section discusses the analysis of the second phase of data collected through questionnaire. Descriptive statistics was used in the analysis of the dependent variable (growth of SMSC) and the demographic data of the respondents. The independent variables were analyzed using multiple regression-stepwise methods.

4.3.1 ANALYSIS OF DEMOGRAPHIC DATA

The analysis of the demographic data is to understand the profile of the respondents and their suitability for the study particularly on growth related issues. Such information espoused from the demographic data analysis would help in assessing the confidence that can be placed on the data collected.

Table 4.1 Demographic Data Sheet Of Respondents

No.	Demographic Information	Number		% Valid	% Missing
		Valid	Missing		
1	Financial classification at registration	101	0	100	0
2	Current classification	101	0	100	0
3	Age of business	101	0	100	0
4	Description of firm	101	0	100	0
5	Position respondent in the firm	101	0	100	0
6	Number of full time employees	101	0	100	0
7	Number of part time employees	101	0	100	0
8	Increase in employment profile for the past ten years	101	0	100	0
9	Details of increase in employment profile	25	76	25	75
10	Increase in assets in the last ten years	101	0	100	0
11	Details of increase in assets for the past ten years	18	83	18	83
12	Type clients for the past five years	101	0	100	0
13	Geographical location of projects	101	0	100	0
14	Financial value of projects executed in the last five years	101	0	100	0
15	Projects successfully completed in the last ten years	101	0	100	0
16	Projects abandoned in the past	101	0	100	0
17	Details of projects abandoned	16	85	16	88
18	Projects currently being executed	101	0	100	0
19	Number projects being executed and financial value	54	47	54	47
20	Increase in annual turnover	101	0	100	0
21	Detail of annual turnover	22	79	22	78
22	Class at registration	D4K4 56	D3K3 45	Total 101	% D4K4 55.44 D3K3 43.56
23	Current financial class	D4K4 36	D3K3 65	Total 101	35.64 64.56
24	Change in class	20		20	19.80
25	Age of business	< 5 years 39 (38.61%)	6-10 years 38 (37.6%)	11-15 years 17 (16.83)	Over16 years 7 (6.93)
26	Legal status	Sole Proprietor 100	Company 1	Partnership -	JV -
27	Respondent Position	Director 100	QS	General FM	Site foreman 1
28	Fulltime employees	Less 5per 101	5-10per -	11-15per -	Over 16per -
29	Part time employees	Less 5per 2 1.98%	5-10per 38 37.62%	11-15per 42 41.58%	Over 16per 19 18.81%
30	Clients	GOG 45 44.55%	DA 101 100%	Donner 0 0%	NGO 12 11.88% 0. Private 101 100%

Source: Field Data

In all one hundred and one (101) questionnaire were retrieved from respondents (out of 210) and table 4.1 provides a summary of the demographic data required from contractors as well as statistics of completeness to the questionnaire. The column labeled 'valid' gives the number of respondents who provided responses to the particular questions. The column labeled 'missing' gives the number of respondents who did not respond to the particular question. It is imperative to note here that the option to provide responses to some questions (questions 9,11,17,19 and 21) depended very much on the responses given to the preceding questions. Thus even though such questions appeared unanswered they do not affect the credibility of the data in any way. For instance a respondent who has not experienced any increase in employment profile in the past ten years as requested in question 8, does not need to provide details of increase in employment profile as requested in question 9, and thus question 9 remains unanswered by such respondent. Employment profile, assets level and annual turnover are indicators of growth (Bakar et al., 2012). Also an increase in the financial classification of a firm from class D4K4 to D3K3 is a manifestation of growth (Eyiah, 2004). Table 4.1, shows that only 25%, 18% and 22% have increased their employment profile, assets base and annual turnover respectively over the last ten years. This means that more than 70% of the respondents have not experienced any growth in their business over the period. This view is further reinforced by the fact that over the same period only 20% of the respondents have been able to move from financial class D4K4 to D3K3, leaving about 80% who have remained on the same class over the period.

Contractors classified as D3K3 and D4K4 by the Ministry of Water Resources Works and Housing are referred to as small and medium scale contractors with D4K4 being the smallest on the scale (Amoah et al., 2011). A contractor that moves from the lower financial class of D4K4 upon application to the ministry to class D3K3 has experienced some amount of growth as there is significant difference in capital requirements for the two classes (Eyiah,

2004). From table 4.1, 65(64.56%) of the respondents were D3K3 contractors with the D4K4 contractors constituting 36(35.64%). The table also shows that 20 contractors i.e (19.8%) who initially registered as class D4K4 contractors have been able to move to class D3K3 over the years indicating some level of growth.

Row 25 of table 4.1 shows that more than 60% of the respondents are less than ten years in the construction business with 38.61% of them particularly being under five years. Less than 30% of the respondents are over 10 years with 6.93% of them specifically being over sixteen years in business. This means that majority of the respondents could suffer the newness liability in business growth (Damoah, 2013; Acquaah & Eshun, 2010). Row 26 of the table (table 4.1) shows 100 of the respondents' business are sole proprietors with only one being a limited liability. Also 100 of the respondents were actual owners (directors) of the businesses with only one respondents being a foreman. This means that the responses to the questionnaire by and large came from the right caliber of persons with the right information about their businesses. Row 28 of table 4.1 gives the employment profile of respondents. All the 101 respondents had less than 5 full time employees and over 80% of them engage less than 20 part-time employees, with 18.81% specifically engaging over 16 full time employees. Finally, row 30 of table 4.1 gives the type of clients who mostly hire the services of respondents. The table shows that all respondents are hired by private individuals and the District Assemblies whose projects are mostly financed by the District Assembly common fund. Notwithstanding the private client participation in construction business the research area, the level of participation is lower than what happens in southern Ghana due to the high income inequality between north and southern Ghana (see section 2.6.1).

Table 4.2 Regional Distribution of Respondents

Region	Northern Region	Upper East	Upper West
Respondents	30	25	46
Percentage	29.7%	24.75%	45.54%

Source: Field Data

Table 4.2 gives statistics of the regional distribution of respondents. Even though 70 questionnaires were distributed in each region and the researcher put in the same effort in each region in retrieving the questionnaire, Upper West region recorded the highest response rate. Significantly however, each region of the research area has a fair representation of respondents in the data collected.

Table 4.3 Values of Projects Executed Over the Last Five Years

Value Range	< GHC500,0000	GHC500,000-1,000,000	GHC1,000,000-1,500,000	>GHC1,500,000
Respondents	47	27	9	18
Average Annual Turnover	<GHC100,000	GHC100,000-200,000	GHC200,000-300,000	>GHC300,000
Percentage of Respondents	47%	27%	9%	18%

Source: Field Data

Table 4.3 gives statistics of values of projects executed in the past five years and the average annual turnover of the respondents. 47% of each respondents executed projects of less than GHC500, 000.00 financial values in the last five years. This thus translates to an average annual turnover of less than GHC100, 000.00 for this category of respondents. Also 18% of the respondents have each executed projects of financial value exceeding GHC1, 500, 000.00. This also translates to an average annual turnover of greater than GHC300, 000.00.

Table 4.4 Number of Projects Completed Successfully and Handed Over In the Last Ten Years

NUMBER OF PROJECTS	≤5 Projects	≤10 Projects	≥10 Projects
RESPONDENTS	53	31	16
PERCENTAGE	53%	31%	16%

Source: Field Data

Table 4.4 shows that 53% of the respondents have each successfully completed and handed over less than 5 projects in the last ten years with 16% of each respondents completing and handing over more than 10 projects in the last ten years. The high number of respondents who completed less than five projects in the past ten years goes to reinforce the difficulty encountered in getting jobs as revealed in the preliminary interview.

Table 4.5 Projects Abandoned With Reasons for Abandonment

Number of projects	16
Number of respondents	16 15.84%
Reason	Due to payment challenges by client

Source: Field Data

Payment delay for work done is a key challenge that impedes the growth of SMSC. Table 4.5 shows that 15.84% of respondents have abandoned a total of 16 projects in the past due to payment challenges by the client

Table 4.6 Projects under Construction and Financial Value

FINANCIAL VALUE OF PROJECTS	≤GHC200,000	≤GHC600,000	≤GHC1,000,000	>GHC1,000,000	Total
NUMBER OF RESPONDENTS	28 27.72%	9 8.91%	6 5.94%	8 7.92%	51 50.49%
NUMBER OF PROJECTS	34	19	13	25	91

Source: Field Data

Table 4.6 shows that a total of 91 projects were under construction by 50.49% (51) of the respondents at the time the questionnaire were being administered. This means that 49.51 %(50) of the respondents were idle at the time. This further reinforces the difficulty in access jobs as revealed in the preliminary interview.

