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Motivations of sustainable entrepreneurship in Gauteng Province, South Africa

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management specialising in Entrepreneurship and New Venture Creation

Johannesburg, 2017

FEBRUARY 2017

ABSTRACT

The study analysed dimensions of entrepreneurial motivations that drive sustainable entrepreneurship in Gauteng Province and estimated the relationships between these motivations and enterprise performance. Despite the growing field of sustainable entrepreneurship, most of the available literature has been mainly theoretical and qualitative, or has focused on developed countries, and very little has been done in developing countries such as South Africa. This study contributed to addressing this gap.

The study was based on quantitative research methods based on a positivist research paradigm to test the conceptual framework. The empirical analysis of these hypotheses was based on primary survey data collected from 91 sustainable entrepreneurs in Gauteng Province. Reliability of the enterprise performance and motivation scales was tested with the Cronbach's alpha coefficient test and the results were acceptable. The test of the factorability of the scale items into specific factors was based on exploratory factor analysis and the items were found to relate to the respective scales. Multiple regression analysis (both OLS and robust estimations) were used to test the relationships in the conceptual framework. The empirical analyses were done using 2016 SAS Studio University Edition.

The Exploratory Factor Analysis results indicated that the motivations of sustainable entrepreneurship in Gauteng Province could be factored into four dimensions: extrinsic motivations, intrinsic motivations, income security and financial independence motivations, and necessity motivations. Multiple regression analysis results revealed that extrinsic and intrinsic motivations are important determinants of enterprise performance. Analysis of the effect of individual and enterprise control factors revealed that owner/manager business management experience; and years of operation of the enterprise and number of full-time employees positively and significantly affected enterprise performance.

The study makes a contribution to empirical findings on entrepreneurial motivations for sustainable entrepreneurship and their effects on enterprise performance in a developing country context. The research findings provide evidence of how different dimensions of motivations can affect enterprise performance. Interventions aimed at helping sustainable enterprises perform better and grow can target support in these dimensions as well as improve business management skills and competencies of sustainable entrepreneurs.

The research on motivations of sustainable entrepreneurship could be broadened by undertaking a nationwide study to better understand the drivers of entrepreneurial behaviour related to sustainable entrepreneurship across the country. This can also be extended to the regional and continental levels.

Keywords: Sustainable entrepreneurship, entrepreneurial motivations, performance, Gauteng Province

DECLARATION

I, Charles Nhemachena, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Charles Nhemachena

Signed at ……

On the …….. day of …… 2017

DEDICATION

To my loving wife, Charity, and children, Blessings, Blessed and Blessing.

ACKNOWLEDGEMENTS

I greatly appreciate the support received in developing this research report and acknowledge the following: my supervisor, Dr McEdward Murimbika, who guided me throughout the research process, providing critical review inputs and inspiration. Mr Tronny Mawadzwa and Ms Khukie Simelane: your assistance with data collection is highly appreciated. Mr Tlou Ramaru from the Department of Environmental Affairs: thank you very much for helping me gain access to the list of sustainable entrepreneurs in Gauteng Province. The same applies to your various colleagues in the Department of Environmental Affairs, the Gauteng Department of Economic Development, the Innovation Hub and the Green Fund. Without access to the list of these sustainable entrepreneurs, this research would not have been possible. Mr Cosmas Mukaratirwa and family: thank you very much for helping me take the academic research to the practical level. I greatly appreciate the support and patience of my family throughout the MMEVC programme – your love never fails. The respondents who participated in this research are highly appreciated for helping provide the data that were used for empirical analysis.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

There is growing realisation that global sustainability challenges, such as climate change, and environmental, biodiversity and ecosystem degradation, require radical sustainability technologies and innovations beyond the capacity of incremental solutions (Cohen & Winn, 2007; Dean & McMullen, 2007; ECA, 2016a, 2016b; Hall, Daneke, & Lenox, 2010; Hart & Milstein, 1999; Hockerts & Wüstenhagen, 2010; Poverty Environment Partnership, 2012; UNCTAD, 2012; UNEP, 2011; World Bank, 2012). Environmental, biodiversity and ecosystem degradation due to market imperfections create entrepreneurial opportunities that can be exploited by individuals and firms through the creation of innovative technologies and business models to combat the degradation (Cohen & Winn, 2007; Dean & McMullen, 2007). Sustainable entrepreneurship enables entrepreneurs to achieve economic profits, and contribute to addressing social and environmental challenges (Belz, 2013; Belz & Binder, 2015; Cohen & Winn, 2007; Schaltegger & Wagner, 2011). Sustainable entrepreneurship originates from the sustainable development discourse and integrates sustainable development, entrepreneurship and economic growth (Thompson, Kiefer, & York, 2011).

Entrepreneurial motivation is considered an essential element in theoretical and empirical models on entrepreneurial performance of small business ventures (Naffziger, Hornsby, & Kuratko, 1994; Robichaud, McGraw, & Alain, 2001). The importance of the entrepreneurial motivation construct in entrepreneurship models of small business performance makes it necessary to identify the driving factors for entrepreneurs to start and maintain their business ventures (Naffziger et al., 1994; Robichaud et al., 2001). However, few empirical studies have analysed the relationships between entrepreneurial motivations, individual behaviours, and performance of enterprises (Johnson, 1990). This lack of

entrepreneurial motivation studies has persisted over the years (Carsrud & Brännback, 2011) and there is a lack of empirical studies that address questions beyond finding the dimensions of entrepreneurial motivations, such as the impacts of these motivations and their drivers (Stephan, Hart, & Drews, 2015).

Furthermore, the review of research on entrepreneurial motivations by Carsrud and Brännback (2011) identified a number of research questions and areas that have been neglected or require further research, which include understanding motivations of different entrepreneurs, and measuring the impact of extrinsic and intrinsic motivations of entrepreneurial performance. Given the importance of new venture creation to economic growth and employment creation, research focused on identifying entrepreneurial motivations is important (Cassar, 2007). Understanding the relationship between entrepreneurial motivations and performance helps gain knowledge of factors that drive the success of new enterprises.

Therefore, the purpose of this research is to explore entrepreneurial motivations for starting and maintaining sustainable enterprises in Gauteng Province, as well as to understand the relationships between these motivations and enterprise performance. A better understanding of these motivations can contribute to informing planning and implementation of policies and programmes (at both provincial and national levels) aimed at supporting sustainable entrepreneurship business activities (for both new and existing enterprises) (Benzing & Chu, 2009).

1.2 Context of the research study

Various initiatives have been designed to advance the concept of the green economy in search of solutions to the 2008/2009 global economic and financial crises (financial, fuel and food), including challenges from environmental degradation and climate change. The transition to a green economy has received global political attention in recent years, particularly towards the 2012 Rio+20 Conference on Sustainable Development as an alternative path to address

systematic problems of the current economic system through delivering more inclusive and sustainable growth (ECA, 2015; Poverty Environment Partnership, 2012). Furthermore, international developments, such as the 2015 Paris Agreement on climate change (United Nations, 2015a) and various other initiatives aimed at environmental sustainability and sustainable development, imply that economies would need to implement interventions that support climate-resilient growth and development proactively. This means that there are growing sustainable entrepreneurship opportunities generated from international and national interventions aimed at generating sustainable economic growth in a carbon-constrained environment. For example, entrepreneurship opportunities from the 2015 Paris Agreement emanate from growing demand for low-carbon goods and services; more climate-resilient production systems and livelihoods; and improved natural resource management and local resource rights.

The South African Government has in recent years designed and implemented programmes and policies aimed at transitioning the economy into a low-carbon and green growth path (Chitiga-Mabugu, Nhemachena, & Ngandu, 2014; Economic Development Department, 2011; Mukonza, 2016; National Planning Commission, 2012). These programmes and policies (e.g. National Development Plan Vision 2030 (National Planning Commission, 2012); National Strategy for Sustainable Development (Department of Environmental Affairs, 2011), and The New Growth Path (Economic Development Department, 2011)) aim to address developmental challenges (such as spurring economic growth, job creation, poverty and inequality) while simultaneously addressing environmental issues. The provincial governments in South Africa have taken various initiatives to implement and adopt the national green growth programmes and policies. For example, in 2010 the Gauteng Provincial government produced its provincial strategy for the development of a green economy (Spencer et al., 2010). This was followed by the publication of the provincial strategic green economy programme in August 2011 (Gauteng Department of Economic Development, 2011).

The priority areas of green economy programmes identified for implementation in Gauteng are economic development, water and sanitation, air quality, food security, transport, climate change, energy, waste and land use (Gauteng Department of Economic Development, 2011). These activities have created numerous opportunities for sustainable entrepreneurship (e.g. new products development, and creation of new business processes and models) in Gauteng Province and the whole of South Africa. The current study was conducted in Gauteng Province, focusing on motivations of sustainable entrepreneurship and performance of sustainable enterprises in the province.

While some research efforts have been made in South Africa on green entrepreneurship (e.g. Mukonza, 2016; Tshikovhi, 2014), these studies were mainly qualitative and did not address the relationship between entrepreneurial motivations and performance of the business ventures. For example, Mukonza (2016) investigated factors influencing green entrepreneurship in South Africa and made efforts to answer questions related to challenges faced by green entrepreneurship and some drivers of green entrepreneurship in the country. On the other hand, Tshikovhi (2014) discussed the need for promoting development of sustainable entrepreneurship to improve the welfare of impoverished communities. The current study differs from these studies by unpacking the entrepreneurial motivations of sustainable entrepreneurs and their effects on business performance.

1.3 Problem statement

1.3.1 Main problem

The main problem is to assess the dimensions of the entrepreneurial motivations that drive sustainable entrepreneurship in Gauteng Province and to establish the nature of the relationship between these dimensions and performance of sustainable enterprises in the province.

1.3.2 Sub-problems

The sub-problems are to:

Sub-problem 1: Identify the dimensions of entrepreneurial motivations for sustainable entrepreneurship in Gauteng Province.

Sub-problem 2: Evaluate the impact of entrepreneurial motivation dimensions on performance of sustainable enterprises in Gauteng Province.

Sub-problem 3: Determine the individual and enterprise control factors affecting performance of sustainable enterprises in Gauteng Province.

Sub-problem 4: Evaluate the impact of individual and enterprise control variables on performance of sustainable enterprises in Gauteng Province.

1.4 Research questions to be addressed in this research study

Main research question: What are the entrepreneurial motivations driving sustainable entrepreneurship and affecting performance of sustainable enterprises in Gauteng Province?

Sub question 1: What are the dimensions of entrepreneurial motivations driving sustainable entrepreneurship in Gauteng Province?

Sub question 2: What are the impacts of entrepreneurial motivations on performance of sustainable enterprises in Gauteng Province?

Sub question 3: What are individual and enterprise control factors affecting performance of sustainable enterprises in Gauteng Province.

Sub question 4: What are the impacts of individual and enterprise control factors on performance of sustainable enterprises in Gauteng Province?

1.5 Knowledge gap and contribution of the research study

Most empirical studies that have explored the relationships between entrepreneurial motivations and enterprise performance have been based in developed western countries (such as Barba-Sánchez & Atienza-Sahuquillo, 2012; Baum & Locke, 2004; Jayawarna, Rouse, & Kitching, 2013; Vik & McElwee, 2011). In addition, studies that have analysed entrepreneurial motivation in the developing African contexts have been mainly descriptive and did not conduct multivariate analysis of the impacts of entrepreneurial motivations on enterprise performance (such as Benzing & Chu, 2009; Eijdenberg & Masurel, 2013; Mitchell, 2004). The current study would contribute to knowledge of how entrepreneurial motivations affect performance of enterprises in a developing country context.

Despite various efforts to provide entrepreneurial incentives in South Africa, individual initiatives are critical for the creation of successful small business enterprises (Mitchell, 2004). This makes research, focused on understanding drivers of entrepreneurial behaviour of individuals, necessary for facilitating entrepreneurship (Mitchell, 2004). Knowledge of entrepreneurial motivations can help government and decision makers to identify drivers to stimulate and target potential/existing entrepreneurs in efforts focused on facilitating entrepreneurial activity and creation of jobs (Robichaud et al., 2001). In addition, a better understanding of entrepreneurial motivations helps entrepreneurs to become aware of the drivers of entrepreneurial activity and to contribute to reducing

uncertainties associated with new venture start-ups and development of enterprises (Robichaud et al., 2001). Therefore, discovering ways of stimulating sustainable entrepreneurship in Gauteng Province can contribute to the provincial and national imperatives of generating inclusive socio-economic growth and development that contributes to creating employment, and reducing poverty in a sustainable manner.

Sustainable entrepreneurship is an emerging field of research (Belz & Binder, 2015; Hockerts & Wüstenhagen, 2010) and empirical studies on the subject are limited (Belz & Binder, 2015). Few studies have empirically focused on entrepreneurial motivations that drive sustainable entrepreneurship, especially in a developing country context. Many previous studies on sustainable entrepreneurship have either been conceptual or qualitative (such as Belz & Binder, 2015; Crnogaj, Rebernik, Bradac-Hojnik, & Omerzel-Gomezelj, 2014; Hall et al., 2010; Hockerts & Wüstenhagen, 2010) and or have been done in the developed western countries (such as Pujari, Wright, & Peattie, 2003). Therefore, there is need for empirical quantitative research on entrepreneurial motivations driving sustainable entrepreneurship in Gauteng Province. The current study addresses this lack of empirical research on entrepreneurial motivations and sustainable entrepreneurship in South Africa.

1.6 Delimitations of the research study

- The research study focuses on sustainable enterprises.

- The empirical analysis in this study was based on survey data gathered using a survey questionnaire.

- The respondents were owner–managers or senior level managers of the sampled sustainable enterprises.

1.7 Definition of terms

1.7.1 Sustainable entrepreneurship

Sustainable entrepreneurship refers to entrepreneurial activities that discover or create business opportunities for economic benefits while also contributing to social and environmental goals (Belz & Binder, 2015; Cohen & Winn, 2007; Dean & McMullen, 2007). Belz (2013) analysed the definitions of sustainable entrepreneurship in mainstream journals of entrepreneurship (like *Entrepreneurship Theory and Practice*; *Journal of Business Venturing*). The study identified at least three similarities in the definitions: reference to entrepreneurial opportunity as the core concept; application of a process perspective of entrepreneurship (discovery, creation, evaluation and exploitation); and emphasis of the tipple bottom line (economic, environmental and social goals). Therefore, sustainable entrepreneurship can be widely defined as the creation of economic and social value through radical market or institutional innovations that generate economic, environmental and social benefits driven by innovative, market-oriented and personality motivations (Schaltegger & Wagner, 2011). The current study adopts this broad definition of sustainable entrepreneurship which integrates sustainable management and entrepreneurship (Belz & Binder, 2015).

1.7.2 Sustainable development

Sustainable development refers to “development that meets the needs of the present without compromising the ability of the future generations to meet their needs” (WCED, 1987, pg. 15). Sustainable development focuses on ensuring that social and environmental goals are awarded the same priority as economic goals (the triple bottom line) (Hall et al., 2010; United Nations, 2015b). The current study adopts this definition of sustainable development as it is widely used in literature.

1.7.3 Sustainable entrepreneur

In early literature on entrepreneurship, Schumpeter (1934) defined an entrepreneur as an innovator and creator of economic opportunities through seeking new and innovative ways to improve technology, ways of doing business and other advantages to generate competitive edge and increase profits. Baumol (1968) defines an entrepreneur as an individual who pursues novel, wealth and power creating economic activities through exercising leadership. Other scholars define an entrepreneur as a person who can discover, exploit and pursue entrepreneurial opportunities through combining resources in a new manner with the potential to bring profits (Eckhardt & Shane, 2003; Shane, Locke, & Collins, 2003). The definitions of the entrepreneur involve identification of entrepreneurial opportunities and implementation of innovation and creative business models to create economic value. Based on these definitions, this study adopts the definition of a sustainable entrepreneur as one who discovers, exploits and pursues sustainable entrepreneurial opportunities through the innovative and creative combination of resources for economic, social and environmental objectives.

1.7.4 Entrepreneurial motivations

The motivation concept refers to internal factors that stimulate action and to external factors that induce action (Locke & Latham, 2004). Motivation affects action in three ways: “direction (choice), intensity (effort) and duration (persistence)” as well as people’s acquisition of skills and abilities and the extent they utilise them (Locke & Latham, 2004, pg. 388). Based on these, the definition of entrepreneurial motivation adopted in this study refers to internal factors that stimulate entrepreneurial behaviour and external factors that induce entrepreneurial behaviour among entrepreneurs.

1.7.5 Entrepreneurial performance

Performance refers to the “ability of an object to produce results in a dimension determined a priori in relation to a target” (Laitinen, 2002, pg. 66). In addition, performance is a measure of the degree of success in implementing planned activities and achieving a priori set goals and targets (Chedli, 2016; Machmud & Sidharta, 2016). Entrepreneurial performance, therefore, refers to the extent to which the enterprise has achieved set goals/targets. This study defines sustainable entrepreneurial performance as the ability of sustainable enterprises to achieve their social, economic and environmental goals.

1.8 Assumptions

The assumptions of this research study include:

- The respondents would easily understand the items in the research instrument.

- The respondents would provide relevant data to estimate the proposed hypotheses of the research study.

- The respondents would share their entrepreneurial motivations for engaging in sustainable entrepreneurship.

1.9 Outline of the research report

Chapter 1 has provided the context, purpose, research study contribution to knowledge, definitions of key terms and assumptions of the study. Chapter 2 presents a theoretical review of literature focusing on sustainable development and entrepreneurship, entrepreneurial motivation theory and dimensions, entrepreneurial performance and the relationship between performance and

entrepreneurial motivations. The research hypotheses and conceptual framework of the research are also presented. Chapter 3 discusses the methodology used in the study. The empirical findings from the research are presented in Chapter 4. Chapter 5 presents the discussion of the empirical findings. The conclusions, recommendations and areas for further research are presented in Chapter 6.

CHAPTER 2: THEORETICAL REVIEW: SUSTAINABLE ENTREPRENEURSHIP, MOTIVATIONS AND ENTERPRISE PERFORMANCE

2.1 Introduction

A review of empirical studies on entrepreneurial motivations, sustainable entrepreneurship and performance of small business ventures is presented in this chapter. The theoretical review is extended to develop hypotheses on the relationships between entrepreneurial motivations, individual/enterprise control factors and performance of sustainable small business ventures in Gauteng Province. The conceptual framework of the study is also developed, informed by the literature review.

2.2 Sustainable development and entrepreneurship

Sustainable development has gained prominence since the seminal 1987 World Commission on Environment and Development, the 1992 Rio de Janeiro Earth Summit, the 2002 Johannesburg Earth Summit, and the 2012 Rio de Janeiro Earth Summit. The Brundtland Report defined sustainable development as development that meets the welfare of the present generations and does not compromise the ability of future generations to enjoy at least the same welfare (WCED, 1987). The member states of the United Nations in September 2015 adopted the Agenda 2030 for Sustainable Development, aimed at transforming the world to a sustainable development path (United Nations, 2015b). The Agenda 2030 outlines the core 17 sustainable development goals (SDGs) that cover the sustainable development dimensions (environmental, economic, and social) (United Nations, 2015b).

Furthermore, the international developments such as the 2015 Paris Agreement on climate change (United Nations, 2015a) and various other initiatives aimed at

environmental sustainability and sustainable development imply that economies would need to implement interventions that support climate-resilient growth and development proactively. This means that there are growing sustainable entrepreneurship opportunities generated from international and national interventions aimed at generating sustainable economic growth in a carbon-constrained environment. For example, entrepreneurship opportunities from the 2015 Paris Agreement emanate from growing demand for low-carbon goods and services; more climate resilient production systems and livelihoods; and improved natural resource management and local resource rights.

There is increasing awareness of the need for transformation in the consumption of natural resources to address environmental challenges such as ecosystems degradation and climate change (Crnogaj et al., 2014; Hall et al., 2010; Hockerts & Wüstenhagen, 2010; United Nations, 2015b). The sustainable development concept is based on the notion that natural systems have limits and are vulnerable to human activity, hence they should be utilised sustainably (Ambec & Lanoie, 2008; Hall et al., 2010) to ensure intergenerational equity between the present and future generations (Belz & Binder, 2015; Thompson et al., 2011).