4.3.2 ANALYSIS OF INDEPENDENT VARIABLES

The analysis of the independent variables was done using multiple regression statistical technique with stepwise option in SPSS. The stepwise method is adopted when there is not strong theoretical background to the study and the number of cases (predicator variables) are many and there is the need to determine the optimum number of variables needed to measure the dependent variable (Brace et al., 2009). In this study, while there is strong theoretical background on the growth of SMEs generally, (see, Hagos et al., 2014; Aigbavboa & Thwala, 2014; Muritala et al., 2012; Ayamda & Laraba, 2011; Garnsey et al., 2006) there is notably very scanty research information on the growth of SMEs in the construction industry specifically with consequential non-existence of policy direction for the industry in Ghana. This coupled with the high number of predicator variables identified from business growth literature and the preliminary inquiry, necessited the adoption of the stepwise method. Forty-eight variables were identified from literature and the preliminary inquiry as predicators (independent variables) of the growth of SMSC which in this study is the dependent variable. This high number of predicator variables necessitated the use of a method that could churn out the optimum number of variables for the growth model and this is where the stepwise method is appropriate.

4.3.3 INTERPRETATION OF MULTIPLE REGRESSION RESULT

The analysis of the independent variables using the stepwise elimination option of SPSS generated a number of data tables and figures that describe the relationship between the

independent variables and the dependent variable. The stepwise elimination method add and eliminate variables based on the mathematical criteria of P<0.05 for entry (Field, 2009). These are now interpreted in the ensuing sections.

4.3.3.1 DESCRIPTIVE STATISTICS

The information produced in this section was churned out using the options: Analyze regression, linear, stepwise option, statistics dialogue and descriptive boxes. Then returning to the main dialogue box of SPSS, the OK button was clicked. This option produced tables 4.7 and 4.8 for the growth model. Table 4.7 presents the mean and standard deviations of each variable that passed the stepwise elimination mathematical criterion of P<0.05 for entry. From the table the mean growth of SMSC is 2.6337 which is below average confirming the analysis of growth in section 4.2.1. The notations in brackets represent the codes of the identified variables. GC denotes a variable which appear as an impediment to growth while GD denotes variable which enhance growth with GRW denoting growth of SMSC which is the dependent variable.

Table 4.7 Descriptive Statistics

Variables	Mean	Std. Deviation	N
Growth	2.6337	.82125	101
Lack of government support(GC_1)	4.0792	.75741	101
Unprofessional conduct of consultants(GC_2)	2.4356	1.04322	101
Delayed payment for work done(GC_3)	4.4851	.76960	101
High staff turnover(GC_4)	2.8020	1.02000	101
Low education level of contractor(GC_5)	2.2079	1.22733	101
Poor managerial expertise(GC_6)	3.2574	1.47413	101
Absence of politics in contracting(GD_1)	3.7129	1.32918	101
Upgrading staff(GD_2)	2.6535	1.13521	101
Availability of capital(GD_3)	4.0198	.83642	101
Compare with peers in the industry(GD_4)	3.1188	.85191	101

The next table, i.e. table 4.8 gives a useful summary of the data. First it shows the Pearson's correlation coefficient between each pair of variables. For instance Table 4.8 shows that *low level of education* shows a negative correlation -0.211 with growth of SMSC and it is significant at P<0.05 as shown in the second rows of the tables labeled **Sig. (1-tailed).**The table also give information of the number of cases contributing to the correlation.

Table 4.8 Correlations

		Growth	GC_1	GC_2	GC_3	GC_4	GC_5	GC_6	GD_1	GD_2	GD_3	GD_4
Pearson Correlation	GRW	1.000	-.162	-.106	-.157	.-115	-.211	-.136	.363	.202	.244	.149
	GC_1	-.162	1.000	-.120	.500	-.316	-.125	-.404	-.067	-.038	.471	-.185
	GC_2	-.106	-.120	1.000	-.179	-.050	.405	.063	.069	.171	-.021	.121
	GC_3	-.157	.500	-.179	1.000	-.080	.040	-.173	-.097	-.069	.389	-.287
	GC_4	-.115	-.316	-.050	-.080	1.000	.225	.267	.238	.122	-.101	.108
	GC_5	-.211	-.125	.405	.040	.225	1.000	.241	.141	.411	-.053	.340
	GC_6	-.136	-.404	.063	-.173	.267	.241	1.000	.278	.394	-.296	.015
	GD_1	.363	-.067	.069	-.097	.238	.141	.278	1.000	.059	-.085	.004
	GD_2	.202	-.038	.171	-.069	.122	.411	.394	.059	1.000	-.109	.260
	GD_3	.244	.471	-.021	.389	-.101	-.053	-.296	-.085	-.109	1.000	.095
	GD_4	.149	-.185	.121	-.287	.108	.340	.015	.004	.260	.095	1.000
Sig. (1-tailed)	GRW	.										
	GC_1	.053	.									
	GC_2	.145	.116									
	GC_3	.058	.000	.037	.							
	GC_4	.125	.001	.311	.213	.						
	GC_5	.017	.106	.000	.344	.012	.					
	GC_6	.087	.000	.266	.042	.003	.008	.				
	GD_1	.000	.254	.245	.167	.008	.080	.002				
	GD_2	.021	.355	.044	.247	.113	.000	.000	.278	.		
	GD_3	.007	.000	.416	.000	.158	.300	.001	.200	.140		
	GD_4	.069	.032	.114	.002	.141	.000	.440	.484	.004	.173	.
N	GRW	101	101	101	101	101	101	101	101	101	101	101
	GC_1	101	101	101	101	101	101	101	101	101	101	101
	GC_2	101	101	101	101	101	101	101	101	101	101	101
	GC_3	101	101	101	101	101	101	101	101	101	101	101
	GC_4	101	101	101	101	101	101	101	101	101	101	101
	GC_5	101	101	101	101	101	101	101	101	101	101	101
	GC_6	101	101	101	101	101	101	101	101	101	101	101
	GD_1	101	101	101	101	101	101	101	101	101	101	101
	GD_2	101	101	101	101	101	101	101	101	101	101	101
	GD_3	101	101	101	101	101	101	101	101	101	101	101
	GD_4	101	101	101	101	101	101	101	101	101	101	101

Table 4.9: Model Summary

:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.435[a]	.189	.181	.74334	.189	23.063	1	99	.000	
2	.523[b]	.274	.259	.70684	.085	11.488	1	98	.001	
3	.568[c]	.322	.302	.68635	.048	6.937	1	97	.010	
4	.611[d]	.373	.347	.66351	.051	7.793	1	96	.006	
5	.654[e]	.427	.397	.63756	.054	8.973	1	95	.003	
6	.676[f]	.457	.422	.62413	.030	5.133	1	94	.026	
7	.699[g]	.489	.451	.60874	.032	5.814	1	93	.018	
8	.721[h]	.520	.479	.59290	.031	6.036	1	92	.016	
9	.740[i]	.548	.503	.57877	.028	5.545	1	91	.021	
10	.756[j]	.571	.523	.56692	.023	4.844	1	90	.030	
11	.747[k]	.559	.515	.57194	-.012	2.617	1	90	.109	
12	.771[l]	.595	.550	.55109	.036	8.015	1	90	.006	
13	.802[m]	.644	.600	.51969	.049	12.204	1	89	.001	
14	.801[n]	.642	.602	.51804	-.002	.428	1	89	.515	
15	.799[o]	.638	.602	.51800	-.004	.984	1	90	.324	
16	.811[p]	.657	.619	.50673	.019	5.089	1	90	.026	1.588

a. Predictors: (Constant), Client satisfaction
b. Predictors: (Constant), Client satisfaction, No government support
c. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting
d. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture
e. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert
f. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert, Education level
g. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital
h. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct
i. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct, Staff turnover
j. Predictors: (Constant), Client satisfaction, No government support, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct, Staff turnover, Compare with peers
k. Predictors: (Constant), Client satisfaction, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct, Staff turnover, Compare with peers
l. Predictors: (Constant), Client satisfaction, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct, Staff turnover, Compare with peers, Upgrading staff
m. Predictors: (Constant), Client satisfaction, No politics in contracting, Joint venture, Poor mgt expert, Education level, Availiability of capital, Unprofessional conduct, Staff turnover, Compare with peers, Upgrading staff, Delayed payment
n. Predictors: (Constant), No politics in contracting, Joint venture, Poor mgt expert, Education level, Availability of capital, Unprofessional conduct, Staff turnover, Compare with peers, Upgrading staff, Delayed payment
o. Predictors: (Constant), No politics in contracting, Poor mgt expert, Education level, Availability of capital, Unprofessional conduct, Staff turnover, Compare with peers, Upgrading staff, Delayed payment
p. Predictors: (Constant), No politics in contracting, Poor mgt expert, Education level, Availability of capital, Unprofessional conduct, Staff turnover, Compare with peers, Upgrading staff, Delayed payment, No government support
q. Dependent Variable: Growth