The increasing importance of sustainable development in driving economic development creates both risks and opportunities for businesses (Hockerts & Wüstenhagen, 2010). Entrepreneurial activities are expected to significantly contribute to transformation in the consumption of natural resources through sustainable production, purchasing, marketing processes and sustainable products and services (Cohen & Winn, 2007; Hall et al., 2010; Pujari et al., 2003). Sustainable entrepreneurship provides opportunities for entrepreneurs to achieve their entrepreneurial economic objectives while simultaneously contributing to social and environmental goals and conditions (Ambec & Lanoie, 2008; Cohen & Winn, 2007; Hall et al., 2010; Parrish, 2010).

Sustainable entrepreneurship research integrates sustainable management and entrepreneurship (Belz & Binder, 2015). The simultaneous achievement of the

economic, social and ecological or environmental benefits/goals refers to the triple bottom line (Belz & Binder, 2015; Cohen, Smith, & Mitchell, 2008; Parrish, 2010) that sustainable entrepreneurship seeks to achieve. This definition of sustainable entrepreneurship was adopted for the current study as it is mainly used by researchers (such as Cohen & Winn, 2007; Dean & McMullen, 2007; Hall et al., 2010; Parrish, 2010; Patzelt & Shepherd, 2011) in mainstream entrepreneurship journals. Sustainable entrepreneurship is distinguished from social entrepreneurship in that the former focuses on pursuing environmental, economic, and social goals (or the triple bottom line) while social entrepreneurship is concerned with pursuing economic and social goals (or the double bottom line) (Belz & Binder, 2015; Thompson et al., 2011).

Figure 2-1 below presents the process of sustainable entrepreneurship developed by Belz & Binder (2015). As illustrated in Figure 2-1, both ecopreneurship and social entrepreneurship focus on developing double bottom line solutions to either environmental/ecological or social problems, respectively. Sustainable entrepreneurship on the other hand simultaneously addresses economic, environmental/ecological and social goals (the triple bottom line) as discussed above. Sustainable entrepreneurship also considers the welfare of both the present generations (intragenerational equity) and future generations (intergenerational equity), while social entrepreneurship focuses on welfare of present generations (intragenerational equity) (Belz & Binder, 2015; Thompson et al., 2011). This study focuses on sustainable entrepreneurship that is more encompassing and integrates the motivations of both ecopreneurship and social entrepreneurship.

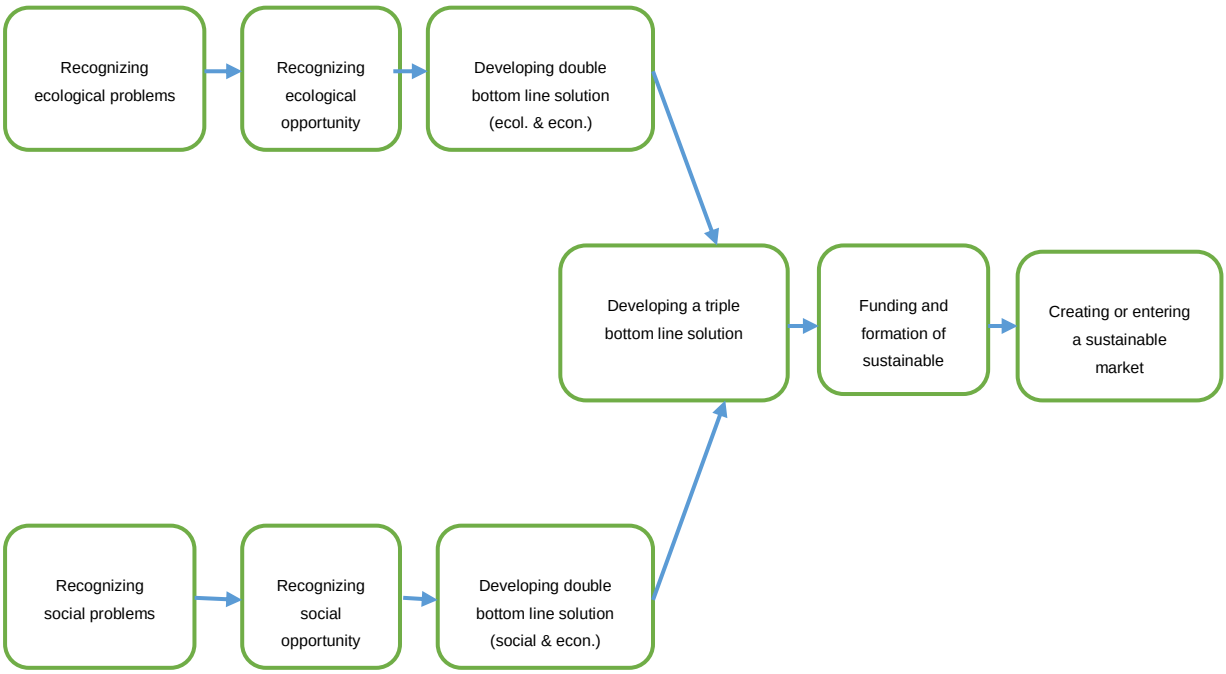


Figure 2-1: The process of sustainable entrepreneurship

Source: Belz & Binder (2015)

Furthermore, sustainable entrepreneurship presents opportunities for contributing to the global goal of achieving a sustainable development path (Belz, 2013; Cohen & Winn, 2007; Hart & Milstein, 1999; Schaltegger & Wagner, 2011). The growing interest in driving the world economy towards a sustainable development trajectory presents entrepreneurial opportunities that can be exploited at different spatial and temporal scales, as individual countries and regions adopt the SDGs and other sustainability initiatives. The global sustainability challenge facilitates Schumpeter's creative destruction concept and presents enormous sustainable business opportunities (Hart & Milstein, 1999; Hockerts & Wüstenhagen, 2010; Shepherd & Patzelt, 2011).

2.3 Entrepreneurial motivation theory

The concept of motivation dates back to Freud's work on instincts (Freud, 1900, 1924), Maslow's work on human motivation (Maslow, 1943) and McClelland's Theory of Achievement Motivation (McClelland, 1961, 1965a, 1965c). McClelland's Theory of Achievement Motivation argued that individuals with high needs of achievement motivation will be characterised by entrepreneurial behaviour where they achieve more achievement satisfaction (McClelland, 1965b). In addition, in McClelland's Theory of Achievement Motivation, the entrepreneur translates his/her need for achievement motivation into entrepreneurial behaviour through creating enterprise ventures that contribute to economic development (McClelland, 1961, 1965a, 1965b). Overall, McClelland demonstrated the importance of the need for achievement in driving entrepreneurial behaviour.

Motivation theories can be categorised into drive and incentive theories (Carsrud & Brännback, 2011). Drive theories focus on the internal stimuli leading to human behaviour, and incentive theories focus on goals that pull individuals towards behaving in a particular way, for example, entrepreneurial achievement motivation (Ach) (McClelland, 1965a) driving an entrepreneur towards performance (Carsrud & Brännback, 2011). Within this categorisation, drive motivation theories are dominated by push factors, while pull factors dominate in incentive theories (Carsrud & Brännback, 2011). From these theories, entrepreneurial motivation translates into entrepreneurial behaviour in entrepreneurs which they exercise through creating enterprise ventures.

Incentive theories can also be regarded as extrinsic (external rewards for particular behaviour such as power, money, status, and social acceptance) or intrinsic (internal individual interest in entrepreneurial tasks such as to succeed and accomplish a goal) or both (Carsrud & Brännback, 2011; Cassar, 2007; Kuratko, Hornsby, & Naffziger, 1997). Social and environmental entrepreneurs, for example, may be driven by strong social and environmental goals to pursue

entrepreneurial opportunities without any reward beyond the satisfactory generated by achieving their targets (Carsrud & Brännback, 2011).

Historically, motivation studies focused on understanding the following: drivers that stimulate individuals; reasons behind individual choice of one behaviour or another; and reasons behind different responses to the same motivational stimuli between or among individuals (Carsrud & Brännback, 2011). However, as indicated in Section 2.1, research on entrepreneurial motivation has been neglected in literature despite its importance to research on entrepreneurial intentions, cognitions and subsequent entrepreneurial behaviours (Carsrud & Brännback, 2011; Kuratko et al., 1997; Naffziger et al., 1994). Studying entrepreneurial motivations contribute to understanding entrepreneurial behaviours of entrepreneurs. Entrepreneurial motivation triggers entrepreneurial behaviour of individuals, thus helping in understanding the link between entrepreneurial intentions and execution of opportunities (action) (Carsrud & Brännback, 2011; Naffziger et al., 1994).

2.4 Understanding the dimensions of entrepreneurial motivation

The categorisation of entrepreneurial motivation into the dichotomous types of necessity driven or opportunity driven is too simplistic (Jayawarna et al., 2013; Stephan, Hart, & Drews, 2015; Williams & Williams, 2012) and fails to capture the complexity and multidimensional nature of entrepreneurial motivation. This dualistic classification is usually used in the analysis of entrepreneurship in the Global Entrepreneurship Monitor (GEM) reports (Kelley, Singer, & Herrington, 2012; Singer, Amorós, & Arreola, 2015). However, gaining a better understanding of the entrepreneurial motivations underpinning entrepreneurial behaviour and performance of enterprises should be based on entrepreneurial motivation models that transcend beyond the dualistic necessity-driven and opportunity-driven categories (Jayawarna et al., 2013; Williams & Williams, 2012). The current research adopts a multidimensional approach to entrepreneurial

motivation and considers various motivations that drive sustainable entrepreneurship in Gauteng Province.

Several dimensions of entrepreneurial motivation are identified in literature and range from the need for achievement, independence and control; improved social status, contribution to community welfare; personal development; economic gain; emulation of role models; to opportunity to innovate and create new products (Carsrud & Brännback, 2011; Cassar, 2007; Jayawarna et al., 2013). A recent review of evidence from 51 published empirical studies focusing on entrepreneurial motivation between 2008 and 2013 by Stephan, Hart and Drews (2015) identified seven dimensions of entrepreneurial motivation: autonomy; challenge and learning; achievement; income security; financial success; family security; recognition or status; and community or social motivations and dissatisfaction.

In addition, Stephan, Hart and Drews (2015) argue for empirical studies on entrepreneurial motivation to consider multiple dimensions of motivation, including combining of motivations (such as financial success and achievement versus social motivations and achievement) beyond the traditional opportunity–necessity dichotomy (push-pull conceptualisation). The current study looks at the multiple dimensions of entrepreneurial motivations of sustainable entrepreneurs in Gauteng Province. The study also makes an effort to evaluate combinations of some of the motivations, which has not been done before in the South African context.

Empirical research on entrepreneurial motivations and enterprise performance has relied on multi-item indices and factor analyses to derive multiple dimensions of entrepreneurial motivations driving entrepreneurship (Stephan, Hart, & Drews, 2015). The number of dimensions of entrepreneurial motivation range from two (dualistic pull-push motivations such as in the GEM report) to seven (Jayawarna et al., 2013; Stephan, Hart, & Drews, 2015). Table 2-1 below summarises the main dimensions of entrepreneurial motivations identified in literature.

Table 2-1: Summary of dimensions of entrepreneurial motivations

Dimension	Description	References
Achievement, challenge and learning	High need for achievement, challenge and learning focuses on the personal desire for development through undertaking entrepreneurial activities and learning from challenges of creating and running an entrepreneurial enterprise.	(Benzing, Chu, & Kara, 2009; Buttner & Moore, 1997; Jayawarna et al., 2013; Naffziger et al., 1994; Robichaud et al., 2001; Stephan, Hart, Mickiewicz, & Drews, 2015)
Independence and autonomy	The independence and self-reliance dimension captures the ability of entrepreneurs to make independent and flexible decisions controlling their life, work and time.	(Cassar, 2007; Eijdenberg & Masurel, 2013; Jayawarna et al., 2013; Kuratko et al., 1997; Mitchell, 2004; Robichaud et al., 2001; Stephan, Hart, Mickiewicz, et al., 2015)
Income security and financial success	The income security and financial success dimension focuses on the financial rewards from entrepreneurial activities.	(Benzing & Chu, 2009; Cassar, 2007; Jayawarna et al., 2013; Robichaud et al., 2001; Stefanovic, Prokic, & Rankovic, 2010; Stephan, Hart, Mickiewicz, et al., 2015)
Recognition and status	The recognition and status dimension captures the motivation to achieve recognition and respect for	(Cassar, 2007; Jayawarna et al., 2013; Kuratko et al., 1997; Mitchell, 2004)

Dimension	Description	References
	entrepreneurial activities from family, friends and community.	
Family and roles	The family and roles dimension focuses on the motivation to pursue a family tradition, creating a family legacy or follow role models.	(Benzing & Chu, 2009; Birley & Westhead, 1994; Buttner & Moore, 1997; Cassar, 2007; Jayawarna et al., 2013; Kuratko et al., 1997)
Community and social motivations	This dimension captures the motivation for the entrepreneur to contribute to his/her community through entrepreneurial activities or philanthropy.	(Birley & Westhead, 1994; Buttner & Moore, 1997; Jayawarna et al., 2013; Mitchell, 2004)
Necessity and dissatisfaction	The necessity dimension focuses on individual entrepreneurial activities as the only option they have or through dissatisfaction from their previous work	(Eijdenberg & Masurel, 2013; Stephan, Hart, Mickiewicz et al., 2015)

Source: Adapted from (Stephan, Hart, & Drews, 2015)

Motivations for starting enterprise ventures have been traditionally economic (Baumol, 1968; Schumpeter, 1934); however, recent growth in social, environmental and sustainable entrepreneurship shows that entrepreneurial motivations that drive individuals are beyond economic reasons (Benz & Frey, 2008a; Block & Koellinger, 2009; Carsrud & Brännback, 2011; Jayawarna et al., 2013; Stephan Hart, & Drews, 2015; Vik & McElwee, 2011). For example, social entrepreneurial individuals have dominant social and economic objectives driving them to establish new enterprises, whereas sustainable entrepreneurs are driven

by social, economic and environmental objectives (Belz & Binder, 2015). Overall, entrepreneurial motivation research has shown that non-economic motivations are most important drivers of entrepreneurial behaviour (Benz & Frey, 2008a, 2008b; Block & Koellinger, 2009). This implies that the unpacking of entrepreneurial motivations driving sustainable entrepreneurship beyond economic motivations is necessary for discovering areas that can be targeted to strengthen entrepreneurial behaviour and performance of enterprises that exploit sustainable opportunities. With this background, the following hypothesis is formulated:

2.4.1 Hypothesis 1

H_1: *Non-economic entrepreneurial (environmental and social) motivations are most important drivers of sustainable entrepreneurship in Gauteng Province.*

2.5 Measuring performance of sustainable enterprises

Entrepreneurial performance is a multidimensional concept and empirical studies have used various measures of performance, both financial and non-financial (Blackburn, Hart, & Wainwright, 2013; Chedli, 2016). Financial measures of performance include indicators such as changes and growth in profits, growth and rate of return (Blackburn et al., 2013; Buttner & Moore, 1997; Chedli, 2016), and nonfinancial measures include goals made by entrepreneur owners or managers such as satisfaction, global success ratings (Buttner & Moore, 1997; Rauch, Wiklund, Lumpkin, & Frese, 2009). For example, in a study of women executives and professionals who became entrepreneurs after leaving their former jobs in the United States, self-fulfilment and achievement of set goals were identified as the main measures of success (Buttner & Moore, 1997).

This example provides an outstanding illustration of measuring performance of entrepreneurial enterprises with actions that transcend beyond economic

perspectives as indicated above. The current study, in determining the measures of performance of sustainable entrepreneurs, focuses on the steps that address environmental, economic, and social goals (or the triple bottom line). Firms are not willing to share their financial data, such as on measures of performance of enterprises, such as profit and rate of return. Therefore, the current study uses scale items identified in literature to reflect performance of social, environmental and or sustainable enterprises.

2.6 The relationship between entrepreneurial motivation and enterprise performance

The creation and sustaining of successful enterprise ventures requires entrepreneurs who are motivated to implement activities that contribute to the achievement of their goals that usually include venture performance, growth and sustainability (Chedli, 2016; Collins, Hanges, & Locke, 2004). Robichaud et al. (2001) refer to entrepreneurial motivations as the goals that entrepreneurs want to achieve through owning their business enterprises. These entrepreneurial motivations affect performance of the business through actions and behaviour of the entrepreneur that include production and management style (Delmar & Wiklund, 2008; Robichaud et al., 2001; Stephan, Hart, & Drews, 2015; Wiklund & Shepherd, 2003a). Research on the impact of individual characteristics of entrepreneurs has increasingly moved beyond focusing on traits to focus on factors such as competencies, motivation and cognition based on complex models that better explain causality between performance and these factors (Baum & Locke, 2004; Baum, Locke, & Smith, 2001). Following prior research, the current study estimates the impacts of entrepreneurial motivations on enterprise performance.

McClelland argued the need for achievement motivation to be related to successful entrepreneurial performance (McClelland, 1961, 1965c). The nAch motivation of entrepreneurship has continued to be investigated as one of the important drivers of entrepreneurial behaviour (Barba-Sánchez & Atienza-

Sahuquillo, 2012; Edelman, Brush, Manolova, & Greene, 2010; Jayawarna et al., 2013; Machmud & Sidharta, 2016; Stefanovic et al., 2010). The studies show significant and positive relationships between achievement motivation and enterprise performance. Combinations of entrepreneurial motivations, such as achievement and financial success versus achievement and social motivations, can result in different enterprise performance outcomes (Stephan, Hart, & Drews, 2015). Similarly, this study expects entrepreneurial motivation to affect entrepreneurial performance of sustainable enterprises in Gauteng Province significantly and proposes the following hypothesis.

Wainer and Rubin (1969) empirically tested the relationships between the need for achievement motivation and company performance, as informed by McClelland's achievement motivation theory. The empirical findings, based on 51 technical entrepreneurs, showed a positive correlation between need for achievement, need for power, and company performance. The study also found that motivation (need for power and need for affiliation) moderated the effect of leadership styles (individual factors) on business performance. Research should formulate and test the hypothesis concerning the relationship of entrepreneurial motivation with enterprise performance (Wainer & Rubin, 1969). Following this review, one of the main hypotheses for the current study relates to the effect of entrepreneurial motivation and sustainable enterprise performance.

Buttner and Moore (1997) examined self-reported entrepreneurial motivations of 129 women who were former executives and professionals and became entrepreneurs after leaving their jobs in the United States of America, as well as their measures of success. The entrepreneurial motivations were correlated with measures of success. The study found that entrepreneurs were mainly motivated by challenge, had higher self-determination, and were motivated to balance family and work responsibilities. Self-fulfilment and achievement of set goals were identified as the main measures of success reported by the women (Buttner & Moore, 1997). The study also found positive and significant correlation between main entrepreneurial motivations and actions of success reported by the women.

Robichaud et al. (2001) developed a new instrument for measuring entrepreneurial motivation, including verifying its validity (construct, content and predictive) and internal consistency and reliability. The dimensions of entrepreneurial motivation identified in the study are autonomy and independence, extrinsic motivations, intrinsic motivations, and security and wellbeing of the family. The study used correlation analysis to test the relationship between these entrepreneurial motivations and enterprise performance variables (sales, profit and funds drawn from the business). The results showed that extrinsic motivations were directly and significantly correlated with increase in sales and funds drawn from the business, while intrinsic motivations had a significant negative relationship with sales and funds drawn from the business (Robichaud et al., 2001).

Mitchell (2004) examined the entrepreneurial motivations of 101 entrepreneurs in South Africa, focusing on the differences between males and female entrepreneurs. The study was based on a motivation scale and interviews (open-ended) to gather data on entrepreneurial motivations to start a new enterprise. The dominant entrepreneurial motivations from the empirical analysis were needs for independence, material rewards and achievement (Mitchell, 2004). Contrary to the focus of the current study, Mitchell (2004) found that social motivation, measured by the need to contribute to the community, was not considered important. Although Mitchell (2004) is one of the few studies that have analysed entrepreneurship in South Africa, the study did not go a step further to analyse the relationship between the identified motivations and enterprise performance, which the current study does. In addition, the focus of the current study on sustainable entrepreneurship means that social, economic and environmental dimensions of motivations and performance measurement are critical.

Benzing and Chu (2009) investigated the entrepreneurial reasons of small business owners in three African countries (Kenya, Ghana and Nigeria). The empirical analysis was based on survey data collected using a 10 Likert-scale research instrument administered to 599 entrepreneurs in the three countries.

The analysis was based on mean scores of the motivations and factor analysis. Three important motivations found to explain reasons for starting small businesses in the three countries included: family motivation factor, external validation factor, and self-betterment factor. Overall, the opportunity to increase income was found to be the strongest motivation (Benzing & Chu, 2009).

Barba-Sánchez and Atienza-Sahuquillo (2012) investigated the motivations that impacted on the entrepreneurial behaviour of 101 founder entrepreneurs in Spain. The entrepreneurial dimensions identified in the study included desire for independence, high-risk propensity, high need for achievement; and locus of internal control; as well as strong innovation preference. The empirical analysis of the entrepreneurial motivations was based on a confirmatory principal component factor analysis. They also analysed the impact of motivations on entrepreneurial behaviour (decision by the entrepreneur to start a new enterprise). The analysis showed that motivations, such as the need for achievement, self-realisation, affiliation, independence, competence and power, were more important for explaining drivers of entrepreneurial behaviour (Barba-Sánchez & Atienza-Sahuquillo, 2012). Although this study was able to identify entrepreneurial motivations that influence entrepreneurial behaviour, it is mainly descriptive, with no multivariate analysis of the impacts of these motivations on enterprise performance. The current study built on the identified entrepreneurial motivations in developing the research instrument and used some of them in a multivariate analysis testing the effects of motivations of enterprise performance.

Another empirical study of entrepreneurial motivation in a developing country was conducted in Uganda to explore push and pull factors driving entrepreneurial behaviour of medium and small enterprises (MSE) (Eijdenberg & Masurel, 2013). The study, based on a survey of 106 entrepreneurs in Kampala, performed t-test analysis of the mean difference between the different categories of motivation factors (push and pull). The results showed that, contrary to most findings in entrepreneurial motivation studies that entrepreneurial behaviour is mainly driven by push factors, in Uganda the entrepreneurs exhibited both pull and push

factors, with the former found to be more important (Eijdenberg & Masurel, 2013). However, this study was descriptive and did not conduct multivariate analysis of the effects of the entrepreneurial motivations and performance of enterprises.

Contrary to many studies, Solymossy (1997) found that in Hungary, entrepreneurial motivation for creating new ventures did not affect the success of the enterprises. This means that although the relationship between entrepreneurial motivation and performance of businesses is expected to be positive, many other factors influence this relationship. The following hypotheses are formulated based on this literature review:

2.6.1 Hypotheses 2_a and 2_b

H_{2a}: *There is a significant positive relationship between extrinsic motivations and performance of sustainable enterprises in Gauteng Province.*

H_{2b}: *There is a significant positive relationship between intrinsic motivations and performance of sustainable enterprises in Gauteng Province.*

2.6.2 Other factors affecting enterprise performance

Determinants of enterprise performance range from entrepreneur skills, internal environment of the enterprise, product/service quality, to supplier and customer relationships (Chedli, 2016). The other variables usually included in empirical studies of entrepreneurial motivation and/or performance of enterprises include age, gender, education level (Kuratko et al., 1997; Robichaud et al., 2001; Stephan, Hart, & Drews, 2015; Urban, Venter, & Shaw, 2011; Venter, 2014; Venter, Rogerson, Semens, & Myres, 2012) and business experience of the entrepreneur (Delmar & Wiklund, 2008; Robichaud et al., 2001; Venter, 2014). Additional factors include personal environment (family status and family entrepreneurial history) and business environment (accessibility of funds,

attitudes of society towards business/starting a business, and market environment) (Naffziger et al., 1994). Enterprise-related factors usually included in entrepreneurial studies include age of business enterprise, number of employees employed by enterprise, and enterprise sales and profits (Kuratko et al., 1997; Robichaud et al., 2001; Venter, 2014)

The empirical findings of the effects of these variables are mixed and it is hard to generalise the direction of their impacts on enterprise performance (Stephan, Hart, & Drews, 2015). The entrepreneurial drivers of men and women are different across spatial and temporal scales, as is the performance of their enterprises. Results of the effects of gender on enterprise performance are mixed (Stephan, Hart, & Drews, 2015). Overall, high education level of the owner/manager should positively affect performance of enterprises and this would be higher if the education is related to the entrepreneurial tasks of the enterprise.

2.6.3 Hypothesis 3 and 4

H_3: *There is a significant positive relationship between individual factors and performance of sustainable enterprise in Gauteng Province.*

H_4: *There is a significant positive relationship between enterprise control factors and performance of sustainable businesses in Gauteng Province.*

2.7 Conceptual framework

This study conceptualises the framework below (Figure 2-2) to illustrate the relationships between entrepreneurial motivations, individual and enterprise factors, and enterprise performance. The conceptualisation of the relationships in the framework is informed by the discussions from literature presented above focusing on effects of entrepreneurial motivation, individual and enterprise factors

on enterprise performance (Stefanovic et al., 2010; Stephan, Hart, & Drews, 2015; Stephan, Hart, Mickiewicz, et al., 2015). The conceptual framework captures the direct effects of each of the independent variables on enterprise performance.

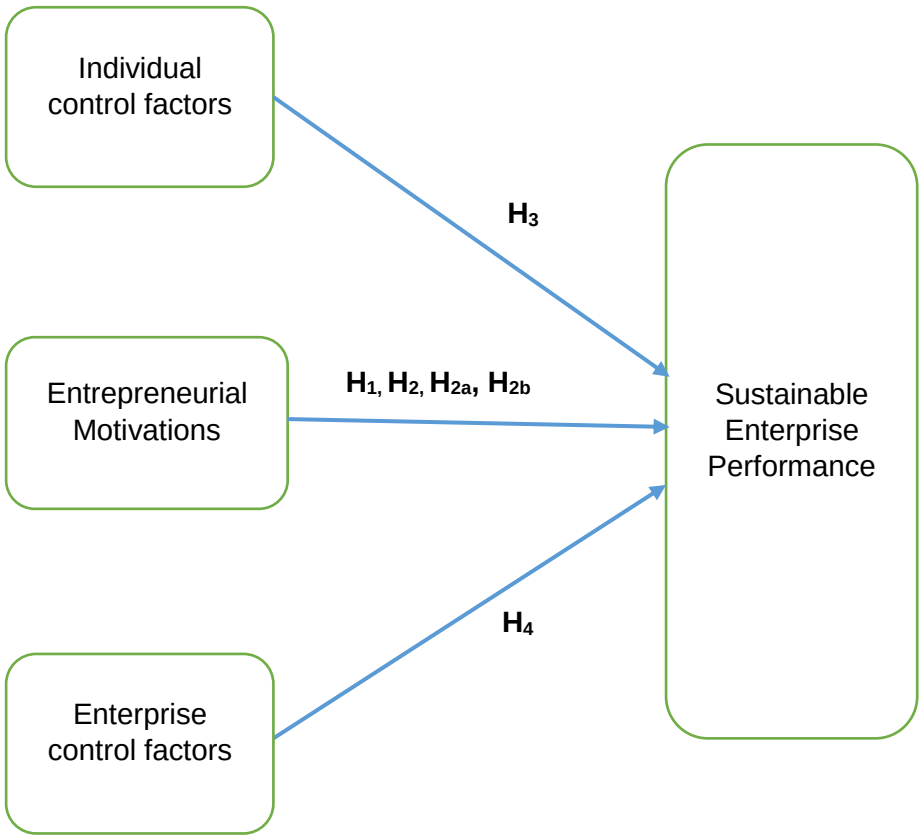


Figure 2-2: Conceptual framework of how entrepreneurial motivations, individual and enterprise control factors affect enterprise performance

Source: Author's construction, based on review of literature

2.8 Conclusion

This chapter presented the link between sustainable development and sustainable entrepreneurship. The various dimensions of entrepreneurial motivations and enterprise performance, as well as the relationship between the two, were discussed. The theoretical review of literature presented in this chapter provides the basis for the formulation of the hypotheses presented above. Based

on the review of literature, a conceptual framework of the proposed relationships between entrepreneurial motivations and enterprise performance was presented.

The hypotheses formulated in this study are restated below:

> ***H_1**: Non-economic entrepreneurial (environmental and social) motivations are most important drivers of sustainable entrepreneurship in Gauteng Province.*
>
> ***H_{2a}:** There is a significant positive relationship between extrinsic motivations and performance of sustainable enterprises in Gauteng Province.*
>
> ***H_{2b}:** There is a significant positive relationship between intrinsic motivations and performance of sustainable enterprises in Gauteng Province.*
>
> ***H_3:** There is a significant positive relationship between individual control factors and performance of sustainable enterprise in Gauteng Province.*
>
> ***H_4:** There is a significant positive relationship between enterprise control factors and performance of sustainable enterprises in Gauteng Province.*

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The methodology of the study is presented below. Specifically, the focus is on the research paradigm and design; population and sampling; research instrument; methods of data collection and analysis; and validity. The research instrument used to gather primary data is also discussed. Reliability, and validity tests of the research, are discussed, including limitations and ethical considerations of the study.

3.2 Research paradigm

The paradigmatic location of this research study is positivism. The positivist paradigm takes a deductive approach to research and uses quantitative research methods to test hypotheses and theory (Guba, 1990). The positivist research paradigm focuses on modelling the world so that it can be predicted and controlled, in pursuing obvious truth and or generating causal laws (Guba, 1990). The primary purpose of quantitative research is to establish relationships between variables informed by theory (Kirkwood & Campbell-Hunt, 2007).

Similar to empirical research studies on entrepreneurial motivations and performance (such as Barba-Sánchez & Atienza-Sahuquillo, 2012; Baum & Locke, 2004; Buttner & Moore, 1997; Kuratko et al., 1997; Stefanovic et al., 2010; Vik & McElwee, 2011), the current study is quantitative based on a positivist paradigm. Therefore, the present study uses quantitative methods based on a structured research instrument to measure the relationships between the dimensions of entrepreneurial motivation and sustainable enterprise performance in Gauteng Province. The theory and review of past studies discussed in Chapter 2 informed the relationships estimated in the study.

The ontological location of this study is one of realism where objective reality is assumed to be external to the observer (Guba, 1990). Within the positivist paradigm, objective reality is driven by natural laws and positivism research aims to discover these laws (Guba, 1990). This study takes an objectivist epistemological location, in this case, a distant non-interactive posture is adopted by the researcher (Guba, 1990). The study identifies variables of entrepreneurial motivation, and analyses and tests the relationships between them to verify, confirm or disconfirm objective knowledge of how these variables relate (ontology and epistemology).

3.3 Research design

This research study was based on the quantitative research design using the cross-sectional research approach representing a snapshot of a single time period (Cameron & Trivedi, 2005; Cooper & Schindler, 2014). Primary survey data were used to find and test relationships between dimensions of entrepreneurial motivations, individual, enterprise control factors and performance of sustainable business ventures. The quantitative research design is selected as it has been widely used in entrepreneurial motivation studies (Barba-Sánchez & Atienza-Sahuquillo, 2012; Baum & Locke, 2004; Benzing et al., 2009; Buttner & Moore, 1997; Kuratko et al., 1997; Stefanovic et al., 2010; Vik & McElwee, 2011). Although sustainable entrepreneurship studies have been mainly theoretical and qualitative (Belz & Binder, 2015; Cohen & Winn, 2007; Dean & McMullen, 2007; Pacheco, Dean, & Payne, 2010; Schaltegger & Wagner, 2011) there is growing interest in undertaking quantitative research to better understand entrepreneurial motivations and their effects on the performance of sustainable business ventures.

3.4 Population and sampling

3.4.1 Population and sampling frame

The sampling frame is a complete listing all elements from which the actual sample is drawn (Cooper & Schindler, 2014). The total population and sampling frame for this research study comprises all the sustainable enterprises in Gauteng Province. The initial contacts of 155 sustainable enterprises were gathered from the Department of Environmental Affairs, Gauteng Department of Economic Development, The Innovation Hub and UNEP Seed Programme. These enterprises included sustainable/green enterprises that had registered and/or participated in the Department of Environmental Affairs' green economy skills and SMME developer and incubation programme, as well as in the green entrepreneurs' databases from the Gauteng Department of Economic Development, The Innovation Hub and UNEP Seed Programme. The unit of analysis for this study is the sustainable business venture.

3.4.2 Sampling

Sampling entails selecting representative elements of a population from which empirical analysis can be conducted and inferences made about the whole population (Cooper & Schindler, 2014). Given that the number of identified sustainable enterprises is not very big (150 sustainable enterprises were identified), and non-probability sampling was adopted for the current research.

The sampling technique used in this study was convenience sampling of all the identified sustainable enterprises. A total target sample of 150 completed research questionnaires was expected to be gathered and used for analyses. Table 3-1 below summarises the expected survey characteristics.

Table 3-1: Summary of the survey

Variable	Description
Target population	Sustainable enterprises in Gauteng
Population size	150 sustainable enterprises
Geographical survey	Gauteng Province
Target sample size	150
Final sample size	91
Sampling unit	Enterprise
Sampling error (Confidence level)	95 %
Respondents	Founders and managers of sustainable enterprises

3.5 The research instrument and scales

Primary data were collected using a structured research instrument (see Appendix 2 for the full instrument) to be administered to owners/managers of sustainable enterprises in Gauteng Province. The research instrument was designed to gather data on entrepreneurial motivations of sustainable entrepreneurs; entrepreneurial performance of sustainable enterprises (social, economic and environmental performance), and control variables (demographics

and enterprise related variables). The motivation and performance scales were adapted from prior research on entrepreneurial motivation, performance and sustainable entrepreneurship. Scale items from prior research were adapted where possible to ensure better reliability of the research instrument.

The motivation scale consist of a list of 15 items adapted from literature (Barba-Sánchez & Atienza-Sahuquillo, 2012; Birley & Westhead, 1994; Eijdenberg & Masurel, 2013; Jayawarna et al., 2013; Kuratko et al., 1997; Machmud & Sidharta, 2016; Robichaud et al., 2001; Stefanovic et al., 2010; Urban et al., 2011; Venter, 2014). The items were presented on a five-point Likert scale with five choices: 1 (strongly disagree); 2 (disagree); 3 (neutral); 4 (agree) and 5 (strongly agree), and respondents rated each of the items in terms of their agreement with the statements. Similar to research on entrepreneurial motivations (such as Barba-Sánchez & Atienza-Sahuquillo, 2012; Eijdenberg & Masurel, 2013; Vik & McElwee, 2011), the statements included in the research instrument were not a priori categorised to certain kinds of motivations such as necessity/opportunity or push/pull motivations.

Empirical studies measuring enterprise performance beyond quantitative measures such as profit and turnover have tended to use measurement items asking respondents to provide their perceived rating of their organisation on a Likert-type scale – examples are Machmud and Sidharta (2016); Venter (2014); and Wiklund and Shepherd (2003b). Some of the arguments provided for adopting this approach relate to the difficulties in getting accurate quantitative data on measures of enterprise performance, and as a result, relative measures of enterprise performance such as relative sales growth, productivity and customers (Machmud & Sidharta, 2016; Wiklund & Shepherd, 2003b). The current study adopted a similar approach to measure performance and used a performance scale with ten items to assess the entrepreneurs' perceived enterprise performance in achieving social, economic and environmental goals of sustainable entrepreneurship. The items were also presented on a five-point Likert scale with five choices – 1 (strongly disagree); 2 (disagree); 3 (neutral); 4

(agree) and 5 (strongly agree) – and respondents rated each of them in terms of their agreement with the statements.

Biographical data were also collected for both the entrepreneur and the sustainable enterprise (questions were formulated as dichotomous, open-ended or single-response, multiple choice questions). The biographical variables included in the instrument include: entrepreneur's age, gender, highest education level and business experience (Eijdenberg & Masurel, 2013; Kuratko et al., 1997; Robichaud et al., 2001; Urban et al., 2011; Venter, 2014; Venter et al., 2012). Enterprise-related control variables include number of years the business enterprise has been operating, number of employees, enterprise's priority area of operation. These were used as control variables in the regression model, as well as for describing the data.

Table 3-2 below summarises the different sections of the research instrument, briefly describing the questions, source of questions and the type of questions. The scale items used in the research instrument were adapted from prior research where possible and additional items from literature added by the researcher to have a comprehensive list covering the environmental, economic, and social dimensions of sustainable entrepreneurship as discussed in the literature review section above.

Table 3-2: Summary of the different sections of the research instrument

Section	Description	Source of questions	Type of questions
Section 1: Biographical data	Section 1 consists of questions 1.1 to 1.13, used to gather data on demographical information (age, gender, education level) of sustainable entrepreneurs in Gauteng Province. Business-related issues such as age of business, number of employees of the business, sector business is operating, are also included. These variables were used to describe the data as well as in multiple regression analysis as independent variables.	(Eijdenberg & Masurel, 2013; Kuratko et al., 1997; Robichaud et al., 2001; Urban et al., 2011; Venter, 2014; Venter et al., 2012)	Dichotomous, open-ended, single response multiple choice, checklists
Section 2: Entrepreneurial performance	Section 2 gathers data on entrepreneurial performance (questions 2.1 to 2.10). The performance scale was adapted from Venter (2014) and additional items added to cover economic, social and environmental dimensions of enterprise performance. In this case, enterprise performance was used as a measure of attainment of the environmental, economic, and social goals, as discussed in the literature review section.	(Machmud & Sidharta, 2016; Pujari et al., 2003; Venter, 2014)	5-point Likert scale
Section 3: entrepreneurial motivations	Section 3 consists of the entrepreneurial motivations questions 3.1 to 3.15. The	(Barba-Sánchez & Atienza-Sahuquillo, 2012; Birley &	5-point Likert scale

Section	Description	Source of questions	Type of questions
	questions were adapted from different sources, making sure that they addressed the different dimensions that also drive sustainable entrepreneurship as discussed in the literature review section.	Westhead, 1994; Eijdenberg & Masurel, 2013; Jayawarna et al., 2013; Kuratko et al., 1997; Machmud & Sidharta, 2016; Robichaud et al., 2001; Stefanovic et al., 2010; Urban et al., 2011; Venter, 2014)	

3.6 Research pilot study

Similar to previous empirical research studies on entrepreneurial motivation and performance of enterprises (Barba-Sánchez & Atienza-Sahuquillo, 2012; Baum & Locke, 2004; Pujari et al., 2003), the research instrument was piloted before conducting on data gathering. The pilot study helps reveal research design errors, as well as improper control of environmental conditions (Cooper & Schindler, 2014). For the pilot study, a list of 20 sustainable entrepreneurs in other provinces was gathered from the UNEP Seed Programme website. The pilot was based on sustainable enterprises outside Gauteng Province so that the actual sample would not be diluted. The research instrument (Appendix 2), together with the cover letter (Appendix 3) and consent form (Appendix 4), was emailed to owner/managers of the identified sustainable enterprises.

Where telephone numbers were provided in the details on the website, the potential respondents were called first and informed about the research, after which the above documents were sent. After making follow ups through emails and phone calls, ten respondents asked for the interview to be completed over

the phone, which also helped the researcher gauge the time it took to complete the research instrument. A total of 10 completed research instruments were gathered for the pilot study. A number of the other targeted respondents indicated that they were either no longer with the identified business ventures or were not able to participate.

The pilot was conducted mainly to cross-check content of the questions and ease of asking and responding to the questions in the instrument. In addition, the pilot was also used to check the time period it took to complete each instrument. The telephonic interviews confirmed that the instrument takes 10 to 15 minutes to complete. This information was used to plan for the time and resources required to undertake the complete study data collection process. The pilot study also helps the researcher rehearse the easiness of asking the questions in the actual survey. From experienced gained with the pilot survey, questions were clarified in the final survey instrument. Similar to other empirical studies (such as Pujari et al., 2003), the wording of the questions was adjusted where necessary, based on the feedback from the pilot study.

3.7 Data collection, capturing and cleaning

The primary data to be used for empirical analyses were collected through a survey using a structured research instrument. All primary data to be used for empirical analyses were collected between October and November 2016. Data collection methods applied ranged from distributing survey questionnaires to respondents for them to complete, telephonic interviews, face-to-face interviews to an online survey. The total target sample of respondents was 150 and the final sample from successful survey interviews and returned questionnaires was 95, which was reduced to 91 after data cleaning. The final sample used for empirical analysis represents a 61 % response rate.