4.3.3.2 THE MODELS SUMMARY

The model summary assesses the overall goodness of the model in predicting the dependent variable, growth of SMSC in this case. Table 4.9 provides the model summary for the regression analysis and they were produced using the model fit option in multiple regression. It is significant to note that table 4.9 produced 16 models, but only the 16^{th} model was selected since it was the only model with the optimum number of variables that met the set criteria (Field, 2009). The column labeled R is a measure of the correlation between the observed values and the predicted value of the criterion variable. Thus in table 4.9, R for the selected model is 0.811 which is a measure of the correlation between the selected variables for the model (*GC1, GC2, GC3, GC4, GC5, GC6, GD1, GD2 and GD3 and GD4)* and the dependent variable (GRW) (see table 4.8). The R Square (R^2) is the square of this measure of correlation and indicates the proportion of the variance in the criterion variable which is accounted for by the model, in this case the proportion of variance in growth accounted for by the set of predicator variables (Brace et al., 2009). In essence, this is a measure of how good a prediction of the criterion variable can be made by knowing the predictor variables. However, R square tends to somewhat over-estimate the success of the model when applied to the real world, so an Adjusted R Square value is calculated which takes into account the number of variables in the model and the number of observations (participants) the model is based on. This Adjusted R Square value gives the most useful measure of the success of the model and is expected to be as close as possible to the R square. (Brace et al., 2009; Field, 2009; Leech et al., 2005;). Thus in table 4.9, R^2 for the selected model is 0.657 and corresponding adjusted R^2 value is 0.617. This means that the selected predicator variables in the model account for 61.7% of variance (increase or decrease) in the growth of SMSC. The change statistics columns show whether the change in R^2 is significant. Also it shows the difference made by adding new predicators to the model. Finally, the Durbin-Watson

statistics shown at the extreme end of table 4.9 informs whether the assumptions of the independent errors are well founded. Field (2009) posited that the ideal values for Durbin-Watson statistics ranges between 1 and 3. Meaning any value less than 1 or greater than 3 should be a cause for alarm. Fortunately however, table 4.9 gives Durbin-Watson values of 1.588 which falls within the two extremes.

4.3.3.3 ANALYSIS OF VARIANCE (ANOVA)

The ANOVA table assesses the overall model to establish whether the model is significant at better predicting the outcome than using the mean as an accurate guess. Table 4.10 presents the ANOVA tables for the regression model. Essentially the F ratio and the associated significance value determine the suitability of the model at accurately predicting the outcome than the mean. The F ratio from Table 4.10 is 17.266 which is significant at $p<0.05$. The F ratio represents the improvement in predicting the model result from fitting the model relative to the inaccuracies that still exists in the model (Field, 2009). This means that from the results, there is less than 5% chance that an F-ratio of 17.266 would happen if the null hypothesis were true (Brace et al., 2009). In other words the results sre not likely due to a sampling error. Thus it is safe to conclude that the regression model give significant predictions of the growth of SMSC.

Table 4.10 ANOVA[q]

Model		Sum of Squares	df	Mean Square	F	Sig.
16	Regression	44.335	10	4.434	17.266	.000[p]
	Residual	23.110	90	.257		
	Total	67.446	100			

p. Predictors: (Constant), Absence of politics in contracting, Poor management expertise of contractor, Low educational level of contractor, Availability of capital, Unprofessional conduct of consultants, High staff turnover, Compare with peers in the industry, Upgrading staff, Delayed payment for work done, lack of government support

q. Dependent Variable: Growth

4.3.3.4 MODEL PARAMETERS

Even though the ANOVA shows the overall goodness of the models it falls short of showing the individual contributions of the various predicator variables to the model. Table 4.11 presents the estimates for B and β-values which represent the individual contribution of each predicator variable to the model. There is no agreement amongst researchers as to whether the B or β values should be used for the regression equation. Whilst some argue for the B others argue for β (See Ahadzie, 2007; Bell, 2005; Burns & Grove, 1997). However there is a consensus that when it comes to comparing the partial impact of the individual independent variables on the dependent variable the β is preferred (Linneman, 2010; Jaccard and Turrisi, 2003). Even though some researchers use the values of B in formulating multiple regression equation, they do not have a common benchmark for comparison since the value of the B depends on how the variables are coded and they indicate the direction and number of units (as coded) of change in the dependent variable due to a one unit change in each independent variable (Linneman, 2010). A positive B-value represents a positive relationship between that particular predicator and the outcome whiles a negative value shows a negative relationship. The β values indicate the relative influence of the variables in comparable (standard deviation) units. According to Jaccard & Turrisi (2003) when variables are measured in concrete units like dollars, years, or percentages, B is relatively easy to interpret because it expresses the potential effects of the independent variables on the dependent variable in their original units of measurement. They argued that the meaning of β is not intuitively clear and cannot be interpreted concretely, but when independent variables are measured in different units only β allow for a direct comparison of the effects of different independent variables on the dependent variables. Thus in this study, the β values (Standardized coefficients) are used as coefficients in the regression equation and this makes it easy for direct comparison of the individual predicators to the model. However the B values are used in interpreting the

direction of the relationship between the predicators and the criterion variables (See Ahadzie, 2007)

Also worthy of mention iS the coefficient tables is the Y-intercept or constant value. This value gives growth of SMSC even when the predicator variables are absent or when they all have zero values. Thus there is the need to effectively bring in these predicator variables to improve upon growth. From table 4.11 the β values of *lack of government support (GC_1)* is – 0.197 which means that holding all the other predicators constant, a unit change in GC_1 will result in a change in Growth by -0.197. Similarly, it is clear from the table that the standardized partial regression coefficients of the rest of the predicator variables are *unprofessional conduct of consultants (GC_2, -0.378), Delayed payment for work done (GC_3, -0.403), High staff turnover (GC_4, -0.214), Low educational level of contractor (GC_5, -0.498), Poor management expertise (GC_6, -0.464), Absence of politics in contracting (GD_1, 0.438), Upgrading staff (GD_2, 0.300), Availability of capital (GD_3, 0.214), Compare performance with peers in the industry (GD_4, 0.381).* These partial regression coefficients means that, holding all the other variables constant, a unit change in any one variable will results in a corresponding change in growth equal to the partial regression coefficient of that variable (Field, 2009.)

Having established the parameters of the model it is significant to state the model in the form stated in equation 3.1 in section 3.4.5. The model is now stated as in equation 4.1 from table 4.14

$$Y_{GRW} = -0.151 - 0.197GC_1 + 0.438GD_1 - 0.464GC_6 - 0.498GC_5 + 0.214GD_3 - 0.378GC_2 - 0.214GC_4 + 0.381GD_4 + 0.300GD_2 - 0.403GC_3 \quad \text{4.1}$$

Table 4.11: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
16 (Constant)	-.151	.595		-.253	.801	-1.333	1.032					
GC1	-.213	.094	-.197	-2.256	.026	-.401	-.025	-.162	-.231	-.139	.502	1.993
GD1	.271	.041	.438	6.573	.000	.353	.189	.363	.569	.406	.856	1.168
GC6	-.258	.044	-.464	-5.841	.000	-.171	.-346	-.136	-.524	-.360	.604	1.657
GC5	-.333	.055	-.498	-6.088	.000	-.442	-.225	-.211	-.540	-.376	.569	1.758
GD3	.210	.075	.214	2.807	.006	.061	.359	.244	.284	.173	.654	1.530
GC2	-.298	.056	-.378	-5.297	.000	-.186	-.410	-.106	-.487	-.327	.746	1.340
GC4	-.172	.056	-.214	-3.071	.003	-.061	-.284	-.115	-.308	-.190	.784	1.275
GD4	.367	.073	.381	5.052	.000	.223	.511	.149	.470	.312	.671	1.491
GD2	217	.055	.300	3.961	.000	.326	.108	.202	.385	.244	.663	1.508
GC3	-.431	.086	-.403	-4.979	.000	-.259	-.602	-.157	-.465	-.307	.580	1.725

a. Dependent Variable: Growth of SMSC

It is significant to note that all the variables have significant effect on the growth of SMSC as their significant values are all less than 5 %. GC_5 (Low level of education of contractor) has the highest effect on growth of SMSC as it has the highest standardized regression coefficient (Beta value) of -0.498 which is significant at P< 5%. This is closely followed by 'poor management expertise (GC_6)' with β-value of -0.464 and significant at P<5%.