The field of sustainable entrepreneurship is still emerging in South Africa, as in the rest of the world, and the number of entrepreneurs operating in this area is

still limited. Future research could analyse motivations and impacts on enterprise performance based on larger samples as more entrepreneurs engage in this field. However, other studies have successfully applied the same methodology based on small sample sizes. For example, Mitchell (2004) applied exploratory factor analysis on motivations of entrepreneurs in South Africa with a sample of 101 entrepreneurs in the Northern Province. Other research studies include a factor analysis of motivations for starting new ventures and factors that affect enterprise performance in Serbia, using a sample of 79 small and medium enterprises (Stefanovic et al., 2010). Barba-Sánchez & Atienza-Sahuquillo (2012) investigated the impacts of motivation factors on start-up decisions among Spanish businesspeople, based on a sample of 101 respondents, using factor analysis based on principal component analysis. In a separate study in Indonesia, a purposive sample of 94 owners of SMEs was used to estimate multiple regression analysis of entrepreneurial motivation and performance of the businesses (Machmud & Sidharta, 2016).

The data in this study were captured in Excel and imported into 2016 SAS Studio University Edition for statistical analysis. The data were cleaned initially in Excel and also in SAS before conducting empirical analyses.

3.8 Data analysis and interpretation

3.8.1 Descriptive statistics

The empirical analysis was based on a descriptive statistical analysis, exploratory factor analysis, and multiple linear regression analysis. The empirical analyses started with descriptive statistics that were used both to help cross-check and clean the regression model variables (Lee, 2016) and to describe the sample. Descriptive statistics – for example, measures of centrality (mean and standard deviation), spread and distribution of variables – were computed on each of the dependent and independent variables. The results from descriptive analyses of the data were presented in Tables and Figures. In addition, as discussed below

under regression model analysis, correlation analysis of the model variables was conducted.

3.8.2 Correlation analysis

The association between entrepreneurial motivations and enterprise performance was analysed using correlation analysis before estimating the regression model. Two main tests of correlation are the Pearson correlation, which tests the relationships between continuous variables, and the Spearman correlation, which tests the relationship between ordinal variables (Lee, 2016). These correlation tests were analysed to check the relationships between the dependent and independent variables, including relationships between independent variables themselves. For example, the correlation between independent variables was used to assess multicollinearity as discussed below under regression analysis. Research studies on entrepreneurial motivation and performance usually test for correlation between these variables.

3.8.3 Exploratory factor analysis

The entrepreneurial performance and motivation scale items were analysed using exploratory factor analysis (EFA) to reduce the number of variables as applied in many quantitative studies that have analysed entrepreneurial motivations (such as Barba-Sánchez & Atienza-Sahuquillo, 2012; Benzing & Chu, 2009; Birley & Westhead, 1994; Kuratko et al., 1997; Stefanovic et al., 2010). The exploratory factor analysis also allows interpretation of the results on entrepreneurial motivation (Barba-Sánchez & Atienza-Sahuquillo, 2012).

The EFA, using the Principle Axis Factoring (PAF) approach, was used to investigate whether the different variables in the enterprise performance and entrepreneurial motivation scales could be grouped together into specific factors. The PAF method of calculating factors was selected as it is most common for

EFA (Lee, 2016). The empirical analyses used both orthogonal (varimax) rotation, which does not allow factors to be correlated, and Harris Kaiser (HK) Case 11 rotation, which allows factors to be correlated (Lee, 2016). The results presented here are based on the HK rotation method. The identified factors or dimensions of entrepreneurial motivation were be used to generate independent variables to be used in multiple regression analysis.

3.8.4 Multiple linear regression analysis

The study applied multiple linear regression analyses to estimate the relationships between entrepreneurial motivations and performance of sustainable enterprises in Gauteng. Enterprise Performance is conceptualised as a function of entrepreneurial motivations and control factors as illustrated in Equation 1 below.

$$EP = f(EM_{i=1...n}, X_{j=1...n}) \quad (1)$$

where EP is Enterprise Performance, $EM_{i=1...n}$ represents dimensions of entrepreneurial motivations and $X_{j=1...n}$ represents control variables. The general multiple regression equation can be illustrated as follows:

$$EP = \alpha_0 + \alpha_i \sum_{i=1}^{n} EM_i + \alpha_j \sum_{j=1}^{n} X_j + \mu \quad (2)$$

where EP is Enterprise Performance, $EM_{i=1...n}$ represents dimensions of entrepreneurial motivations, $X_{j=1...n}$ represents control variables, α_0 is the constant terms, and μ is the error term.

The multiple regression model analyses were estimated using the 2016 SAS Studio University Edition. Multiple linear regression estimation, based on data

from cross-sectional surveys, is faced with challenges of multicollinearity and heteroscedasticity (Cameron & Trivedi, 2005). The presence of heteroscedasticity in the error terms of linear regression models results in inconsistent but inefficient parameter estimates and inconsistent covariance matrix estimates (White, 1980). Testing statistical hypotheses in the presence of heteroscedasticity results in incorrect inferences being drawn (White, 1980). A heteroscedasticity-robust standard error estimation procedure was used to address the potential problem of heteroscedasticity. The heteroscedasticity-robust standard error estimation computes robust variance estimators using equation level scores and a covariance matrix (Cameron & Trivedi, 2010).

The problem of multicollinearity among independent variables in the regression model can lead to imprecise parameter estimates (Cameron & Trivedi, 2005). Correlation analysis was used between continuous variables to check for the presence of multicollinearity among independent variables. The study also applied chi-square tests for independence to check for dependencies between dummy variables. In addition, multicollinearity was tested using the variance inflation factor (VIF) (Lee, 2016). Values of the VIF less than 10 indicate no problem of multicollinearity in the model. For highly correlated variables, subsets of regressions can be estimated, separating the correlated variables, or, some of these variables can be dropped from the estimation (Cameron & Trivedi, 2005, 2010). Alternatively, using factor analysis, some of the correlated variables can be regrouped into single aggregate independent variables (Lee, 2016) that can then be used in estimating the regression model.

Estimation results from multiple linear regression analyses helped to test the hypotheses relating to the impacts of entrepreneurial motivation on enterprise performance. The coefficients and significance of the model parameters were used to make inferences on how the parameters affect enterprise performance.

3.9 Validity and reliability of research

3.9.1 External validity

A validity test estimates the extent to which a researcher is measuring what he or she intends to measure (Cooper & Schindler, 2014). Types of validity test include internal, external, construct, content and criterion validity. This study measured external and internal validity. External validity is concerned with the causal relationship between constructs and how the relationship can be generalised across settings, persons and times (Cooper & Schindler, 2014; Drost, 2011) The current study estimated the correlations between entrepreneurial motivations and enterprise performance. The results from the analyses were generalised to the population of sustainable enterprises in Gauteng Province.

3.9.2 Internal validity

Internal validity tests whether there is a causal relationship between constructs and whether there are no confounding factors in the study (Cooper & Schindler, 2014; Drost, 2011). Internal validity is treated by a number of factors that include history, maturation, selection, instrumentation, statistical regression and experimental mortality (Cooper & Schindler, 2014).

3.9.3 Reliability

Reliability tests estimate the accuracy and precision of measurement scales (e.g. internal consistency) (Cooper & Schindler, 2014). The reliability of the enterprise performance and motivation scales was tested with the Cronbach's alpha coefficient test (Cronbach, 1951). The acceptable alpha coefficients range between 0.65 and 0.8. The pilot study was used to measure the reliability of the scales in the research instrument, as discussed above. Reliability tests were also

conducted using the Cronbach's alpha coefficient when all the data had been gathered before final analysis. The scales were found to be reliable and there was no need to adjust the scale items. Alternatively, if the scales were found not to be reliable, it would have been necessary to adjust the scales by removing the items that caused problems.

3.10 Limitations of the study

The research study used data from a cross-sectional quantitative survey and one limitation of such a study is that the researcher cannot ask follow-up probing questions to unpack the reasoning behind the results from the survey (Segal, Borgia, & Schoenfeld, 2005). This limitation can be addressed through a complementary qualitative survey with a selection of respondents from the sample to gather some of the reasoning behind findings from the quantitative survey. In addition, the current study does not go a step further to quantitatively measure the contributions of the sustainable entrepreneurs in Gauteng province to the provincial economy (such as to provincial Gross Domestic Product, job creation, and environmental benefits). Future studies should make efforts to measure the contribution of sustainable entrepreneurship to these issues quantitatively.

3.11 Ethical considerations

Ethical issues, as well as ethical considerations, were addressed in this study. Respondents were assured of their voluntary choice to participate or not in the study and that all responses from the study were strictly confidential (see cover letter in Appendix 3 and consent form for participation in Appendix 4). The consent form (Appendix 4) describes the nature of the research and how participation in the study would affect respondents. In addition, respondents who voluntarily participated in the survey signed a consent form before completing the questionnaire. The study did not request any identifying information that could be traced to the respondent, such as the name of the respondent or that of the

business venture. The researcher would store data for 5 years for further analysis and destroy it after this time.

3.12 Conclusion

This chapter presented the various research methods that were applied. The study was based on quantitative research methods based on a positivist research paradigm. A survey research instrument was used to gather data to estimate relationships between entrepreneurial motivations and enterprise performance in Gauteng Province. The data analysis and interpretation were based on descriptive analysis, correlation analysis, exploratory analysis and multiple regression analysis. The first three analysis methods were used to summarise and clean the data for multiple regression analysis. The data were captured and analysed using 2016 SAS Studio University Edition.

Chapter 4 presents the empirical analysis of the data on entrepreneurial motivation driving sustainable entrepreneurship in Gauteng Province. The findings relating to the relationships, presented in the conceptual framework in Chapter 2, are presented in this chapter including preliminary discussion of the results.

CHAPTER 4: EMPIRICAL RESULTS FROM THE STUDY

4.1 Introduction

This chapter presents the empirical findings from the research. Primary survey data collected were cleaned and analysed in Microsoft Excel and 2016 SAS Studio University Edition. The data were analysed using the analytical methods discussed in Chapter 3. This is a quantitative study based on statistical analysis of data. The first part of the analysis presents the descriptive analysis of the sample for the study. The second part presents results of the reliability and exploratory factor analysis of the enterprise performance and motivation scales. The third part presents multiple linear regression analysis of the different relationships hypothesised in the conceptual framework presented in Chapter 2.

4.2 Descriptive profile of the study sample

The data used for empirical analysis were based on responses from a survey questionnaire. Data collection methods applied ranged from distributing survey questionnaires to respondents for them to complete, telephonic interviews, face-to-face interviews, to an online survey. The total target sample of respondents numbered 150 and the final sample from successful survey interviews and returned questionnaires was 95, which was reduced to 91 after data cleaning. The final sample used for empirical analysis represents 61 % response rate.

4.2.1 Respondents' gender

The results for respondents' gender are presented in Figure 4-1 below. Seventy-six per cent of the respondents were male and 24 % were female.

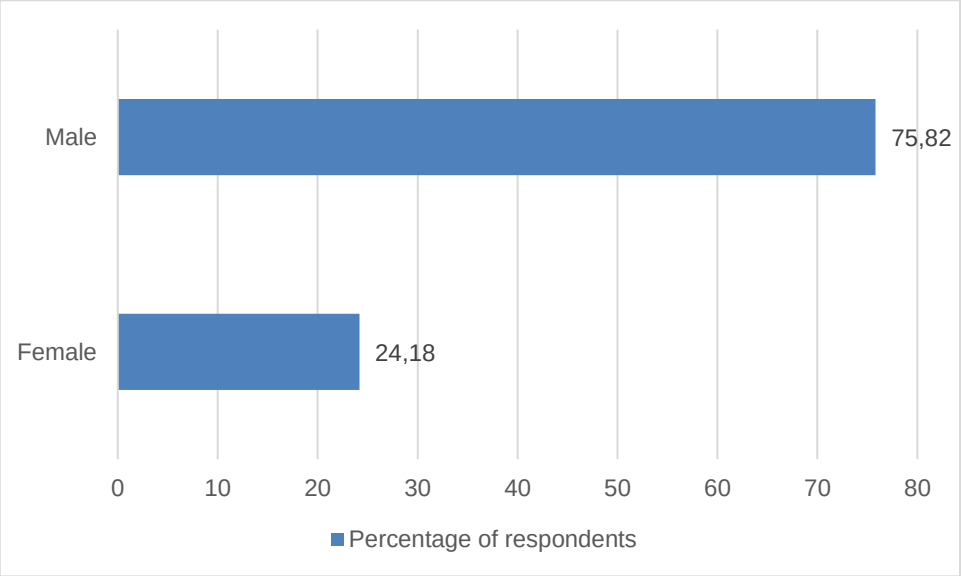


Figure 4-1: Gender of respondents from the sample

4.2.2 Respondents' age profile

The mean age of the respondents was 32 (31.57) and the standard deviation was 7.42. The minimum and maximum ages were 19 years and 51 years, respectively. The age variable was also recorded into different categories as presented in Figure 4-2 below. The results show that 59 % of the respondents were aged between 25 and 34 (25–34 age group), 12 % were in the 15–24 age group while 8 % were aged 45 years and above.

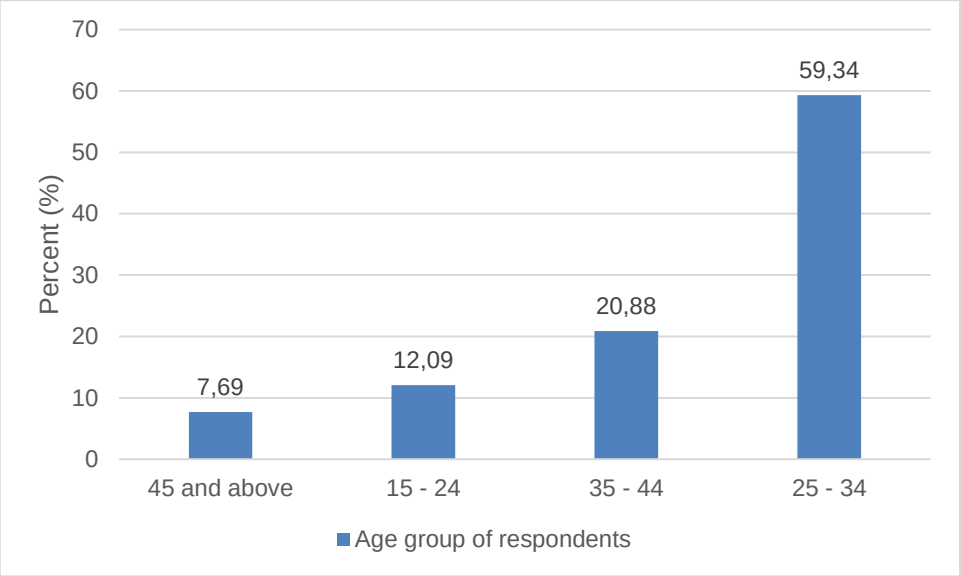


Figure 4-2: Age profile of the respondents

The cross-tabulation of gender and age of respondents is presented in Table 4-1 below. The Chi-Square analysis presented in the Table $(\chi^2 = 4.092; p = 0.252)$ indicates no significant relationship between gender and age of respondents at 5 % significance level. The results show a high representation of both male (41 %) and female (19 %) respondents in the 25–34 age group.

Table 4-1: Cross-tabulation of gender and age of respondents

Gender of respondents	**Age of respondents**				
	15 – 24	**25 – 34**	**35 – 44**	**45 and above**	**Total**
Female	2.20	18.68	2.20	1.10	24.18
Male	9.89	40.66	18.68	6.59	75.82
Total	12.09	59.34	20.88	7.69	100
Chi-Square	**4.0924; p = 0.2517**				

4.2.3 Education profile of the respondents

The reported education levels of the respondents are shown in Figure 4-3 below. The results indicate that 52 % of the respondents had completed a diploma or university degree, while only 5 % had received some high school education. The distributions of respondents who had completed short programmes (13 %), had a post-graduate qualification (14 %), and had completed high school (15 %) were not that different.

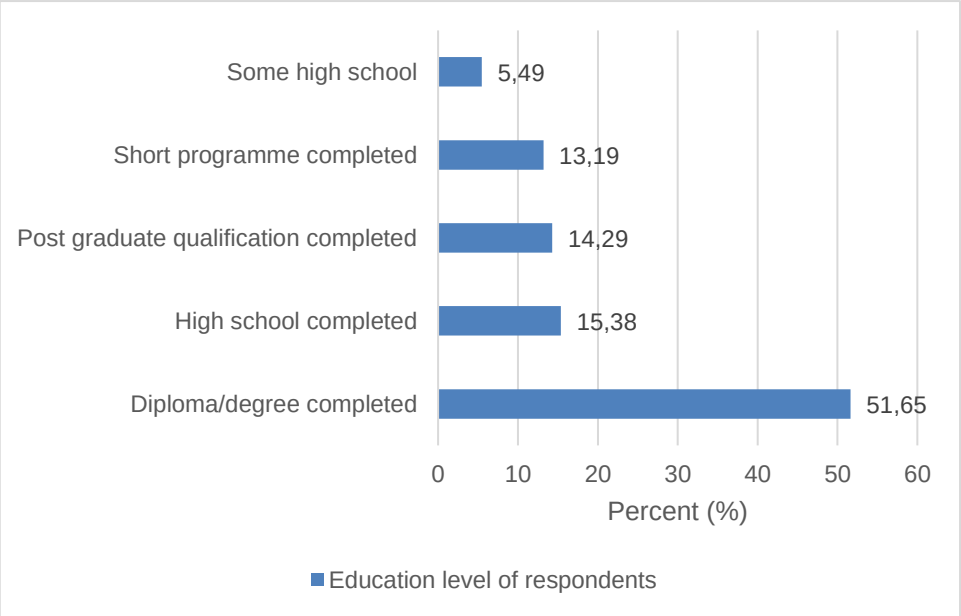


Figure 4-3: Reported education levels of respondents

The cross-tabulation of educational level and gender of respondents is presented in Table 4-2 below. Most of the female and male respondents interviewed had completed a diploma or university degree (with a combined total of 52 %). Only 5 % of male respondents reported some high school education. Chi-Square

analysis results $(\chi^2 = 11.633; p = 0.020)$ indicate a highly significant relationship between educational level and gender of respondents at 5 % significance level.

Table 4-2: Cross-tabulation of educational level and gender of respondents

Educational level of respondents	**Gender of respondents**		
	Female	**Male**	**Total**
Diploma/degree completed	18,68	32,97	51,65
High school completed	1,1	14,29	15,38
Post graduate qualification completed	4,4	9,89	14,29
Short programme completed		13,19	13,19
Some high school		5,49	5,49
Total	24,18	75,82	100
Chi-Square	**11.6330; p = 0.0203**		

Table 4-3 below illustrates the cross-tabulation of educational level and age of those surveyed. The results show a high representation of respondents who had completed a diploma or degree in the 25–34 age group. The percentage of respondents who had completed a post-graduate qualification is the same between the 25–34 (5 %) and 35–44 (5 %) age groups. The young respondents below 24 years of age had either completed a diploma/degree (4 %), high school (3 %), or some short programme (4 %). The Chi-Square results $(\chi^2 = 32.781; p = 0.001)$ reflect a highly significant relationship indicating a strong relationship between educational level and age of respondents. In this case, educational level varies with the age of respondents.

Table 4-3: Cross-tabulation of education level and age of respondents

Educational level of respondents	Age of respondents				
	15 – 24	**25 – 34**	**35 – 44**	**45 and above**	**Total**
Diploma/degree completed	4,4	39,56	5,49	2,2	51,65
High school completed	3,3	7,69	4,4		15,38
Post graduate qualification completed		5,49	5,49	3,3	14,29
Short programme completed	4,4	5,49	3,3		13,19
Some high school		1,1	2,2	2,2	5,49
Total	12,09	59,34	20,88	7,69	100
Chi-Square	**32.7814; p = 0.0010**				

4.2.4 Previous business ownership profile of the respondents

Figure 4-4 below shows that 81 % of the respondents had no previous business ownership and expertise, while only 19 % reported that they had owned some form of businesses before they started their sustainable enterprises.

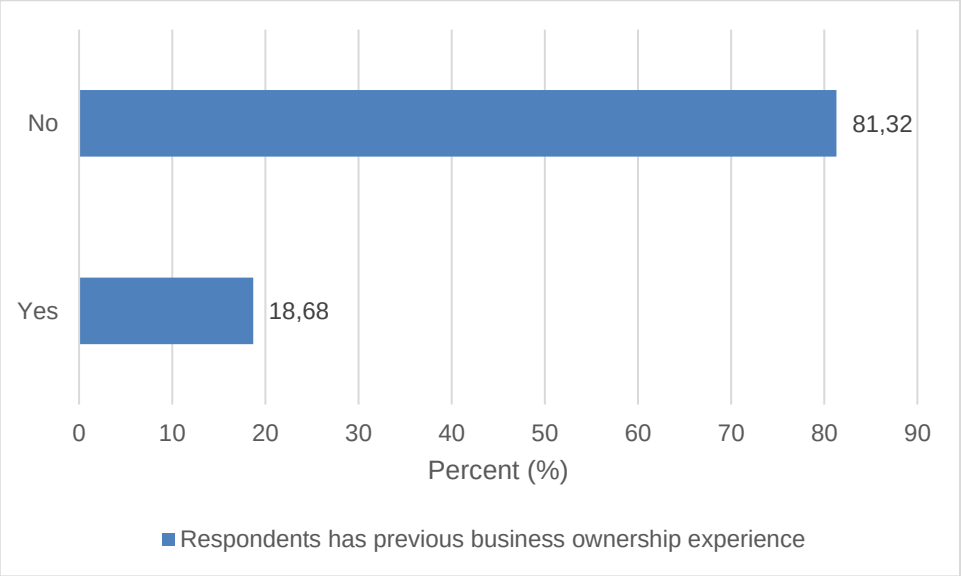


Figure 4-4: Previous business ownership and experience of respondents

4.2.5 Priority areas in which interviewed enterprises operate

Figure 4-5 below presents the distribution of the priority business sectors in which interviewed enterprises operate. The results show that the main priority business sectors were economic development (30 %), energy (24 %), waste (15 %), and land use (14 %). A few of the interviewed enterprises operated in the food security (8 %), water and sanitation (5 %) and transport (3 %) sectors.

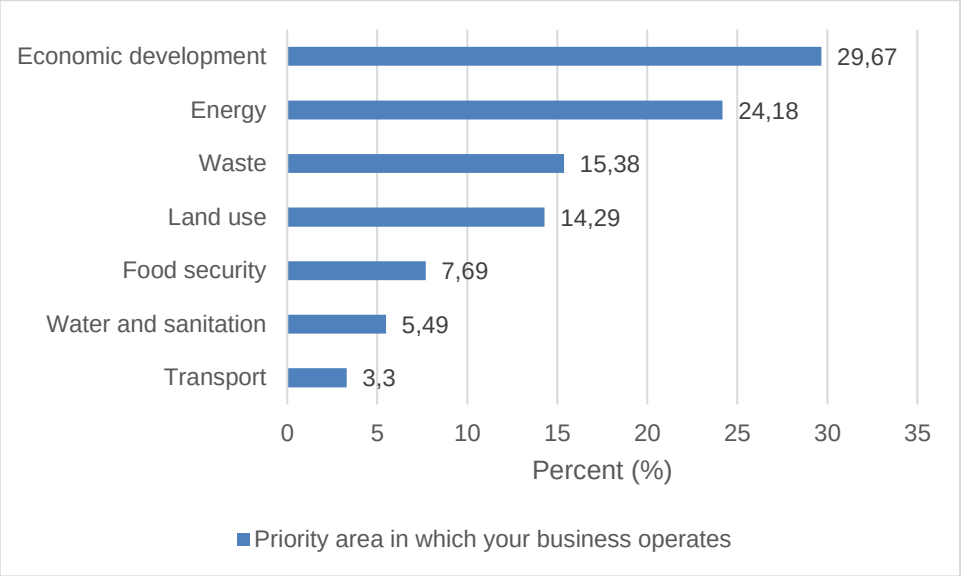


Figure 4-5: Priority area in which business operates

4.2.6 Age of business enterprises

The mean years of operation of the interviewed businesses amounted to 2.27, with a standard deviation of 1.56. The years of operation of the business enterprises were recorded into the categories presented in Figure 4-6 below. The results indicate that most of the business enterprises (88 %) had been operating for one to five years, and only 5 % had been operating for more than five years.

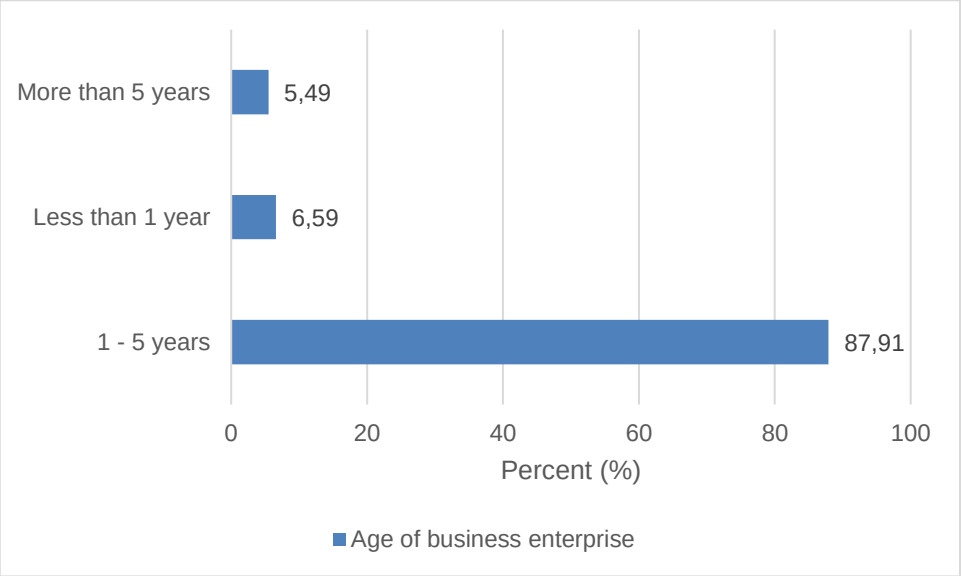


Figure 4-6: Years of operation of the interviewed enterprises

The cross-tabulation results of educational level of respondents and age of business enterprise are presented in Table 4-4 below. The results indicate that 44 % of the respondents who had completed a diploma/degree had been running sustainable enterprises between 1 and 5 years. There is a high representation of respondents at all educational levels with enterprises less than five years old. Chi-Square analysis results $(\chi^2 = 7.016; p = 0.535)$ indicate that there is no relationship between the two variables at 5 % or 1 % significance levels.

Table 4-4: Cross-tabulation of educational level of respondents and age of business enterprise

Educational level of respondents	Age of business enterprise			
	1 – 5 years	Less than 1 year	More than 5 years	Total
Diploma/degree completed	43,96	5,49	2,2	51,65
High school completed	14,29	1,1		15,38
Post graduate qualification completed	12,09		2,2	14,29
Short programme completed	12,09		1,1	13,19
Some high school	5,49			5,49
Total	87,91	6,59	5,49	100
Chi-Square	**7.0158; p = 0.5349**			

Table 4-5 below shows the cross-tabulation of gender of respondents and age of business enterprise. Sixty-six per cent of male respondents and 22 % of female respondents had companies which had been operating for one to five years. Only 5 % of male respondents had business enterprises that had been operating for more than five years. Results of the Chi-Square analysis $(\chi^2 = 1.898; p = 0.387)$ indicate that there is no relationship between gender of respondents and age of business enterprise, at 5 % or 1 % significance levels.

Table 4-5: Cross-tabulation of gender of respondents and age of business enterprise

Age of business enterprise	Gender of respondents		
	Female	Male	Total
1 – 5 years	21,98	65,93	87,91
Less than 1 year	2,2	4,4	6,6
More than 5 years		5,49	5,49
Total	24,18	75,82	100
Chi-Square	**1.8983; p = 0.3871**		

4.3 Descriptive analysis of the scales

The descriptive analyses results for the enterprise performance and entrepreneurial motivation scales are presented below.

4.3.1 Enterprise performance scale

Table 4-6 below presents the distribution of responses to the scale items on enterprise performance. The results indicate that at least 60 % of the respondents either “agreed” or “strongly agreed” with statements 2.3 (86 %), 2.4 (78 %), 2.5 (82 %), 2.6 (60 %), 2.8 71 %), 2.9 (70 %) and 2.10 (65 %) on enterprise performance. The statements that respondents reported relatively high percentages of either “disagree” or “strongly disagree” were: 2.1 (28 %); 2.2 (26 %) and 2.7 (45 %).

Table 4-6: Scale item frequencies for enterprise performance

Scale items	Frequency of responses (%)					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Total**
2.1 Compared to my competitors, I have introduced more new products/services over the past year	**19,78**	**7,69**	29,67	28,57	14,29	100
2.2 Compared to my competitors, I have made more changes and improvements to my existing products/services over the past year	**20,88**	**5,49**	28,57	29,67	15,38	100
2.3 Over the past year, I actively engaged in search for big business opportunities	8,79		5,49	**41,76**	**43,96**	100
2.4 In my business, rapid growth this year is my dominant goal	7,69	2,20	12,09	**43,96**	**34,07**	100
2.5 Steady growth and stability in my business this year is my primary concern	8,79	2,20	6,59	**48,35**	**34,07**	100
2.6 I have managed to create employment for others in my business over the past years	13,19	9,89	16,48	**36,26**	**24,18**	100
2.7 Compared to my competitors, my profits have continued to grow over the past year	**32,97**	**12,09**	28,57	21,98	4,40	100
2.8 Over the past year, my business helped enhance the environmental image of the local community	15,38	1,10	12,09	43,96	27,47	100
2.9 Over the past year, my business helped reduce overall negative environmental impacts in the local community	14,29	4,40	12,09	40,66	28,57	100
2.10 Over the past year, my business helped enhance protection and conservation of natural and environmental resources in the local community	15,38	1,10	17,58	38,46	27,47	100

Table 4-7 below shows the descriptive statistics of the enterprise performance scale items. The results indicate that the rest of the scale items have a mean value of 4, except scales 2.1, 2.2, 2.6 and 2.7, all with an average score of 3. All

the scale items are negatively skewed as indicated by the negative Skewness values, except for scale 2.7. Scale items 2.3, 2.4, 2.5 and 2.8 have positive kurtosis, while the rest show negative kurtosis.

Table 4-7: Descriptive statistics of enterprise performance scale items

Scale items	Descriptive statistics			
	Mean	**Standard Deviation**	**Skewness**	**Kurtosis**
2.1 Compared to my competitors, I have introduced more new products/services over the past year	3,098	1,317	-0,335	-0,945
2.2 Compared to my competitors, I have made more changes and improvements to my existing products/services over the past year	3,132	1,343	-0,386	-0,964
2.3 Over the past year, I actively engaged in search for big business opportunities	4,101	1,134	-1,74	2,583
2.4 In my business, rapid growth this year is my dominant goal	3,945	1,119	-1,349	1,458
2.5 Steady growth and stability in my business this year is my primary concern	3,967	1,14	-1,45	1,758
2.6 I have managed to create employment for others in my business over the past years	3,484	1,32	-0,661	-0,676
2.7 Compared to my competitors, my profits have continued to grow over the past year	2,527	1,277	0,101	-1,274
2.8 Over the past year, my business helped enhance the environmental image of the local community	3,67	1,317	-1,066	0,057
2.9 Over the past year, my business helped reduce overall negative environmental impacts in the local community	3,648	1,328	-0,953	-0,208
2.10 Over the past year, my business helped enhance protection and conservation of natural and environmental resources in the local community	3,615	1,323	-0,932	-0,169

4.3.2 Entrepreneurial motivation scale

The distribution of responses for the entrepreneurial motivation scale is presented in Table 4-8 below. The results of the responses to scale items show that more than 50 % of responses either “agreed” or “strongly agreed” with the following statements: 3.2 to 3.5; 3.8, 3.10 and 3.12-3.14. The scale items with high representations of “disagree” or “strongly disagree” responses were: 3.6 (67 %), 3.7 (96 %) and 3.11 (65 %). The descriptive statistics of the entrepreneurial motivation scale are presented in Table 4-9.

Table 4-8: Frequencies of entrepreneurial motivation scale items

Scale items	Frequency of responses (%)					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Total**
3.1 I started my current business because I wanted to make a lot of money	21,98	9,89	26,37	27,47	14,29	100
3.2 I started my current business because I wanted to give myself, my partner and children financial security	4,40	1,10	6,59	**28,57**	**59,34**	100
3.3 I started my current business because I wanted to control own life/ independence/ freedom	2,20	2,20	2,20	**29,67**	**63,74**	100
3.4 I started my current business to create jobs in my community	2,20		8,79	**32,97**	**56,04**	100
3.5 I started my current business because I identified an opportunity (need I could fill)	2,20		1,10	**30,77**	**65,93**	100
3.6 I started my current business because I couldn't find a proper job (full-time employment)	53,85	13,19	9,89	13,19	9,89	100
3.7 I started my current business because I was retrenched/fired	89,01	6,59	1,10	1,10	2,20	100
3.8 I started my current business because I wanted to fulfil my personal vision of being an entrepreneur	3,30		2,20	**24,18**	**70,33**	100
3.9 I started my current business to follow the example of an entrepreneur I admire	12,09	12,09	25,27	16,48	34,07	100
3.10 I started my current business because I wanted to improve the welfare in my local community	2,20		6,59	**36,26**	**54,95**	100
3.11 I started my current business because of government support for sustainability business ventures	46,15	18,68	15,38	9,89	9,89	100
3.12 I started my current business because I wanted to make a positive difference to my community and the environment	2,20	1,10	4,40	**26,37**	**65,93**	100
3.13 I started my current business because I wanted to contribute to reduce environmental degradation in my community	2,20	1,10	5,49	**30,77**	**60,44**	100
3.14 I started my current business because I had the skills/experience to do the work	4,40	4,40	5,49	**28,57**	**57,14**	100
3.15 I started my current business for my own satisfaction and growth	21,98	7,69	23,08	27,47	19,78	100

Table 4-9: Descriptive statistics of the entrepreneurial motivation scale

Scale items	Descriptive statistics			
	Mean	**Standard Deviation**	**Skewness**	**Kurtosis**
3.1 I started my current business because I wanted to make a lot of money	3,022	1,358	-0,231	-0,126
3.2 I started my current business because I wanted to give myself, my partner and children financial security	4,374	0,985	-2,029	4,22
3.3 I started my current business because I wanted to control own life/ independence/ freedom	4,505	0,835	-2,36	6,582
3.4 I started my current business to create jobs in my community	4,407	0,83	-1,844	4,612
3.5 I started my current business because I identified an opportunity (need I could fill)	4,582	0,731	-2,82	11,047
3.6 I started my current business because I couldn't find a proper job (full-time employment)	2,121	1,436	0,888	-0,728
3.7 I started my current business because I was retrenched/fired	1,209	0,729	4,171	18,063
3.8 I started my current business because I wanted to fulfil my personal vision of being an entrepreneur	4,582	0,831	-2,883	9,635
3.9 I started my current business to follow the example of an entrepreneur I admire	3,484	1,385	-0,414	-1,045
3.10 I started my current business because I wanted to improve the welfare in my local community	4,418	0,804	-1,958	5,547
3.11 I started my current business because of government support for sustainability business ventures	2,187	1,374	0,838	-0,599
3.12 I started my current business because I wanted to make a positive difference to my community and the environment	4,527	0,821	-2,368	6,75
3.13 I started my current business because I wanted to contribute to reduce environmental degradation in my community	4,462	0,834	-2,107	5,549
3.14 I started my current business because I had the skills/experience to do the work	4,297	1,059	-1,77	2,66
3.15 I started my current business for my own satisfaction and growth	3,154	1,421	-0,325	-1,169

4.4 Testing reliability of the scales

4.4.1 Reliability test of the enterprise performance scale

The Cronbach's alpha test results for reliability of the enterprise performance scale are presented in Table 4-10 below. The Table presents the results of raw and standardised values of the Cronbach coefficient Alpha and correlation of each scale item with other items. The results of the Cronbach coefficient Alpha of the enterprise performance score is 0.93 with raw variables, and 0.929 with standardised variables. The alpha score for the enterprise performance scale is above the cut-off value of 0.7, indicating that the scale is reliable.

Table 4-10: Cronbach's Alpha scores for the enterprise performance scale

Cronbach Coefficient Alpha with Deleted Variable				
	Raw Variables		Standardised Variables	
Scale item	Correlation with Total	Alpha	Correlation with Total	Alpha
Q 2.1	0.746	0.922	0.742	0.922
Q 2.2	0.747	0.922	0.744	0.922
Q 2.3	0.675	0.926	0.685	0.925
Q 2.4	0.686	0.925	0.697	0.924
Q 2.5	0.621	0.928	0.633	0.927
Q 2.6	0.740	0.922	0.736	0.922
Q 2.7	0.608	0.929	0.602	0.929
Q 2.8	0.780	0.919	0.792	0.919
Q 2.9	0.828	0.918	0.822	0.918
Q 2.10	0.814	0.918	0.806	0.918
Cronbach Coefficient Alpha		**0.930**		**0.929**

4.4.2 Reliability test of the entrepreneurial motivation scale

Table 4-11 below shows reliability test results of the entrepreneurial motivation scale using the Cronbach's alpha test. The results indicate a Cronbach Coefficient Alpha score of 0.79 (with raw variables) and 0.84 (with standardised variables). As with the enterprise performance scale, the results for the entrepreneurial motivation scale indicate that the scale is reliable.

Table 4-11: Cronbach's Alpha scores for the entrepreneurial motivation scale

Cronbach Coefficient Alpha with Deleted Variable				
	Raw Variables		Standardised Variables	
Scale item	Correlation with Total	Alpha	Correlation with Total	Alpha
Q 3.1	0.356	0.778	0.275	0.837
Q 3.2	0.562	0.760	0.560	0.820
Q 3.3	0.733	0.751	0.742	0.809
Q 3.4	0.676	0.755	0.764	0.807
Q 3.5	0.714	0.756	0.775	0.806
Q 3.6	0.093	0.807	0.062	0.850
Q 3.7	0.038	0.794	0.044	0.851
Q 3.8	0.587	0.761	0.666	0.813
Q 3.9	0.323	0.782	0.337	0.834
Q 3.10	0.595	0.761	0.696	0.812
Q 3.11	0.232	0.791	0.192	0.842
Q 3.12	0.525	0.765	0.631	0.816
Q 3.13	0.565	0.763	0.656	0.814
Q 3.14	0.467	0.767	0.499	0.824
Q 3.15	0.163	0.799	0.100	0.847
Cronbach Coefficient Alpha		**0.785**		**0.836**

4.5 Exploratory factor analysis of the scales

Exploratory Factor Analyses (EFA) using Principle Axis Factoring (PAF) were used to investigate whether the different variables in the enterprise performance and entrepreneurial motivation scales could be grouped together into specific factors. The PAF method of calculating factors was selected as it is most common for EFA (Lee, 2016). The empirical analyses used both orthogonal (varimax) rotation, which does not allow factors to be correlated, and Harris Kaiser (HK) Case 11 rotation, which does allow factors to be correlated. The results presented here are based on the HK rotation method. The results for each of the scales are presented below.

4.5.1 EFA of the enterprise performance scale

The suitability of running the EFA was assessed prior to performing the factor analysis. The correlation matrix of the scale items is presented in Table 4-12 below. The correlation results indicate that all coefficients of the scale items are above 0.3 and are statistically significant at 1 % significance level. The results show that the items correlate with each other, giving an indication that they can be grouped together. The Bartlett's Test of Sphericity (Bartlett, 1954)[1] $(\chi^2 = 885.968, p = 0.000)$ indicated that the correlations between the scale items were large enough to run the factor analysis.

1 The Bartlett's test was performed using SPSS Version 23, while the rest of the analysis was done using SAS Studio University Edition.