4.3.3.5 ASSESSMENT FOR NO MULTICOLLINEARITY

Multicollinearity exists when there is a strong correlation between two or more predicators in a regression model so that their effects are difficult to separate. This increase the standard error of the coefficient estimates and thus reduces the degree of confidence that one can place in them. (Field, 2009; Tabachnick & Fidell, 2001). Two values are critical in assessing multicollinearity: **Tolerance** and **Variance Inflation Factor (VIF)**. Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model. If this value is very small (less than 0.10), it indicates that the multiple correlation with other variables is high, suggesting the possibility

of multicollinearity. The other value given is the VIF (Variance inflation factor), which is just the inverse of the Tolerance value (1 divided by Tolerance). VIF values above 10 would be a concern here, indicating multicollinearity and some level of biasness in the model (Field, 2009; Pallant, 2005).Tables4.14 give the tolerance and VIF values for the model. The table shows that all the variables have tolerance values far above 0.1 with the least value being 0.502. Also from the table it is clear that VIF values are all far below 10 with the highest VIF being 1.993.

4.3.3.6 CASEWISE DIAGNOSTIC

The casewise diagnostic test is used to assess the accuracy of the model. The principle as recommended by (Field, 2009; Pallant, 2005) is that, when the casewise diagnostics option in the linear regression dialogue box in SPSS is changed from a default criteria of 3 to 2 (as that is the case for this work), it is expected that 95% of cases to have standardized residuals ranging from -2 and +2 inclusive. This means that about 5% of case should have standardized residuals outside these limits. In addition 99% of cases should have standardized residuals within -2.5 and +2.5 meaning, 1% of cases should have residual values outside this range. The model has 101 cases it means it is normal to have about five cases (5%) with standardized residuals outside the ±2 range or 1 case (1%) with standardized residuals outside the range ±1. From the SPSS generated table 4.12 there are three cases (3%) all with standardized residuals outside the ±2 range, meaning the 95% is not met here. However, only one case (1%) i.e case 96 has standardized residual outside the ±2.5 range. Meaning 99% of the cases in model 4.1 (See section) have standardized residuals within the range of ±2.5.

Table 4.12: Casewise Diagnostics[a]

Case Number	Std. Residual	Growth	Predicted Value	Residual
8	2.266	4.00	2.8518	1.14825
22	2.331	4.00	2.8190	1.18103
96	-2.519	2.00	3.2765	-1.27654

a. Dependent Variable: Growth

4.3.3.7 VERIFYING ASSUMPTIONS OF THE MODEL

Multiple regression dwells on a number of assumptions which must be met for the reliability of the model. Notable amongst the assumptions include normality, linearity, homoscedasticity and independence of residuals ((Field, 2009; Pallant, 2005). *Normality* means that the residuals should be normally distributed about the predicted dependent scores. *Linearity* means the residuals should have a straight-line relationship with predicted dependent variables scores and *homoscedasticity:* the variance of the residuals about predicted dependent variables scores should be the same for all predicted scores (Brace et al., 2009). One of the ways that these assumptions can be checked is by inspecting the residuals scatter plot, normal probability plot and the normal distribution curve of the regression standardized residuals that can be generated by clicking on the plot option in SPSS. These are presented as (Fig. 4.1, Fig. 4.2, and Fig4.3 respectively. In the Normal Probability Plot it is expected that the points will lie in a reasonably straight diagonal line from bottom left to top right. In the Scatter plot of the standardized residuals it is expected that the residuals will be roughly rectangular distributed, with most of the scores concentrated in the centre (along the zero point). A normal distribution curve has the shape similar to the shape of a bell.

Figures as presented in the following pages all meet the definitions of normality, linearity and homoscedasticity; hence the data for the model is normally distributed (Brace et al., 2009)