Table 4-12: Descriptive statistics and correlation of the enterprise performance scale items

DESCRIPTIVE STATISTICS & PEARSON CORRELATIONS												
	M	**SD**	**Q 2.1**	**Q 2.2**	**Q 2.3**	**Q 2.4**	**Q 2.5**	**Q 2.6**	**Q 2.7**	**Q 2.8**	**Q 2.9**	**Q 2.10**
Q 2.1	3.10	1.32	1.00									
Q 2.2	3.13	1.34	0.83***	1.00								
Q 2.3	4.12	1.13	0.58***	0.57***	1.00							
Q 2.4	3.95	1.12	0.46***	0.46***	0.75***	1.00						
Q 2.5	3.97	1.14	0.42***	0.42***	0.70***	0.77***	1.00					
Q 2.6	3.48	1.32	0.53***	0.54***	0.42***	0.53***	0.48***	1.00				
Q 2.7	2.53	1.28	0.69***	0.67***	0.36***	0.38***	0.37***	0.53***	1.00			
Q 2.8	3.67	1.32	0.56***	0.59***	0.50***	0.50***	0.42***	0.69***	.43***	1.00		
Q 2.9	3.65	1.33	0.57***	0.59***	0.52***	0.58***	0.45***	0.73***	.44***	0.94***	1.00	
Q 2.10	3.62	1.32	0.59***	0.57***	0.48***	0.51***	0.49***	0.73***	.45***	0.91***	0.92***	1.00

In addition to correlation analysis, Kaiser's Measure of Sampling Adequacy (MSA) scores were used to test the model fit and individual variables. Table 4-13 below shows the MSA scores for testing model fit and individual variables of the enterprise performance scale. The overall MSA score of the enterprise performance scale is 0.862, which is above 0.80, while individual MSA scores are above 0.5. A good overall MSA score should be larger than or close to 0.8 and individual MSA scores should be above 0.5, below which they are argued to be problematic (Lee, 2016).

Table 4-13: MSA scores for testing model fit and individual variables of the enterprise performance scale

Kaiser's Measure of Sampling Adequacy: Overall MSA = 0.862									
EP1	**EP2**	**EP3**	**EP4**	**EP5**	**EP6**	**EP7**	**EP8**	**EP9**	**EP10**
0.839	0.883	0.858	0.820	0.819	0.957	0.887	0.858	0.833	0.880

Two methods were used to decide on the number of factors for each scale: the relative proportion of variation explained by each factor, as well as the Scree Plot. Table 4-14 below presents the Eigenvalues of the reduced correlation matrix of the enterprise performance scale. Analysis of the proportion of variation, added by each factor, indicates that three factors are selected that have a cumulative proportion of variation of 1.025 (103 %).

Table 4-14: Eigenvalue table of the enterprise performance scale

Eigenvalues of the Reduced Correlation Matrix: Total = 7.55647581 Average = 0.75564758				
Scale item	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
Q 2.1	5.943	4.949	0.787	0.787
Q 2.2	0.994	0.186	0.132	0.918
Q 2.3	0.808	0.625	0.107	1.025
Q 2.4	0.183	0.169	0.024	1.049
Q 2.5	0.014	0.031	0.002	1.051
Q 2.6	-0.017	0.056	-0.002	1.049
Q 2.7	-0.072	0.007	-0.010	1.039
Q 2.8	-0.080	0.014	-0.011	1.029
Q 2.9	-0.094	0.030	-0.012	1.016
Q 2.10	-0.123		-0.016	1.000

The scree plot also helps decide on the number of factors. Based on Cattell's (Cattell, 1966) scree test for number of factors, three factors are evident from the scree plot (see Figure 4-7 below).

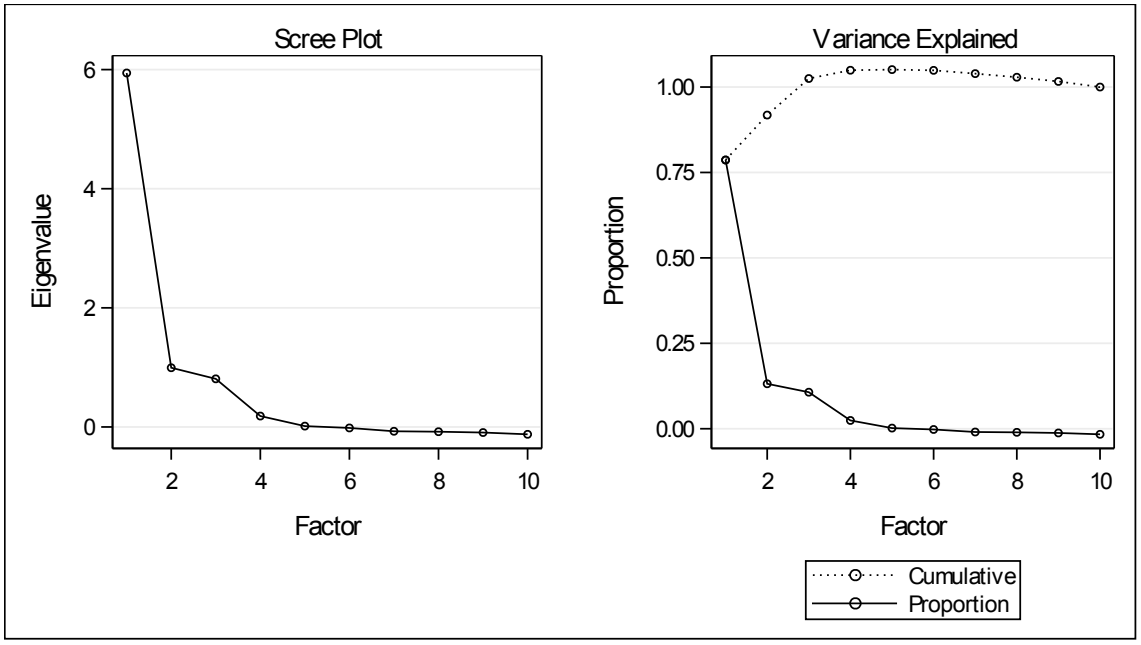


Figure 4-7: Scree plot from EFA of the enterprise performance scale

The factor loadings of the final model are presented in the rotated factor pattern in Table 4-15 below. The results show that the scale items load into three factors: factor 1 (scale items 2.8-2.10, 2.6); factor 2 (scale items 2.1, 2.2, 2.7); and factor 3 (scale items 2.3-2.5).

Table 4-15: Factor loadings of final model for the enterprise performance scale

Rotated Factor Pattern (Standardised Regression Coefficients)			
Scale item	**Factor1**	**Factor2**	**Factor3**
Q 2.8	0.992		
Q 2.9	0.990		
Q 2.10	0.953		
Q 2.6	0.578		
Q 2.1		0.910	
Q 2.2		0.869	
Q 2.7		0.809	
Q 2.4			0.894
Q 2.5			0.890
Q 2.3			0.783

Table 4-16 below presents correlations between factors. The results show that the correlations are not extremely high, and that are all less than 0.5.

Table 4-16: Correlations between enterprise performance factors

Reference Axis Correlations			
	Factor1	**Factor2**	**Factor3**
Factor1	1.000	-0.480	-0.339
Factor2	-0.480	1.000	-0.353
Factor3	-0.339	-0.353	1.000

4.5.2 EFA of the entrepreneurial motivation scale and results for hypothesis 1

Table 4-17 below presents the correlation matrix of the scale items of the entrepreneurial motivation scale. The results show that most of the correlations are above 0.3 and statistically significant at 1 % significance level, giving an indication that they can be grouped together. The Bartlett's Test of Sphericity (Bartlett, 1954) $(\chi^2 = 791.460, p = 0.000)$ indicated that the correlations between the scale items were large enough to run the factor analysis.

Table 4-17: Descriptive statistics and correlation of the entrepreneurial motivation scale items

DESCRIPTIVE STATISTICS & PEARSON CORRELATIONS																	
	M	**SD**	Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 3.6	Q 3.7	Q 3.8	Q 3.9	Q 3.10	Q 3.11	Q 3.12	Q 3.13	Q 3.14	Q 3.15
Q 3.1	3.02	1.36	1.00														
Q 3.2	4.37	0.98	0.31***	1.00													
Q 3.3	4.51	0.83	0.33***	0.77***	1.00												
Q 3.4	4.41	0.83	0.02	0.49***	0.63***	1.00											
Q 3.5	4.58	0.73	0.10	0.45***	0.57***	0.76***	1.00										
Q 3.6	2.12	1.44	0.30***	0.20*	0.09	-0.01	0.05	1.00									
Q 3.7	1.21	0.72	-0.02	-0.20*	0.03	0.13	0.12	0.22**	1.00								
Q 3.8	4.58	0.83	0.09	0.40***	0.60***	0.62***	0.62***	-0.15	.09	1.00							
Q 3.9	3.48	1.39	0.20*	0.35***	0.37***	0.32***	0.26**	-0.12	-.27**	0.31***	1.00						
Q 3.10	4.42	0.80	-0.02	0.40***	0.54***	0.79***	0.72***	-0.07	.06	0.70***	0.34***	1.00					
Q 3.11	2.19	1.37	0.25**	0.14	0.20*	0.11	0.19*	0.14	-.04	0.01	0.12	-0.01	1.00				
Q 3.12	4.53	0.82	-0.04	0.34***	0.42***	0.73***	0.67***	-0.18*	.04	0.73***	0.25**	0.84***	0.00	1.00			
Q 3.13	4.46	0.83	0.01	0.37***	0.46***	0.75***	0.72***	-0.10	.10	0.57***	0.25**	0.75***	0.04	0.76***	1.00		
Q 3.14	4.30	1.06	0.100	0.28***	0.46***	0.48***	0.52***	-0.09	-.10	0.50***	0.31***	0.41***	0.13	0.43***	0.37***	1.00	
Q 3.15	3.15	1.42	0.56***	-0.00	0.11	-0.11	0.04	0.24**	.20*	-0.04	-0.03	-0.20*	0.27***	-0.19*	-0.08	0.06	1.00

The Kaiser's MSA scores for the entrepreneurial motivation scale are presented in Table 4-18 below. The overall MSA score of the enterprise performance scale

is 0.816, which is above 0.80. The results show that only one factor had an MSA value of less than 0.5, and given that the overall MSA score is above 0.8, it was not excluded in the analysis. The rest of the factors have MSA scores from 0.5 and above.

Table 4-18: MSA scores for testing model fit and individual variables of the entrepreneurial motivation scale

Kaiser's Measure of Sampling Adequacy: Overall MSA = 0.816														
EM1	**EM2**	**EM3**	**EM4**	**EM5**	**EM6**	**EM7**	**EM8**	**EM9**	**EM10**	**EM11**	**EM12**	**EM13**	**EM14**	**EM15**
0.658	0.691	0.749	0.922	0.912	0.496	0.352	0.875	0.850	0.870	0.634	0.822	0.916	0.844	0.604

Table 4-19 below presents the Eigenvalues of the reduced correlation matrix of the entrepreneurial motivation scale. Based on the analysis of the proportion of variation added by each factor, four factors are selected that have a cumulative proportion of variation of 1.023 (102 %).

Table 4-19: Eigenvalue table of the entrepreneurial motivation scale

Eigenvalues of the Reduced Correlation Matrix: Total = 8.55779495 Average = 0.57051966				
	Eigenvalue	**Difference**	**Proportion**	**Cumulative**
1	5.595	3.883	0.654	0.654
2	1.712	0.774	0.200	0.854
3	0.938	0.426	0.110	0.964
4	0.512	0.241	0.060	1.023
5	0.272	0.047	0.032	1.055
6	0.225	0.155	0.026	1.081
7	0.069	0.015	0.008	1.089
8	0.054	0.063	0.006	1.096
9	-.0094	0.035	-0.001	1.095
10	-0.044	0.028	-0.005	1.090
11	-0.072	0.052	-0.008	1.081
12	-0.124	0.025	-0.015	1.067
13	-0.149	0.028	-0.017	1.049
14	-0.177	0.067	-0.021	1.029
15	-0.244		-0.029	1.000

Using Cattell's (Cattell, 1966) scree test for number of factors, four factors are evident from the scree plot in Figure 4-8 below.

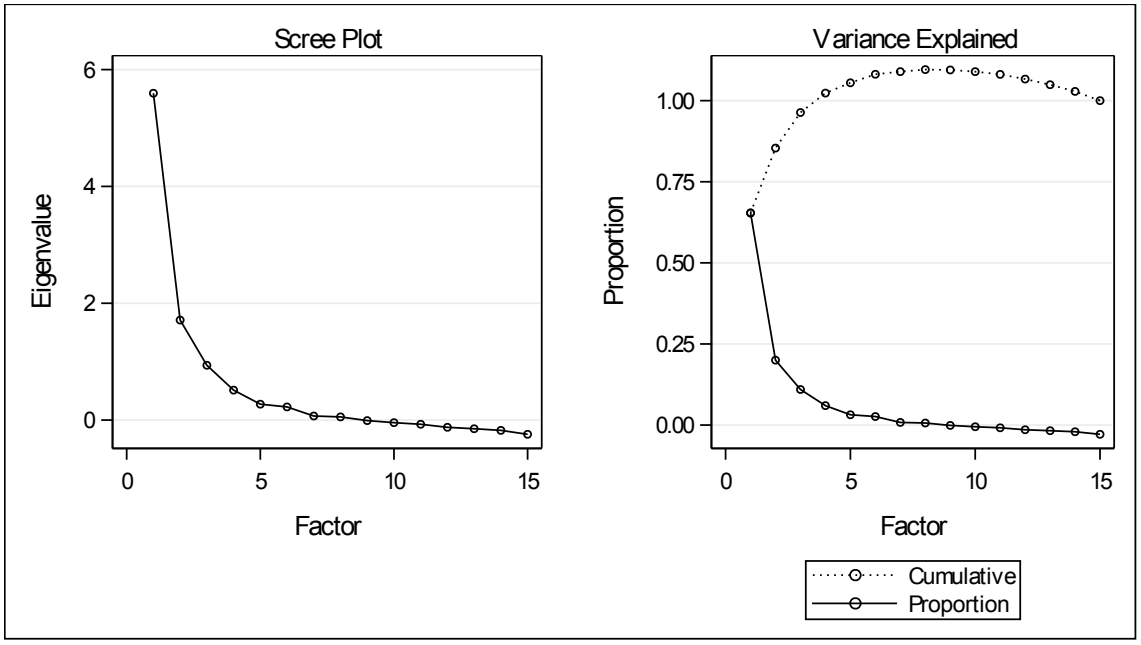


Figure 4-8: Scree plot from EFA of the entrepreneurial motivation scale

Table 4-20 below presents factor loadings of the final model for the entrepreneurial motivation scale. The results show that the scale items load into four factors: factor 1 (scale items 3.12, 3.10, 3.13, 3.8, 3.5, 3.4, 3.14), factor 2 (scale items 3.2 and 3.3), factor 3 (scale items 3.15, 3.1, 3.11) and factor 4 (scale items 3.7, 3.6, 3.9).

Table 4-20: Factor loadings of final model for the entrepreneurial motivation scale

Rotated Factor Pattern (Standardised Regression Coefficients)				
Scale items	**Factor1**	**Factor2**	**Factor3**	**Factor4**
Q 3.12	0.956			
Q 3.10	0.855			
Q 3.13	0.848			
Q 3.8	0.808			
Q 3.5	0.806			
Q 3.4	0.773			
Q 3.14	0.561			
Q 3.2		0.932		
Q 3.3		0.643		
Q 3.15			0.761	
Q 3.1			0.631	
Q 3.11			0.384	
Q 3.7				0.599
Q 3.6				0.433
Q 3.9				-0.414

Table 4-21 below presents correlations between entrepreneurial motivation factors. The results show that the correlations are not extremely high and are all less than 0.6.

Table 4-21: Correlations between entrepreneurial motivation factors

Reference Axis Correlations				
	Factor1	**Factor2**	**Factor3**	**Factor4**
Factor1	1.000	-0.588	0.251	-0.013
Factor2	-0.588	1.000	-0.489	0.246
Factor3	0.251	-0.489	1.000	-0.237
Factor4	-0.013	0.246	-0.237	1.000

4.6 Testing the hypothesised conceptual framework

Figure 4-9 below presents a recap of the hypothesised conceptual framework, showing how entrepreneurial motivations, individual and enterprise control factors affect enterprise performance. This section presents results from multiple regression analysis to test the relationships hypothesised in the conceptual framework. For the regression analysis, the dependent variable was enterprise performance, which was factored into three factors as indicated in Subsection 4.5.1 above. For empirical analysis, this study estimated four regression models for each hypothesised relationship, one with all the enterprise factors grouped into one factor, and three others using the three different factors as dependent variables.

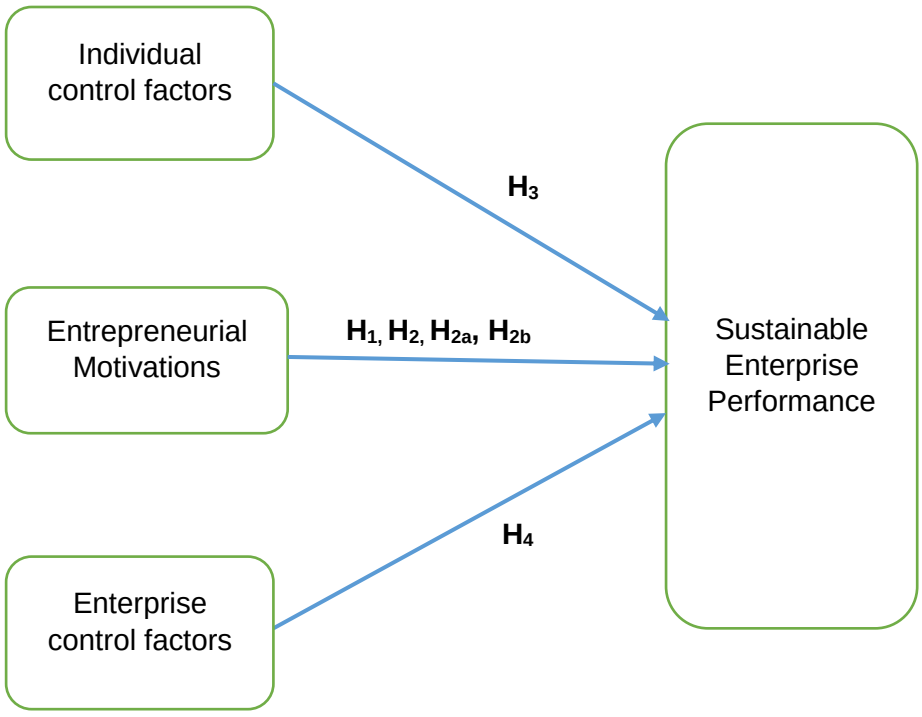


Figure 4-9: Revisited conceptual framework of how entrepreneurial motivations, individual and enterprise control factors affect enterprise performance

4.6.1 Exploring the relationship between motivations of sustainable entrepreneurship and enterprise performance

This section presents results for hypotheses 2, 2a and 2b. These hypotheses are restated below for ease of reference.

> ***H_2:*** *There is a significant positive relationship between entrepreneurial motivations and performance of sustainable enterprises in Gauteng Province.*

> ***H_{2a}:*** *There is a significant positive relationship between extrinsic motivations and performance of sustainable enterprises in Gauteng Province.*

> ***H_{2b}:*** *There is a significant positive relationship between intrinsic motivations and performance of sustainable enterprises in Gauteng Province.*

The entrepreneurial motivations scale was factored into four factors and these were used as regressors in the multiple regression (OLS) models which were estimated to test the relationships between entrepreneurial motivations and enterprise performance. Table 4-22 below presents the descriptive statistics and correlations of the variables. The correlations between variables were all less than 0.5, except for the one between entrepreneurial motivation factors 1 and 2 which was 0.58.

Table 4-22: Descriptive statistics and correlations for variables used to test Hypotheses 1, 2, 2a and 2b

DESCRIPTIVE STATISTICS & PEARSON CORRELATIONS						
	M	**SD**	**1.**	**2.**	**3.**	**4.**
Enterprise Performance	3.52	0.99				
EPFactor1	3.60	1.23				
EPFactor2						
EP Factor3						
1. EMFactor1	4.47	0.70	1.00			
2. EMFactor2	4.44	0.86	0.58***	1.00		
3. EMFactor3	2.79	1.05	0.02	0.25**	1.00	
4. EMFactor4	2.27	0.66	0.20*	0.34***	0.32***	1.00

*Notes: M = Variable mean, SD = standard deviation, *** = p < .01, ** = p < .05, * = p < .10*

The multiple regression model results from estimating the relationships between entrepreneurial motivations and enterprise performance are presented in Table 4-23 below. The regression models were also run with a heteroscedasticity-robust standard error estimation to address the potential problems of outliers and heteroscedasticity. The R-Square of the model was the same (0.14) for both the OLS and robust regression estimations. The Analysis of Variance F statistic $(F = 3.56, p = 0.010)$ was statistically significant at 5 % significance level.