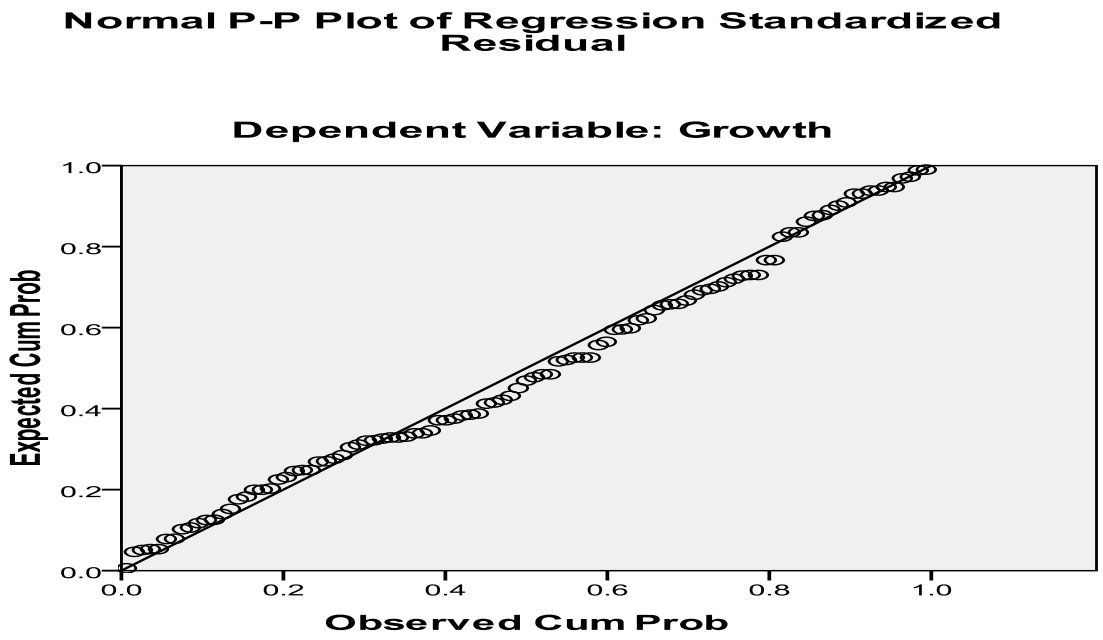

Figure 4.1: Normal probability Plot

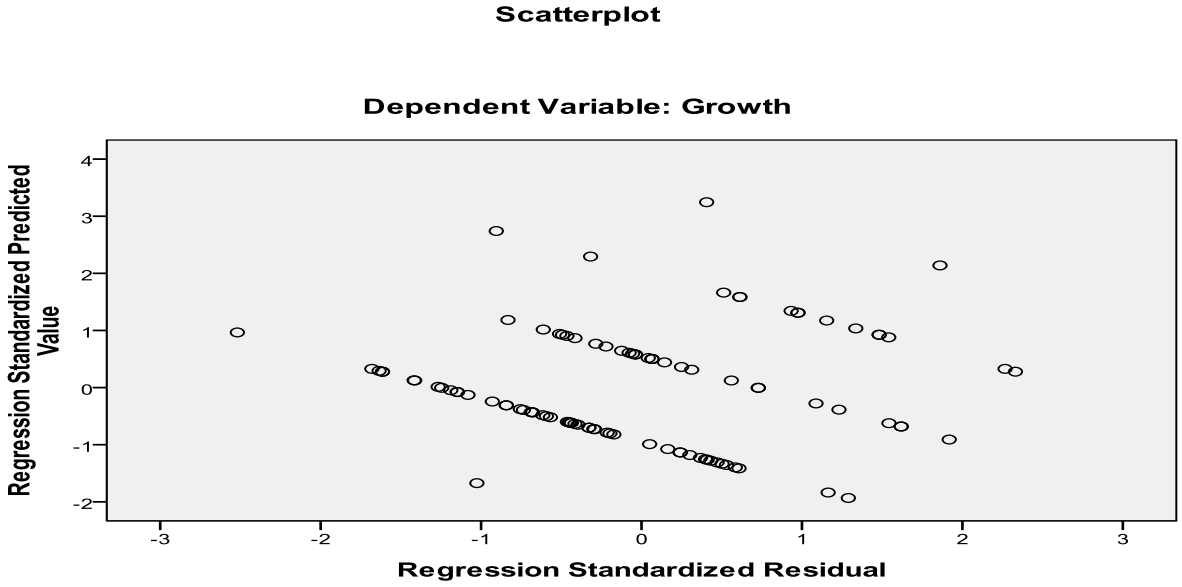

Figure 4.2: Standardized residuals against standardized predicted value

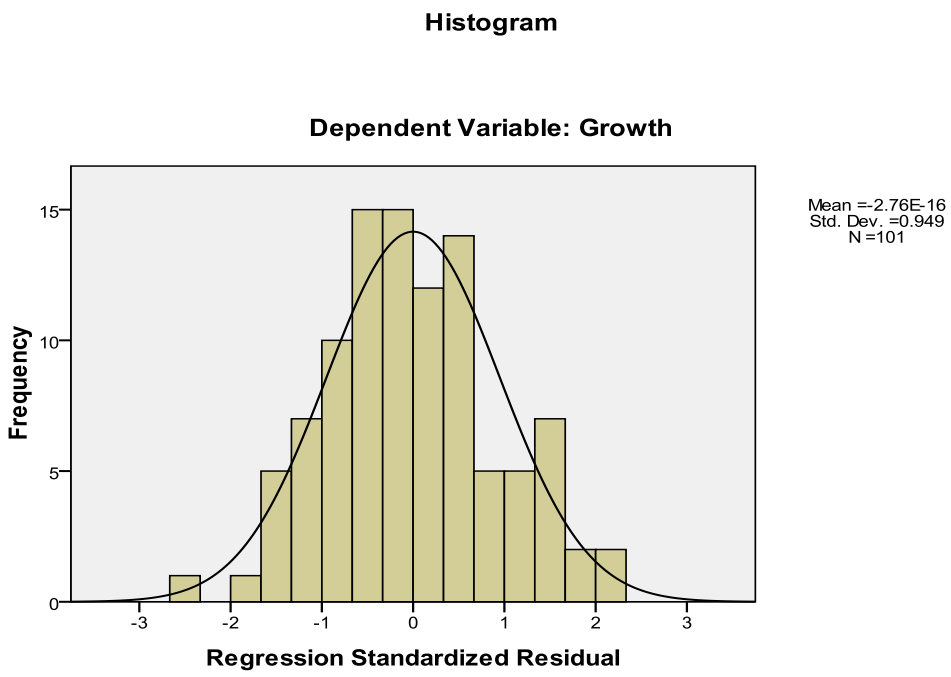

Figure 4.3: Histogram of frequency against standardized residual

4.4 DISCUSSION OF RESULTS

Having analyzed the quantitative data and developed regression models in the preceding section, the subsequent section are devoted to discussing the significance of variables in the models in relation to business growth literature. Findings in the qualitative data analysis are briefly brought forth and the two synchronized to come out with a framework for growth of SMSC which forms the main aim of the study.

4.4.1 FACTORS INFLUENCING GROWTH OF SMALL AND MEDIUM SCALE CONTRACTORS (SMSC)

Critical factors that influence the growth of SMSC (variables) from the perspective of SMSC identified from literature, the preliminary inquiry and the regression analysis and registered in the regression model 4.1 are discussed in much detail here.

4.4.1.1 Delayed payment for work done

In the view of the small and medium scale contractors (SMSC), 'delayed payment for work done' (GC3) post a big challenge to their growth. From table 4.14 and equation 4.1, GC3 has a β value of -0.403 showing a negative correlation with growth. As GC3 increases in absolute value, growth decreases in absolute value. This means that a unit change in GC3 will result in a change in GRW by -0.403 standardized units. Under normal contractual arrangements contractors are reimbursed by the client for work properly executed, valued and certified on agreed stage bases (Hackett et al., 2007). In essence, project finance is required to bridge the time between expenditures and revenues. Contractors are usually paid for the work done in addition to any materials already on site. Off-site materials and/or work, which become substantial in the modern prefabricated and pre-assembled components, are not paid until provided on site (Motava et al., 2008). Indeed the issue of delayed payment particularly for government projects has consistently been quoted as a bane to the performance, growth and development of the construction industry in developing countries and Ghana cannot be an exception (Amoah et al., 2011; Laryea, 2010; Eyia and Cook, 2003). This problem is further exacerbated by the difficulty faced by SMSC contractors in getting bank loans and other forms of credit (Eyiah & Cook, 2003). In the study area where incomes it can be infered that there is lower private sector (client) invlovement in construction activities than the rest of the country due to the general high poverty level majority of residents, with government being principally the major client upon which SMSC depend on for jobs, delay in the payment for work done really has a telling effect on their growth.

4.4.1.2. Unprofessional conduct of consultants

A typical construction project is a complex one with many stake holders playing complementary roles for the success of the project. One of such stake holders is the consultant who is an individual or a group of individuals who work as a team and are

appointed by the client to take responsibility for the design, management and the construction of development project from conception to operation (Langdon, 2007). Precisely, some of the main duties of the consultant according to FIDIC IV are: reviewing and updating design details; monitoring contractor's operations to ensure timely commencement of operation; reviewing contractor's programme; carrying out quality control tests; reviewing contractor's monthly invoices and certifying for payment; evaluating all claims for additional payment and applications for extension of time; and preparing monthly, quarterly and annual progress reports. The consultant performs these functions within the confines of professional code of ethics (Nawaz & Ikram, 2013; Dadzie et al., 2012;). Any infractions on the professional code of ethics constitute unprofessional conduct. According to (Dza et al., 2015; Nawaz & Ikram, 2013) the construction industry is tainted with unethical conduct and practices. Poor bid analysis, absence of transparency in bid selection process and general noncompliance with ethic policies constitute unprofessional conduct. Corruption in the award of contracts has been identified as a canker and indeed a bane to the economy of most nations (Ameyaw & Mensah, 2013; Dza et al., 2013). This canker necessitated the public procurement reforms in Ghana culminating in the passage into law of the public procurement act, Act 663, (See , Ameyaw et al., 2012; Anvuur et al., 2006). In the current study, respondents revealed at the interview stage that during bidding it is common practice for consultants to be the one to price the bids for all bidders at a fee and yet be the one to determine successful bidders. The consultants also contend that they are in most cases given specific instructions by political office holders who often represent the major client (Government or District and Municipal assemblies) to award specific projects to their chosen contractors. This in the words of some of the consultants '*stifles professionalism in the discharge of our duties'* Thus under the circumstance transparency and professionalism are compromised at the contract award stage.

4.4.1.3 High staff turnover

Consistent with the resource base theory which underpins this study, Muogolo(2013) posited that an organization key competency and competitive advantage is its human capital (Muogbo, 2013). Similarly, Mohammed & Obeleagu-Nzelibe (2014) and Arokiasamy (2013) posited that recruiting, training, motivating and retaining highly skilled competent human resource has become a thorny issue for organizations to remain competitive in this globalized world economy. Labour turnover or employees leaving an organization presents numerous challenges than benefits to organizational management (Kuria et al., 2012). For instance Bilau et al.(2015) posited that employee's turnover has had a negative impact on the growth and development of small and medium sized construction firms as the services of the lost employees are no longer available to be utilized by the firm after putting in their resources in training them. They informs further that labour turnover presents a direct cost in terms of recruiting, poor production practices and reduced standards as well as high replacement and training cost. Arokiasamy (2013) also argued that the mere fact that employees leave an organization for what ever reason has a serious consequences for future retention rates among current staff, job satisfaction and employee engagement and an organization's ability to attract talented people for job vacancies.

In the current study, it was observed that as high as 47% (see Table 4.10) of respondents were idling at the time the research data were being collected. This situation reinforces the reported general difficulty local contractors face in accessing jobs in the industry (see Laryea, 2010). Under the circumstances where a contractor goes idle, it makes econmic sense for its employees to leave to find jobs elsewhere. The delayed payment for work done by contractors have implication on employees wages and this could account for staff turnover. This thus present the contractor with problem of having to recruit new labour force anytime

he/she is awarded a contract. This phenomenon impact negatively on the performance and growth of the contractor in the research area, and this is evidence in the β value of -0.214.

4.4.1.4 Low educational level of contractor

Extant literature suggest that a common characteristics of small and medium enterprises the world over are that the business is usually started and dominated by one individual with very little formal education who provides all financial resources and take all decisions in the running of the business (Adams, 2007). Studies have shown that the level of education of an enterprenuer (business owner) plays an important role in the success of the business. Sinha (1996) discovered that 72% of successful enterprenuers had a minimum level of education and technical qualification, while 67% of the unsuccessful enterprenuers did not have any technical beckground. Islam et al. (2011) argued that entrepreneurs with business and technical educational background are in a better position to appreciate and analyze hard reality and deal with it intuitively, which seems to play a critical role in entrepreneurial effectiveness. In a developing economy, entreprenuerial skills are needed by SMEs to generate growth and develop new ventures (Mohammed & Obeleagu-Nzelibe, 2014). Entreprenuers with higher level of education tend to be more innovative and use modern techniques to do business. In the construction industry however, there is little or no barrier to entry into construction business and the capital requirement at lower grade of entry is quite minimal (Klonowski, 2012). In the current study, it has emmerged that the respondents theselves have identified their level of education as a challenge to their growth with GC5 having a β-value of -0.498. This indeed has the highest influence on the growth of SMSC amongst all the variables.

4.4.1.5 Lack of government support

The construction industry the world over is a strategic assert for job creation, poverty reduction socio-economic development and equitable distribution of wealth (Aniekwu, 2013; Ofori, 2012; Amoah et al., 2011; Thwala & Phaladi, 2009). This is because the industry has forward and backward linkages with all other sectors of the economy and central government and its affiliate agencies and departments remain largely the major client with the industry taking a very high percentage of national budget yearly (Osei, 2013; Anaman & Osei-Amponsah, 2007; Anaman, 2006). In the light of this, it is imperative for government to formulate policies that would enhance the growth of the industry which is numericaally dominated by SMSC (Osei, 203; Laryea; 2010). For intance Ofori (1991 and 2012) advocated for a dedicated state agency that will cordinate and regulate construction business in Ghana with view to promoting the interest of indigenous conntractors. Laryea (2010) argued that the dominance of expatriate firms in the construction industry in Ghana is detrimental to the growth of indigenous contractors in Ghana. Several studies have indicated that SMEs generally and those in the construction industry in particular are faced with the difficulty of accessing bank and other form of credit and underscored the need for government support in this direction(Osei, 2013; Abor & Quartey, 2010; Abor & Biekpeh, 2006; Eyiah & Cook, 2003). In the current study, lack of government support shows a negative relationship with growth of SMSC with a β value of -0.197. Meaning that growth of SMSC reduces as government withdraws all forms of support for SMSC.

4.4.1.6 Poor Managerial expertise

Managerial expertise refers to the competency in supervising resources such as human, financial and information which is highly deficient in small scale business owners and accounts for 70% of business failures in developing countries (Chinomona, 2013; Ucbasaran et al., 2010). According to Frese et al (2007), human, financial and information resources

require efficient planning, organizing, implementation and control to be able to offer a sustained competitive edge. Apart from managerial skills, Brinckmann et al (2010) posited that small business owners also need entrepreneurial and marketting skills to spur the growth of busnesses which they argued are lacking in small businesses. In the current study respondents have admitted their own deficiencies in managerial skills as a bane to their growth. Given the low entry barrier into construction business, it stands to reason that anybody with or without the needed competencies can start a construction business. Characteristic of small businesses, the study revealed that business owners dominate the day to day running of their businesses albeit managerial inadequacies. From the analysis, *low managerial expertise* shows a negative relationship with the growth of SMSC with a β value of -0.464. This means that as the managerial expertise of the contractor goes down, the growth of their businesses also goes down. The problem is exacerbated by the difficulty these SMSC face in getting jobs (see table 3.1) which makes it difficult for them to employ and retain people with the requisite skills to help run the business.

4.4.1.7 Absence of politics in contracting

The study shows that the major clients of respondents in the industry are government of Ghana (GoG) or the District and Municipal assemblies. These projects are often initiated by political office holders who head such relevant agencies. It emerged from the preliminary interview (see Table 3.1) that politics take a centre stage in the award of contracts with the provisions in the public procurement act, Act 663 thrown to the dogs. It is the view of respondents that if political influence is removed in the award of contracts it will bring about transparency and a level playing field for contractors and this would translate in to the growth of their businesses. Thus *absence of politics in contracting* shows a positive relation with growth of SMSC with a positive β value of 0.381. This means that, if all other variables are held constant, absence of politics alone can cause growth of SMSC by 0.381 units.

4.4.1.8 Upgrading staff

The respondents identified staff continuous skills training and development as a key growth driver. This factor has significant influence on the growth of SMSC with a β value of 0.300 at P<0.05. This means that, holding all the other predicating variables constant, a unit change in 'upgrading staff' will result in a standard deviation change of 0.300 in growth of SMSC. Immense benefits accrue to organizations that invest in human capital development (Fugar et al., 2013). They argue that upgrading the skills of employees in the construction industry in particular has the potential of ameliorating the numerous challenges that has bedeviled industry and thus make the industry competitive in the global arena. The productivity levels of employees are influenced largely by their skills relevant to the task (ILO, 2010). The ILO (2010) contends that the ability of the workforce in an organization to acquire new skills and adapt to new technology in a changing market environment are central to organizational efficiency and growth. In the current study, SMSC themselves recognize the importance of improving the skills of their employees. The challenge they may face here is the fact they not get contracts regularly and as such they will not reap the long term benefits in upgrading the skills of their employees.

4.4.1.9 Availability of capital

The SMSC are of the view that, availability and easy access to capital for their business could be an impetus for the growth of their businesses. Thus from the data analysis, 'availability of capital' has β of 0.21 with a P<0.05. This means that availability of capital has a significant influence on the growth of SMSC. However one of the key barriers to rapid growth and development of the SMEs sector is shortage of both debt and equity financing (Mensah, 2004). Shortage of working capital has been the reason for the closure of many small businesses in Africa and those that survive operate below capacity for the same reason. (Marfo-Yiadom & Agyei, 2014). Working capital is often defined as current assets less

current liabilities and is measured by cash conversion cycles and all its components of inventory, accounts receivable and accounts payable (Tauringana & Afrifa, 2013). Access to working capital is central to firm's profitability and growth (Owusu-Manu et al., 2014; Asar, 2014; Makori & Jagongo, 2013).

4.4.1.10 Comparing with peers

SMSC have recognized the importance of comparing their performance to their peers and leaders in the industry in order to stimulate growth. Thus '*comparing with peers in the industry (GD4)'* recorded a β value of 0.381 and is significant at $P<0.05$ (see table 414 and equation 4.1). The practice of comparing performance against set norms, standards or practice otherwise known in organizational management as benchmarking is necessary for understanding an organization's position relative to other organizations in the same industry and identifying growth opportunities (Maheshwari & Janssen, 2013; Bannister, 2007). Nasir, et al.(2012) posited that benchmarking is a continous and systemtematic process that evaluates the products, services and policies of organizations that are recognized as representing best practices and which serves as a yardstick for organizational improvement. This is consistent with the view of (El-Mashaleh et al., 2007) that benchmarking which is the basis for good construction science helps companies to improve by making changes to their policies and practices and following the path of industry leaders who have demonstrated excellent performance using best industry practices

4.5 SUMMARY OF CHAPTER FOUR

The independent variables were analyzed using multiple regression-stepwise methods.