Table 4-23: Regression results for Hypotheses 1, 2, 2a and 2b

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	1.29*		0.073	-0.12 to 2,70	0	0.48		0.261	-0,36 to 1,32
Factor1	0.24	0.17	0.183	-0.11 to 1,54	1.542	0.46***	0.33	0.000	0,25 to 0,68
Factor2	0.13	0.11	0.393	-0.17 to 0,43	1.714	0.15	0.13	0.116	-0,04 to 0,33
Factor3	0.26**	0.27	0.014	0.05 to 0,46	1.177	0.23***	0.24	0.001	0,1 to 0,36
Factor4	-0.05	-0.04	0.746	-0.38 to 0,27	1.219	-0.02	-0.01	0.847	-0,23 to 0,18
R Square	**0.14**					**0.14**			

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

In the OLS estimation, only motivation factor 3 shows a positive and statistically significant relationship with enterprise performance, at 5 % significant levels. In the robust regression estimation, motivation factors 1 and 3 indicate a positive and significant relationship with enterprise performance, at 1 % significance level. Factors 2 and 4 indicate a positive and negative relationship, respectively, with enterprise performance and both are insignificant in the estimations.

Figure 4-10 below presents appropriate diagnostics tests for the regression model estimation, using a combined enterprise performance factor as the dependent variable. The residual normality plots (the two graphs at the bottom left corner) indicate that the data approximate a normal distribution. Similar regression runs were performed using the three enterprise performance factors as dependent variables and the results are presented in Appendix 1a for reference. All models indicated statistically significant model fit, both based on the Analysis of Variance F statistic and using residual normality plots. Despite changes in R-Square and statistical significance of the entrepreneurial motivation coefficients, the relationships indicated the same signs for all models.

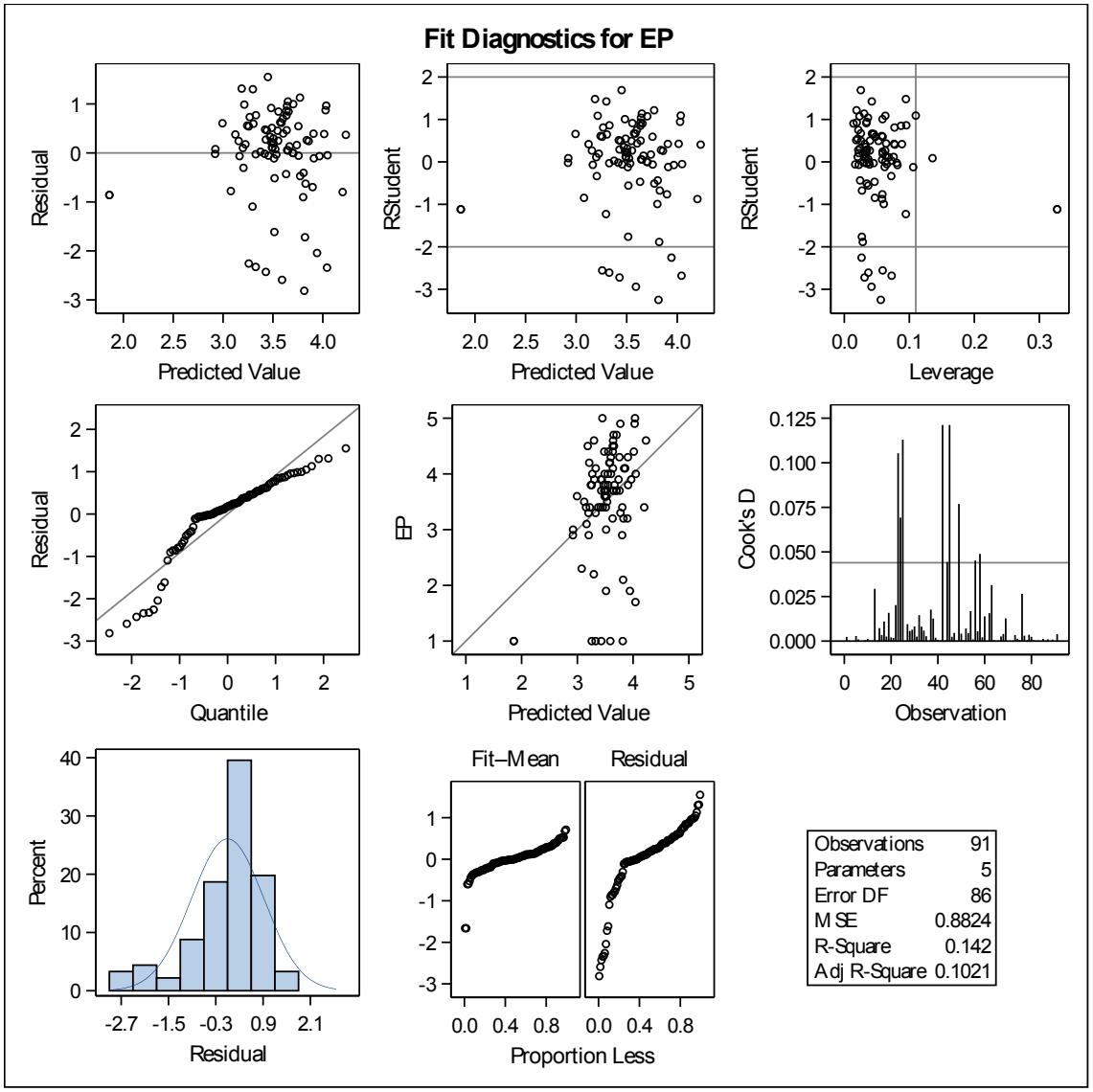


Figure 4-10: Fit diagnostic for the regression model using a combined enterprise performance

4.6.2 Exploring the relationship between individual control factors and enterprise performance

The third hypothesis of this study was to test the relationship between individual control factors of the owner/manager of the interviewed enterprises and the

performance of their enterprises. Hypothesis 3 is restated below for ease of reference.

> ***H_3:*** *There is a significant positive relationship between individual factors and performance of sustainable enterprise in Gauteng Province.*

Similar to the above regression analysis, four separate multiple regressions were performed using the four different dependent variables described above (combined enterprise performance scale variable and the three factors of enterprise performance). The results presented below are based on the combined enterprise performance scale as the dependent variable and the rest are presented in Appendix 1b.

The descriptive statistics of the regressors used in this section are presented in Table 4-24 below, which presents the descriptive statistics and correlations between continuous variables in the model. The correlations between variables were not very high as would indicate problems of multicollinearity, and are 0.5 and less.

Table 4-24: Descriptive statistics and correlations of individual factors

DESCRIPTIVE STATISTICS & PEARSON CORRELATIONS						
	M	**SD**	**1.**	**2.**	**3.**	**4.**
1. Age	31.57	7.42	1.00			
2. Sector experience	4.19	2.45	.37***	1.00		
3. Management experience	2.57	1.81	.41***	.52***	1.00	
4. Full-time employees	1.77	1.71	.13	.22**	.44***	1.00

Table 4-25 below presents results of the parameters of regression models (both OLS and robust regression model estimations) for testing the relationship between individual control factors and enterprise performance. The Adjusted R-Square of the OLS regression model is 0.10, indicating that the model accounts for about 10 % of the variation in enterprise performance. Robust estimation results show that the explanatory power of the model reduces to 4 %, as indicated by an R-Square value of 0.04. The Analysis of Variance F statistic $(F = 3.01, p = 0.015)$ was statistically significant, at 5 % significance level.

Table 4-25: Regression results for Hypothesis 3

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	3.13***		0.000	2,14 to 4,11	0	3.33***		0.000	2.57 to 4.09
Age	-0.01	-0.06	0.606	-0,04 to 0,02	1.207	0.01	0.04	0.62	-0.02 to 0.03
Male	-0.02	-0.01	0.930	-0,52 to 0,48	1.206	-0.08	-0.03	0.69	-0.48 to 0.32
Degree & postgraduate (Yes = 1/0)	0.13	0.06	0.573	-0,32 to 0,57	1.154	0.21	0.1	0.243	-0.14 to 0.55
Owner/manager previous business experience (Yes=1/0)	0.08	0.03	0.758	-0,45 to 0,61	1.104	0.13	0.05	0.526	-0.28 to 0.54
Business management experience	0.21***	0.39	0.001	0,09 to 0,34	1.293	0.06	0.11	0.246	-0.04 to 0.16
R Square	**0.15**					**0.04**			
Adj. R Square	**0.10**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

The results show that only business management experience of the owner/manager and the intercept have a positive and significant relationship with enterprise performance (at 1 % significant level) in the OLS regression estimation. However, the business management experience of owner/manager variable becomes insignificant in the robust regression estimation. The rest of the factors had statistically insignificant relationships with enterprise performance.

The diagnostic fit for the regression model estimation, using a combined enterprise performance factor as the dependent variable and individual control factors as independent variables, is shown in Figure 4-11 below. The residual

normality plots (the two graphs at the bottom left corner) indicate that the data approximate a normal distribution. The other regression runs with different factors of enterprise performance as dependent variables also indicate a statistically significant model fit, both based on the Analysis of Variance F statistic and using residual normality plots.

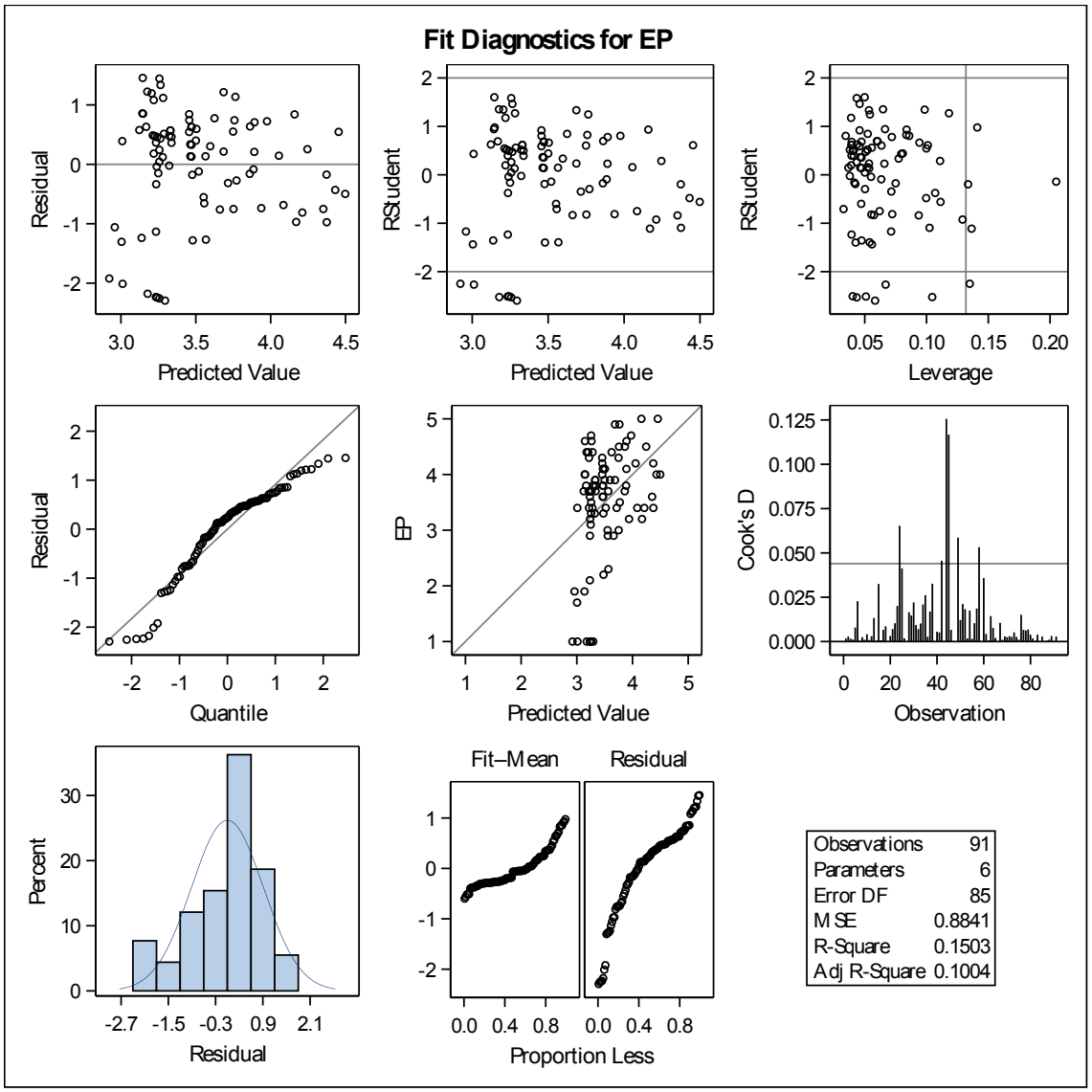


Figure 4-11: Fit diagnostic for the regression model using a combined enterprise performance and individual control factors

4.6.3 Exploring the relationship between enterprise control factors and enterprise performance

Hypothesis 4 tests the relationship between enterprise control factors and enterprise performance. Hypothesis 4 is restated below for ease of reference.

> ***H_4:*** *There is a significant positive relationship between enterprise control factors and performance of sustainable enterprises in Gauteng Province.*

As with the other regressions above, four different dependent variables described above were utilised (combined enterprise performance scale variable and the three factors of enterprise performance). The results presented below are based on the combined enterprise performance scale as the dependent variable and the rest are presented in Appendix 1c.

Table 4-26 below shows the descriptive statistics and correlations of the regressors used in this section. The correlations between age of business enterprise and full-time employees are less than 0.5, indicating that there are no problems of multicollinearity in the model.

Table 4-26: Descriptive statistics and correlations of individual factors

DESCRIPTIVE STATISTICS & PEARSON CORRELATIONS				
	M	**SD**	**1.**	**2.**
1. Age of business	2.27	1.56	1.00	
2. Full-time employees	1.77	1.71	.39***	1.00

Table 4-27 below shows the results of the parameters of regression models (both OLS and robust regression model estimations) for testing the relationship between enterprise control factors and enterprise performance. The Adjusted R-Square of the OLS regression model is 0.22 and the R-Square of the robust

estimation results is 0.06. The Analysis of Variance F statistic $(F = 13.38, p = 0.000)$ was statistically significant at 1 % significance level. Both regressors (age of business and number of full-time employees) have a positive relationship with enterprise performance in both estimations. In addition, the relationship is statistically significant for both factors in the OLS regression at 5 % and 1 % significance level, respectively, while only the number of full-time employees is statistically significant at 5 % in the robust estimation.

Table 4-27: Regression results for Hypothesis 3

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	2.85***		0.000	2,52 to 3,19	0	3.39***		0.000	3.10 to 3.69
Age of business	0.13**	0.20	0.047	0,001 to 0,26	1.18376	0.07	0.11	0.180	-0.03 to 0.18
Full-time employees	0.21***	0.36	0.000	0,09 to 0,33	1.18376	0.11**	0.18	0.027	0.01 to 0.20
R Square	**0.23**					**0.06**			
Adj. R Square	**0.22**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

The diagnostic fit for the regression model estimation using a combined enterprise performance factor as the dependent variable and enterprise control factors as independent variables is shown in Figure 4-12 below. Similar to the other regressions results above, the residual normality plots (the two graphs at the bottom left corner) indicate that the data approximate a normal distribution. The other regression runs, with different factors of enterprise performance as dependent variables, also indicate statistically significant model fit, both based on the Analysis of Variance F statistic and using residual normality plots.

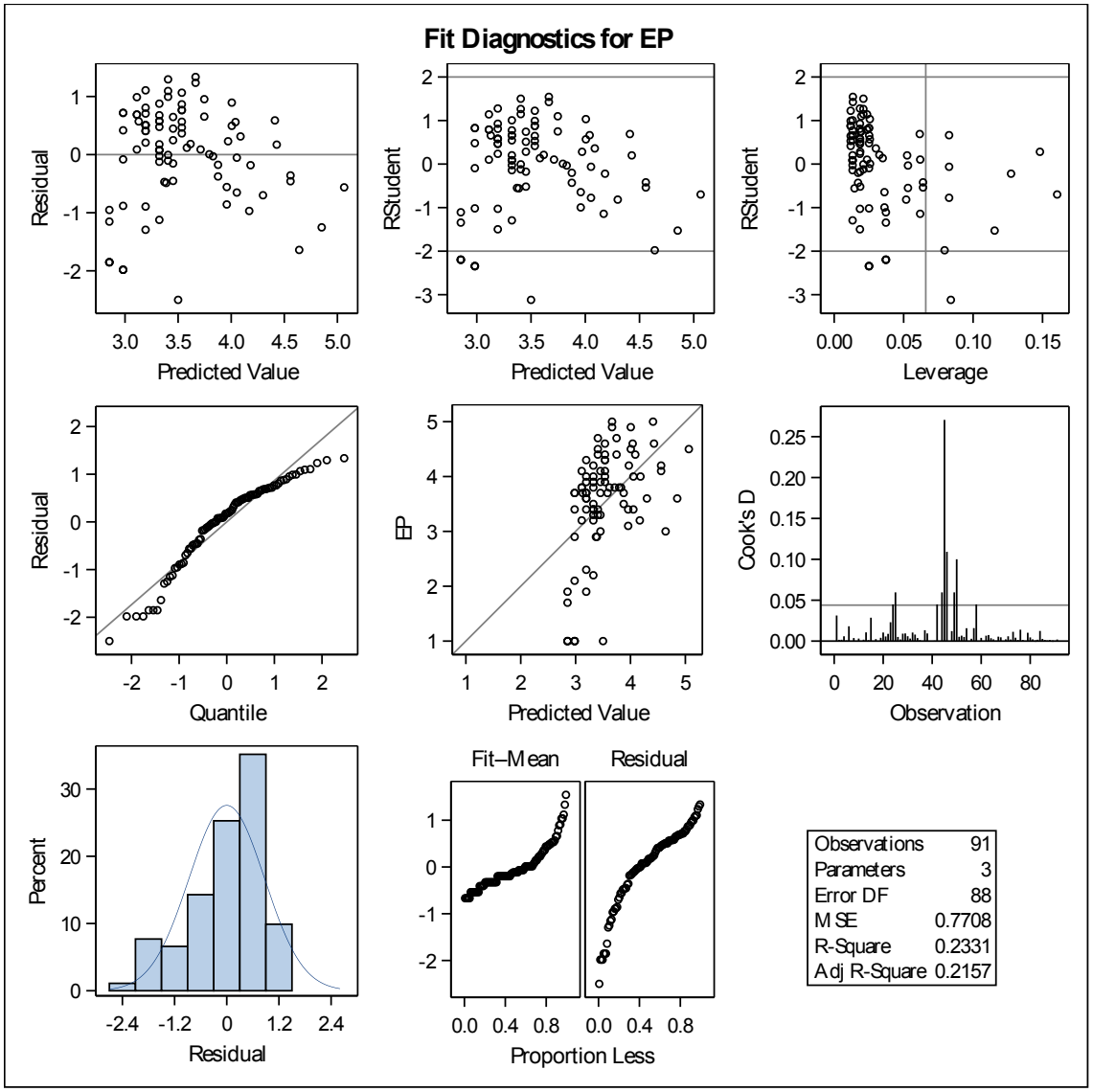


Figure 4-12: Fit diagnostic for the regression model using a combined enterprise performance and enterprise control factors

4.7 Summary of the results

This chapter presented the results from the empirical analysis of the data collected for the study. Descriptive statistics and cross-tabulations were used to describe the sample of the study and association between categorical variables in the data. The reliability of the enterprise performance and entrepreneurial

motivation scales were then analysed using Cronbach's Coefficient Alpha test. The results indicate that the scales used in the study were reliable, with Alpha scores above 0.8. Exploratory Factor Analyses was used to investigate whether the different variables in the enterprise performance and entrepreneurial motivation scales could be grouped together into specific factors. The results showed that the enterprise performance scale factored into three separate factors, while the motivation factor factored into four factors.

The three factors of the enterprise performance scale were used as dependent variables in separate regression estimations. The four motivation factors were used as independent variables to test the relationship between enterprise performance and motivations. Multiple regression analyses (both OLS and robust regression estimations) were used to test the hypothesised conceptual framework of the study. The results presented in this chapter are discussed and explained in the next chapter, including exploring their implications for sustainable entrepreneurship in Gauteng Province.