Forty-eight independent variables were identified from literature and the preliminary inquiry as predicators (independent variables) of the growth of SMSC which in this study is the dependent variable. Of the forty-eight independent variables, ten of them were retained by the

regression model that met the minimum criteria for the regression model. GC denotes a variable which appear as an impediment to growth while GD denotes variable which enhance growth with GRW denoting growth of SMSC which is the dependent variable. The retained variables with their corresponding β-values are *unprofessional conduct of consultants (GC_2, -0.378), Delayed payment for work done (GC_3, -0.403), High staff turnover (GC_4, -0.214), Low educational level of contractor (GC_5, -0.498), Poor management expertise (GC_6, -0.464), Absence of politics in contracting (GD_1, 0.438), Upgrading staff (GD_2, 0.300), Availability of capital (GD_3, 0.214), Compare performance with peers in the industry (GD_4, 0.381)* This thus gives a regression model $Y_{GRW} = -0.151 - 0.197GC_1 + 0.438GD_1 - 0.464GC_6 - 0.498GC_5 + 0.214GD_3 - 0.378GC_2 - 0.214GC_4 + 0.381GD_4 + 0.300GD_2 - 0.403G$. The value -0.151 is constant which represents the growth of SMSC when all the independent variables are zero.

4.6 VALIDATION OF MODEL

The relevance of validation of research findings is to establish the relaibility and generalizability of the findings. In other words validation assures that the findings do not only apply to the sample but also the general population from which the sample was drawn (Field, 2009; Brace et al.,2009; Cresswell, 2009; Leech et al., 2005). Cross validation of findings becames absolutely mandatory where stepwise option of multiple regression is used for the analysis of data (Field, 2009). According to Field(2009) mathematical applications such as Wherry's or Stein's formulae are used in validation. However according to Stevens (2002), the Wherry's equation has the inherent deficiency of being unable to predict a completely new data set. Thus Stein's formula is superior to the Wherry's equation in validation of findings and is therefore used in this study. In validation, the adjusted R^2 is examined. The adjusted R^2 give an idea about how much variance in the outcome (growth of SMSC) would

be accounted for if the model had been derived from the general population. Thus using the Stein's equation to calculate the adjusted R^2 value:

Stein's formula adjusted $R2 = 1 - \left[\frac{n-1}{n-k-1} * \frac{n-2}{n-k-2} * \frac{n+1}{n}\right] * (1 - R2)$……..4.2

Where, R^2(in bracket) = unadjusted value, n= number of participants, K = number of predicator's in the model.

Therefore using equation 4.2;adjusted R^2= 1- $\left[\frac{101-1}{101-10-1} * \frac{101-2}{101-10-2} * \frac{101+1}{101}\right](1 - 0.657)$…4.2

Stein's adjusted R^2 = 0.43 or 43%

Considering the small number of participants as compared to the population, an adjusted R^2 value of 40% is fairly appreciable. The model is fairly rebost indicating the potential of cross validation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter brings to an end the study by briefly re-echoing a few of the salient issues addressed in the study. Thus the chapter begins by re-presenting the research questions and objectives and assesses the extent to which they have been addressed. Conclusions and recommendations to the study are then presented.

5.2 RESEARCH QUESTIONS

The study sort to address the following research questions

- What are the key impediments to growth of small and medium scale contractors in Ghana?
- What are the key growth drivers of small and medium scale contractors?
- How is the growth potential of SMEs in the construction industry assessed in Ghana

5.3 RESEARCH OBJECTIVES

In order to address the above research questions the main objective of the thesis was to develop a model for the growth of small and medium scale contractors (SMSC) in Ghana. Achieving this main objective was hinged on two minor objectives of identifying factors that impede and factors the drive the growth of SMSC in Ghana.

5.3.1 Objective 1: To identify factors that influence the growth of SMEs in Ghana

This objective has been largely met through extensive review of extant literature and complimented with the qualitative analysis and subsequent quantitative data analysis. Thus chapters two, three and four sufficiently addressed this objective.

5.3.2 Objective 2: To identify factors peculiar to SMSC that influence their growth of in Ghana

Similar to objective one, this objective has been adequately met through extensive review of extant literature and complimented with the qualitative analysis and subsequent quantitative data analysis. Thus chapters two, three and four sufficiently addressed this objective

5.3.3 Objective 3: To develop a model for predicting the growth of SMSC

This objective has been addressed using the results of objectives 1 and 2 as presented on Fig. 4.1

5.4 CONCLUSIONS

From the findings and discussions so far, the following key conclusions are drawn:

- The study revealed that critical factors which influence the growth of SMSC in Ghana include *delayed payment for work done, unprofessional conduct of consultants, low educational level of contractor, High staff turnover, lack of government support and poor managerial expertise. absence of politics in contracting, upgrading staff, availability of capital* and *comparing performance with peers in the industry*

- In order to spur the needed growth in the businesses of SMSC, the identified growth factors which have negative relationship with growth need to be seriously addressed and those with positive relationship improved.

- The regression model show a validity which can account for 61.9% of the variance of the growth of SMSC in Ghana and this underscores the robustness of the model for application in the construction industry in Ghana.

5.5 CONTRIBUTION TO KNOWLEDGE

This is a maiden study focusing mainly on small and medium scale contractors in the construction industry who operate in Northern Ghana. Previous studies have often concentrated on large scale contractors who invariably operate in the big cities of Kumasi and Accra. Thus the study has revealed the peculiar challenges that confront SMSC who operate in the hinterlands. Secondly the findings from the study could form the basis for public policy formulation aimed at enhancing the growth of SMSC particularly those in the hinterlands. Finally, the findings herein, could serve as a guide for SMSC to enhance their growth.

5.6 LIMITATIONS OF THE STUDY

As is often the case with most research study of this nature, this study is not without limitations. The following formed key limitations of the study

- The recorded response rate of 48% in the quantitative data collection is low, compared to other studies.
- The fact that the qualitative interview had to be conducted in the local dialect in some cases and translated into English by the researcher could create a bias situation.
- There was difficulty in locating respondents since majority of them do not have offices.

Notwithstanding these limitations, the findings were determined to be credible from the goodness fit of the regression analysis.

5.7 RECOMMENDATION FOR INDUSTRY

Based on the findings of this study, the following recommendations are proffered

- SMEs sector in the construction industry have peculiar challenges that are different from SMEs from other industrial sectors. Thus there is the need to establish a public agency that will specifically address the peculiar challenges confronting them.
- There should be conscious arrangement for SMSC to learn best practices from market leaders in the industry.
- The issue of unprofessional conduct in the procurement process as revealed in the study is a wakeup call for Government to consider a second look of Act 663.
- As a major client, government could consider initiating projects only when there are funds available to finance them since delayed payment is a very critical issue identified in the study.

5.8 RECOMMENDATIONS FOR FURTHER STUDIES

The findings of this study were from the perspective of the Small and Medium Scale Contractors. It immerged that consultants put up unprofessional conduct in the discharge of their duties and this affect the growth of SMSC. However during the qualitative inquiry, the consultants also averred that politicians are stifling their professional ethics in the discharge of their duties. Since the contractors work closely with consultants and clients, there is the need to conduct similar studies from the perspective of the consultants and clients to corroborate the findings of this study. This is because consultants work closely with these contractors and assess their capacity in the contract award process. Thus the independent opinion of consultants on the growth of SMSC can help in public policy formulation.

5.9 SUMMARY

The study sort to address the following research questions:

What are the key impediments to growth of small and medium scale contractors in Ghana?

What are the key growth drivers of small and medium scale contractors?

How is the growth potential of SMEs in the construction industry assessed in Ghana?

The study revealed that critical factors which influence the growth of SMSC in Ghana include *delayed payment for work done, unprofessional conduct of consultants, low educational level of contractor, High staff turnover, lack of government support and poor managerial expertise.* The findings from the study could form the basis for public policy formulation aimed at enhancing the growth of SMSC particularly those in the hinterlands. The findings could serve as a guide for SMSC to enhance their growth.

A key limitation of the study is that the findings of this study were from the perspective of the Small and Medium Scale Contractors and the issue of biase and mediocrity cannot be ruled out . Since the contractors work closely with consultants and clients, there is the need to conduct similar studies from the perspective of the consultants and clients to corroborate the findings of this study.

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APPENDIX

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ARCHITECTURE AND PLANNING

DAPARTMENT OF BUILDING TECHNOLOGY

PREAMBLE

My Name is Moo Fortunatus, a Master of Philosophy (MPhil) student from the Department of Building Technology, Kwame Nkrumah University of Science and Technology, Kumasi. I am conducting a research on the topic **'AN ASSESSMENT OF THE GROWTH PATTERN OF SMALL AND MEDIUM SCALE CONTRACTORS IN NORTHERN GHANA'.**

I would be very happy if you could spare me a bit of your precious time to respond to these questionnaires which are purely for the purpose of this research. I assure you of absolute confidentiality in this exercise.

Small and medium scale contractors (classes D4, K4, D3, and K4) contribute immensely to the socio-economic development of Ghana in the areas of infrastructural development, employment creation and poverty reduction. There is however very little research information concerning their growth and general development of the industry. As a consequence, there is no national policy direction for the development of the small and medium scale contractors as it exist in other developing countries.

KEY OBJECTIVES

- Find out the challenges confronting small and medium scale contractors in Ghana (particularly those in northern Ghana) that militate against their growth and development
- Develop a framework for assessing the growth of small and medium scale contractors.

RELEVANCE OF THE STUDY

For the contractor the findings of this study will serve as a bench mark for evaluating the direction of their business. For Government/policy makers, the findings of this study will serve as a guide for policy formulation and for academia and researchers, this will add to the body of knowledge needed for further research.

Thank you very much in anticipation of your cooperation

Moo Fortunatus

Department of Building Technology

KNUST

Kumai

0208777860/0243720459

Email:moohugo@yahoo.com

CONTRACTORS IN BUSINESS

1. Could you kindly indicate the class (es) of your company?

   ……

2. How long have your company been in business?

   ……

3. What kind of job do you often engage in and how do you apply to get these jobs?

   ……

4. On the average could you tell how many people both full and casual workers you employed on a typical project that you completed?

   ……

5. What are some of the key challenges you encounter that impact negatively on your growth?

   ……

6. What measures have you put in place over the years that has kept you in business despite the challenges?

   ……

7. If we need to measure the growth of SMEs what indicators do you think will be appropriate or acceptable especially in northern Ghana?

   ……

8. In the course of your business whom do you see as a competitor for benchmarking and motivation for growth?

   ……

CONTRACTORS OUT OF BUSINESS

1. Could you kindly indicate the class of your company?

   ……

2. What kind of job do you often engage in and how do you apply to get these jobs

   ……

3. How long did your company survive in the construction business?

   ……

4. On the average could you tell how many people both full and casual workers you employed on a typical project that you completed?

   ……

5. Could you please indicate what other business you undertake apart from construction works?

   ……

6. Who were your major clients over the years?

   ……

7. What will you view as growth in your business and did you experience any when you were in business?

   ……

8. What are some of the key challenges you encountered that eventually got you out of business?

   ……

CONSTRUCTION INDUSTRY CONSULTANTS

1. Could you kindly indicate the type of consultancy services you your firm render ?

   ……

2. How long has your firm been in business?

   ……

3. Who are your major clients in the industry

   ……

4. In your opinion what are some of the key challenges that impact negatively on your growth on the growth of small and medium sclae contractors that you have worked with over the years?

   ……

5. What are the factors you consider appropriate that could spur the growth of small and medium scale contractors in Northern Ghana?

   ……

6. If we need to measure the growth of SMEs what indicators do you think will be appropriate or acceptable especially in northern Ghana?

   ……

7. In the course of the business of small and medium scale contractors whom should they see as a competitor for benchmarking and motivation for growth?

   ……

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

PREAMBLE

My Name is Moo Fortunatus, a Master of Philosophy (MPhil) student from the Department of Building Technology, Kwame Nkrumah University of Science and Technology, Kumasi. I am conducting a research on the topic **'THE GROWTH POTENTIAL OF SMALL AND MEDIUM SCALE CONTRACTORS IN NORTHERN GHANA'.**

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Thank you very much in anticipation for your cooperation

Department of Building Technology, KNUST Kumasi

0208777860/0243720459 (Email:moohugo@yahoo.com)

SECTION A: DEMOGRAPHY

Please tick the option that is applicable to your firm.

1. What was your financial classification at the time of commencement of business?

   a. D3K3 [ ] b. D4K4 [ ] c. D3K4 [ ] d. D4K3 [ ]

2. What is your current financial classification?

   a. D3K3 [ ] b. D4K4 [ ] c. D3K4 [ ] d. D4K3 [ ]

3. How long have your firm been in business?

a. Under 5 years [ ] b. between 6-10 [ ] c. between 11-15 [ ] d. Over 16 [ ]

4. Which one of the following best describes your firm?

a. Sole Proprietor [ ] b. Limited Liability Company [ ] c. Partnership [ ]

d. Joint Venture [ ]

5. What is your position in the firm?

a. Director [ ] b. Quantity Surveyor [ ] c. General foreman [ ] d. Site foreman [ ]

6. What is the average number of full time employees you have engaged over the last ten years?

a. Less than 5 [ ] b. Between 5-10 [ ] c. Between 11-15 [ ] d. Between 16-20 [ ]

e. Over 21 [ ]

7. What is the average number of part time employees you have engaged over the last five years? a. Less than 5 [ ] b. between 5-10 [ ] c. between 11-15 [ ] d. between 16-20 [ ]

8. Have you experienced any increase in your employment profile over the last ten years?

Yes [ ] b. No [ ]

9. If yes, please give details

……

10. Have you experienced any increase in your assets base over the last ten years?

Yes [ ] b. No [ ]

11. If yes, please provide details

……

12. What type of construction projects have you done over the last five years (you can tick more than one if appropriate).

a. Government of Ghana Projects [ ] b. District Assembly Common Fund Projects [ ]

c. Donner funded Projects [ ] d. Non Governmental Organization [ ]

e. Private Individual Projects [ ]

13. What is/are the geographical location(s) of your project(s) (e.g, Upper East, Ashanti, Togo, etc)

……

8. 14. What was the financial value of the projects you have undertaken in the last five years?

……

……

9. 15. How many projects have you successfully completed and handed over in the last ten years?

……

16. Are there any projects that you had to abandon in the last ten years.

a. Yes [ ] b. No [ ]

17. If yes can you provide further details of these projects and why you had to abandon them?

……

18. Are you currently executing any projects? a. Yes [ ] b. No [ ]

19. a. If yes how many projects? ……

b. What is the total value of these projects?.....

20. Have you experienced any increase in your annual turnover over the last ten years ?

a. Yes [ ] b. No [ ]

21. If yes provide details……

SECTION B. **FACTORS INFLUENCING GROWTH**					
How will you rank the importance of the following as they are challenges that impede the growth of small and medium scale contractors in northern Ghana?					
Please tick the appropriate boxes					
1=Not very important, 2=Not important, 3=Averagely important, 4=Important, 5=Very important					
Firm related factors	1	2	3	4	5
1. Short duration of the firm in the construction business					
2. Geographical location of the firm					
3. Poor managerial expertise of owners					
4. Low educational level of the owners					
5. Low startup capital base of the firm					
6. Inability to recruit and retain competent professional staff					
7. Poor contract management					
8. High staff turnover					
9. Inability to innovate					
10. Inability to diversify					
11. Poor Technological edge					
12. Poor quality of product					
13. Poor working relationship with staff, clients and their professional advisors.					
14. Difficulty in accessing bank loans and other forms of credit					
15. Delay in payment for work done					
16. Competition from peers and established firms					
17. Difficulty in getting jobs					
18. Materials price fluctuation					
19. Poor professional conduct of clients consultants					

20. Lack of government support for small and medium scale contractors.					
21. Skilled workers					
22. Sufficient knowledge and experience in construction					
23. Good company management					
24. Maintaining high quality of Services/product					
25. Commitment to customer/client satisfaction					
26. Getting aligned to a political party					
27. Good cash flow management					
28. Good site management					
29. Effective organization structure					
30. Technical expertise					
31. Technological edge					
32. Joint venture.					
33. Diversify expertise					
34. Market specialization					
35. Developing good relationship with clients					
36. Ability to innovate					
37. Stepping up research and development activities					
38. Ability to compare performance with peers and superiors in the industry					
39. Availability of startup capital					
40. Internal efficiency					
41. Upgrading and educating staff					
42. Submitting a lower tender price to secure projects					
43. Availability of bank loans and other credit					
44. Open economic policy of the government					
45. Political stability and peaceful environment					
46. Absence of politics in the awards of contracts					
47. Government assistance to small and medium scale contractors					
48. Provision of concession for local small and medium scale contractors in the award of contracts					
SECTION C **GROWTH ASSESSEMENT**					
Can you please rate the growth of your company in the last ten years in scale as defined below					
Please tick the appropriate boxes					
1= Not Sure, 2= Not Significantly, 3=Averagely Significantly, 4= Significantly, 5=Very Significantly	1	2	3	4	5
Growth Rate					