CHAPTER 5: DISCUSSION OF EMPIRICAL FINDINGS OF THE RESEARCH

5.1 Introduction

This chapter discusses and explains the empirical results of the study that were presented in Chapter 4. The first part of the chapter discusses the descriptive statistics of the sample. The second part of the discussion focuses on reliability tests of the enterprise performance scale and motivation scale. Results from EFA are then discussed and explained, including the final factors used in the multiple regression analysis. The last part discusses and explains empirical results from the multiple regression analyses used to test the hypothesised conceptual framework of the study. The discussions presented in this study are compared with findings from literature, some of which have been discussed in the introductory parts of the research report.

5.2 Descriptive profile of the study sample

The data used for the empirical analyses for this study were gathered using a survey questionnaire. The initial plan was to distribute the questionnaire to all identified sustainable enterprises in Gauteng Province; however, during implementation of the survey, this proved to be difficult to achieve. Other methods were employed to address the challenge, including conducting telephonic interviews and sending electronic questionnaires to respondents who asked for the questionnaire so that they could complete it. Face-to-face interviews were also conducted after calling the respondents and making arrangements, and an online survey was also used. The mixed methods approach to data collection helped collection of data from quite a number of the sustainable enterprises on the list.

Overall, a total of 95 surveys were collected during the data collection; however, four questionnaires were dropped during analyses as the responses were not adequately provided to all questions to be included in the final analyses. The final sample represented a response rate of 61 %. The response rate is comparable with other studies that have surveyed businesses to study their motivations, such as Benzing et al. (Benzing et al., 2009) who conducted a factor analysis of motivations, success factors and problems among entrepreneurs in Turkey with a sample of 139 respondents (79 % response rate). Similarly, Jayawarna et al. (Jayawarna et al., 2013) studied entrepreneur motivations and life course, based on two research samples with responses rates of 23 % and 49 %, respectively, in disadvantaged areas in England.

5.2.1 Gender of the respondents

The study sample consisted of more male (76 %) and fewer female (24 %) respondents. This finding is in accordance with research on motivations of starting new enterprises in other developing countries that also found male-dominated samples, for example in Ghana (64 % male) and in Kenya (65 % male) (Chu, Benzing, & McGee, 2007); in Kenya (65 % male), Ghana (64 % male) and Nigeria (69 % male) (Benzing & Chu, 2009); and in Indonesia (86 % male) (Machmud & Sidharta, 2016). Although it is difficult to argue that more males are involved in sustainable entrepreneurship than females are, overall findings from Global Entrepreneurship Monitor (GEM) reports indicate higher Total Early-Stage Entrepreneurial Activity (TEA) among males than females (Herrington & Kew, `2016). The impact of this factor is further analysed on how it affects enterprise performance.

5.2.2 Age profile of the respondents

The distribution of the age of respondents showed a high proportion of the respondents in the 25–34 age group and very few in the 15–24 age group and

the 45 and above age group. Other research studies have also found relatively similar average ages of entrepreneurs in studying motivations driving venturing into entrepreneurship, for example in Ghana (average age was 35 years) and in Kenya (average age was 33 years) (Chu et al., 2007). Furthermore, the results indicate similar findings as the GEM reports that show low entrepreneurial activity in the young ages between 18–24, with a peak of entrepreneurial activity in the 25–34 age group, and a decline after that (Herrington & Kew, 2016).

The high entrepreneurial activity of the 25–34 age group can also be explained by the fact that most of them have completed their education training (diploma or degree) and in the face of employment challenges, engaging in entrepreneurial activities provides a significant economic activity for this age group. The lack of entrepreneurial activity in sustainable entrepreneurship in Gauteng Province relates to an overall lack of entrepreneurial activity among the youth in the country (Herrington & Kew, 2016). The growing attention to sustainable development provides opportunities for raising awareness and training the youth in entrepreneurship opportunities in the sustainable development area. Cross-tabulations of gender and age of respondents showed no association between the two variables.

5.2.3 Education profile of the respondents

The results of the education profile indicate that 52 % of the respondents had completed a diploma/degree and 14 % had completed post-graduate training, while 15 % had completed high school. The GEM South Africa 2015–2016 Report indicates that 67 % of early-state entrepreneurs obtained at least a secondary qualification (Herrington & Kew, 2016). The relatively high percentage of respondents with high levels of education might indicate the ability to identify entrepreneurship opportunities in the sustainability area and/or a lack of economic opportunities which might absorb those who have completed formal education training, thus forcing them to take up entrepreneurial activities. Linked to the lack of entrepreneurial activities among the youth described above, there

is a need for efforts to be made, aimed at entrenching entrepreneurial skills among the youth in formal education. This would help them to become more entrepreneurial and increase the chances of growth of sustainable entrepreneurship.

The cross-tabulations between educational level and gender and age of respondents showed highly significant relationships between educational level and gender (at 5 % significance level) and age of respondents (at 1 % significance level). The significant relationship between gender and educational level might reflect unequal education opportunities between men and women. Although various efforts have been made to reduce inequalities in access to education opportunities between men and women in South Africa, there are still disparities. The effects of gender and educational level of respondents are tested as to how they affect enterprise performance as part of individual control factors of the owner/manager of the interviewed sustainable enterprises.

The significant relationship between educational level and age of respondents shows that entrepreneurs attain higher educational levels with age. Education (either formal or informal) is important in helping to develop entrepreneurial competencies and the GEM research indicates a strong relationship between perceived skills and TEA (Herrington & Kew, 2016). However, it is critical that the education that is attained should build entrepreneurial competencies in priority areas of the target economy.

5.2.4 Previous business ownership profile of the respondents

Previous business ownership helps to develop entrepreneurial experience that can positively affect the performance of current enterprises owned that respondents with such experience. In this case, owners/managers with previous business ownership experience are expected to have gained appropriate management skills and competencies that they can apply in running their sustainable enterprises and so perform better than those without previous

business ownership experience. The results from the analysis indicate that 81 % of the respondents had no previous business experience. This indicates that the majority of these respondents have their current enterprises as the first business enterprises that they either own and/or manage. The effect of this variable on enterprise performance was also tested and is discussed in the respective sections below.

5.2.5 Age of business enterprises

Similar to previous business ownership experience of the owner, business enterprises that have been operating for a number of years are expected to perform better than those that are in their early stages of development. The results showed that the average age of the sampled business enterprises was 2.27, with 88 % of the businesses having been operation between 1 and 5 years. The young age of sustainable enterprises could be explained by the fact that sustainable entrepreneurship has only recently gained prominence, with the growing issues of sustainable development and climate change. The South African Government has in recent years (since the signing of the National Green Accord in 2010) allocated substantial resources and support to green growth investments.

Many sustainable enterprises have been formed to take advantage of the opportunities within the sustainable development area. The recent adoption of the Sustainable Development Goals and Agenda 2030 by the United Nations implies that opportunities that relate to sustainable entrepreneurship across all sectors would continue to grow in the future. Furthermore, the active involvement of South Africa in making efforts to transform the economy into one with a sustainable development growth path also means that local opportunities in sustainable entrepreneurship would require the country to build entrepreneurial competencies and skills in the area.

5.3 Descriptive analysis of the scales

5.3.1 Enterprise performance scale

The results of the enterprise performance scale included perceived performance of the enterprise on social and environmental objectives (scale items 2.6–2.10) in addition to economic objectives. The results show that the respondents had relatively high perceptions of the performance of their enterprises on all the social and environmental scale items goals, in addition to economic performance objectives, particularly scale items 2.3–2.5. The discussions in the literature presented in Chapter 2 highlighted the point that sustainable enterprises also consider social and environmental objectives as part of their mandate.

With sustainable enterprises, achievement of the social and environmental objectives also contributes to improving economic objectives, either directly or indirectly. For example, sustainable enterprises can be directly rewarded for achieving specific environmental and social goals, such as contributing to reducing carbon dioxide emissions through participating in carbon markets. Alternatively, sustainable enterprises can indirectly improve their economic performance as their improved image through achieving environmental and social objectives attracts more business and customers that are in the sustainable development space. With the growing interest in sustainable development, sustainable enterprises would expect to grow their market shares and economic performance.

The descriptive statistics of the enterprise performance scale show that all the scale items are negatively skewed, except scale item 2.7. The analysis of the kurtosis indicates mostly negative values, which implies a platykurtic statistical distribution. This means that the scores of these scale items are centrally distributed with thinner tails, compared with normal distribution. The scale items with positive kurtosis indicate leptokurtic distribution of these items, meaning more scores are in the tails of the distribution.

5.3.2 Entrepreneurial motivation scale

The entrepreneurial motivation scale consisted of scale items that ranged from push and pull economic factors to social and environmental factors which capture the motivations beyond economic opportunities and necessities. The results show that the scale items on personal autonomy (3.2 and 3.3), as well as opportunity driven factors (scale items 3.5 and 3.8), were highly scored by the respondents as indicated by the scores on either “agreed” or “strongly agreed”. In addition, social and environmental factors (scale items 3.10 and 3.12-3.14) also received high scores with either “agreed” or “strongly agreed” responses.

The results show that by their very nature, sustainable entrepreneurs are motivated by multiple factors that range from economic, social to environmental. Although these factors are not equally important and while it is difficult in this study to assess the relative importance of each, what is important is the consideration of economic, social and environmental is a critical factor in promoting sustainable entrepreneurship. Similar to the discussion on the enterprise performance scale above, the growing realisation of the need to achieve sustainable development at the global, national and local levels creates opportunities for sustainable entrepreneurship that can be exploited to drive local economic development, while simultaneously addressing social and environmental goals.

The analysis of the descriptive statistics of the entrepreneurial motivation scale shows that all the scale items are negatively skewed, except items 3.6, 3.7 and 3.11. The kurtosis results indicate that most of the scale items have leptokurtic distributions, except 3.6, 3.9. 3.11 and 3.15 which have platykurtic statistical distributions. The scale items with leptokurtic distributions have more scores in the tails of the distribution, while the few that show platykurtic distributions are centrally distributed with thinner tails compared with normal distribution.

5.4 Testing reliability of the scales

The reliability of the enterprise performance and entrepreneurial motivation scales was tested using the Cronbach's alpha coefficient (Cronbach, 1951). The empirical results show that the alpha coefficients 0.93 (with standardised variables) for the enterprise performance scale, and 0.84 (with standardised variables) for the entrepreneurial motivation scale, are above the acceptable levels of at least 0.7. The results indicate that the scales were reliable and it was therefore not necessary to adjust the scales.

5.5 Exploratory factor analysis of the scales

The EFA with a Principal Axis Factoring approach was used to investigate the factorability of the scale items into specific sets of factors. Rotation methods that can be used in EFA include rotations that allow correlation between factors (such as the Harris Kaiser (HK) Case 11 rotation) and those that do not allow factors to be correlated (such as the varimax) (Lee, 2016). Researchers select the type of rotation method they would want to use, depending on whether they would allow factors to correlate or not. In this study, both the above methods were used and, given that in business the underlying factors would be expected to correlate (Lee, 2016), this study presented results of EFA using the HK rotation method. Correlation analysis of the final factor loadings indicated that they were not highly correlated as might indicate problems of multicollinearity.

The correlation analysis was used to check if the association between the different factors which provides an indication of whether they can be grouped together. The results of the correlation matrices for both the enterprise performance and entrepreneurial motivation scales were mostly above 0.3 and statistically significant. In addition, the Bartlett's tests of Sphericity (Bartlett, 1954) for both scales were statistically significant at 1 % significance level, indicating that the correlations between the scale items in each scale were large enough to run factor analysis.

The Kaiser MSA scores were used to test the model fit and individual factors. The MSA score for the enterprise performance scale was 0.862, and that of entrepreneurial motivation scale was 0.816. The MSA scores for both scales were above the minimum recommended score of 0.6 (Kaiser, 1970, 1974) and above a measure of a good MSA score, which is close to 0.8 (Lee, 2016).

5.5.1 EFA of the enterprise performance scale

The analysis of the EFA results for deciding on the appropriate number of factors was based on two methods: the Eigenvalues tables and the Cattell's scree plot test (Cattell, 1966). The proportions of variation explained by each of the scale items and scree plots for the enterprise performance scale showed that it factored into three factors. The rotated factor pattern was used to determine final factor loadings and it supported the three-factor solution.

Factor 1 consisted of scale items that relate to social and environmental objectives; factor 2 consisted of scale items that related to improvements in products/services and profit of the enterprise; and factor 3 consisted of factors that related to growth and stability of the business enterprises. Sustainable entrepreneurship performance measures usually cover all the three dimensions of sustainable development (economic, social and environmental). The EFA confirmed that the performance measures of the interviewed enterprises could be factored into the three objectives of sustainable development.

These factors were aggregated into separate variables and used as dependent variables in the multiple regression analysis to test the effect of motivation factors and individual and enterprise control factors on the performance of enterprises. The overall model was based on an aggregated enterprise performance variable that aggregated all scale items to capture the triple bottom line objective for sustainable entrepreneurship.

5.5.2 EFA of the entrepreneurial motivation scale – H1

The analysis of the Eigenvalues and proportions of variation explained by each factor and the scree plot suggested that the entrepreneurial motivation scale factored into four factors. The four factors explained a cumulative variation of 1.023 of the motivation scale. The analysis of the rotated factor loadings supported the four-factor model. The first factor relates to scale items that provide internal satisfaction or rewards to the entrepreneurs through achieving social and environmental goals. The second factor constituted scale items related to income security and financial independence as the main motivation. The third factor related to extrinsic rewards, particularly getting financial rewards from the business enterprise's venture activities. The fourth factor included necessity/push factors due to circumstances that would force one to be entrepreneurial.

The findings show that sustainable entrepreneurs in Gauteng Province are driven by both intrinsic and extrinsic reward factors to start enterprises in sustainable entrepreneurship. Intrinsic rewards/factors capture the motivation for the entrepreneur to contribute to his/her community and environment through entrepreneurial activities (Birley & Westhead, 1994; Buttner & Moore, 1997; Jayawarna et al., 2013; Mitchell, 2004). On the other hand, extrinsic rewards focus on tangible rewards from entrepreneurial activities (such as external rewards for particular behaviour such as power, money, status and social acceptance) (Carsrud & Brännback, 2011; Cassar, 2007; Kuratko et al., 1997). As noted in the literature review section, social and environmental entrepreneurs tend to be driven by strong social and environmental goals as motivations for pursuing entrepreneurial activities, without any reward beyond the satisfactory generated by achieving their targets (Carsrud & Brännback, 2011). Based on these results, we fail to reject hypothesis 1 that non-economic entrepreneurial motivations are most important drivers of sustainable entrepreneurship in Gauteng Province.

The need for income security and financial independence factor focuses on financial rewards from entrepreneurial activities (Benzing & Chu, 2009; Cassar, 2007; Jayawarna et al., 2013; Robichaud et al., 2001; Stefanovic et al., 2010; Stephan, Hart, Mickiewicz, et al., 2015). There are also necessity/push factors that force individuals to become entrepreneurial and start enterprises in sustainable entrepreneurship. The necessity factor focuses on individual entrepreneurial activities as being the only option they have (Eijdenberg & Masurel, 2013; Stephan, Hart, Mickiewicz, & Drews, 2015). For example, the challenge of securing employment opportunities and the loss of existing employment is a growing economic challenge in South Africa. The reports of Statistics South Africa on unemployment in the last quarter of 2016 showed that unemployment has been increasing in the country. As more and more people are laid off, the necessity to become entrepreneurial increasingly forces people to start own enterprises.

These four factors of motivations for pursuing sustainable entrepreneurship in Gauteng Province were used as regressors to test their effect on enterprise performance. Correlation analysis between the factors showed that they were not highly correlated so as to indicate problems of multicollinearity. This is discussed in detail in the next section which focuses on testing the hypotheses of the study.

5.6 Testing the hypothesised conceptual framework

This section discusses the results of the multiple regression models performed to verify the effect of entrepreneurial motivations, and individual and enterprise control factors on enterprise performance. The results of the aggregated enterprise performance scale were presented to capture the diversity of performance measurement for sustainable enterprises which constitute economic, social and environmental objectives. Three separate sets of results were presented, the first focused on testing the effect of motivations on enterprise performance, while the second and third tested the effects of individual and enterprise control factors, respectively.

Before performing each regression run, the data were tested for potential problems of multicollinearity through correlation analysis. The results for all the models did not show any indications of multicollinearity in the data. In addition, Variance Inflation Factors in the regressions were checked and were all below ten, confirming that multicollinearity was not a problem in the regressions. The fit of the models in a linear regression analysis was also tested using the Analysis of Variance F statistic and residual normality plots. The results of these tests confirmed that the estimated models did fit the linear regression estimations and the residuals approximated normal distributions. For each regression, both OLS and robust parameters were presented. Robust regression was performed to take care of potential challenges of outliers and problems of heteroscedasticity in the models. The relationships between enterprise performance and each set of independent variables (motivations, individual and enterprise control factors) are discussed below.

5.6.1 Exploring the relationship between motivations of sustainable entrepreneurship and enterprise performance – H_{2a} and H_{2b}

The multiple regression results of the relationship between enterprise performance and entrepreneurial motivations showed that the model explained about 14 % (R-Square = 0.14) of the variation in enterprise performance. The results supported Hypothesis 2a that extrinsic motivations (factor 3) were positively and significantly affected enterprise performance. This means that the greater the extrinsic motivations are expressed by the entrepreneur, the higher the chances of the enterprise performing better are.

The results for the intrinsic motivations (factor 1) were insignificant in the OLS regression, but significant in the robust regression after taking care of any challenges of outliers and potential heteroscedasticity. Based on the robust regression estimates, it is evident that intrinsic motivations also indicate a positive and significant effect on enterprise performance, at 1 % significance level. These results also support Hypothesis 2b that intrinsic motivations (factor 1) positively

and significantly affect enterprise performance. Entrepreneurs with high scoring on intrinsic motivations would have better-performing enterprises, compared with those with low levels of intrinsic motivations.

Based on the empirical findings from the regressions, the study fails to reject the two Hypotheses H_{2a} and H_{2b} and concludes that both extrinsic and intrinsic motivations are important factors that affect enterprise performance. Measures to stir up motivations in these areas among entrepreneurs or potential entrepreneurs in Gauteng Province would have greater chances of producing better performing sustainable enterprises.

The income security and financial independence motivation (factor 2) and necessity motivation (factor 4) were both insignificant, but the latter showed a positive relationship with enterprise performance. Although the income security and financial independence motivation was negligible, the positive sign confirmed the expected relationship between this motivation and enterprise performance. However, the negative relationship between the necessity motivations was not as expected. The GEM research reports indicate that high levels of necessity are expected to push individuals into venturing into entrepreneurial activities (Herrington & Kew, 2016). The negative relationship could be explained by the fact that very few of the interviewees reported that they were forced by circumstances to start their enterprises.

5.6.2 Exploring the relationship between individual control factors and enterprise performance – H_3

The third Hypothesis focused on the relationship between individual control factors and enterprise performance. Based on the literature review presented in Chapter 2, the following individual factors of the owner/manager of the enterprise were used: age (years), gender (male = 1), educational level (degree and postgraduate level = 1), previous ownership of an enterprise (yes = 1), sector experience (years), business management experience (years), and number of

full-time employees. These variables have also been used in other motivation studies to describe the profile of entrepreneurs, for example Benzing & Chu (2009); Benzing et al. (2009); and Kuratko et al. (1997).

The regression estimation results showed that in the OLS model, these factors explained about 10 % of the variance in enterprise performance, and this reduced to about 4 % in the robust regression estimation. The results indicate that there might have been influential outliers that explained the relatively high Adjusted R-Square in the OLS model, compared with the R-Square value in the robust estimation.

Analysis of the individual factors coefficients and their significance indicated that only business management experience had a positive and significant relationship with enterprise performance in the OLS estimation. Entrepreneurs with previous business experience are expected to have appropriate skills and competencies to run and manage their enterprises, and so would perform better than those with less and or without similar management experience.

Previous ownership of another enterprise and having obtained a degree or higher had the expected positive signs, but were insignificant. The results imply that just having owned a business enterprise might not be sufficient if the entrepreneur has not learnt critical and appropriate entrepreneurial skills to run and manage other enterprises. The education variable results indicate that getting a higher educational level would not automatically guarantee that one's enterprise would perform better and/or succeed. In this case, the results indicate that entrepreneurial skills and competencies related to running business enterprises are more critical, compared with just acquiring a higher formal education qualification.

The age and gender (male=1) variables were negative and insignificant, also indicating that they are not important determinants of enterprise performance. Based on the results, we conclude that only business management experience

has a positive and significant relationship with enterprise performance. This means that we fail to reject Hypothesis 3 only for this variable, and partially fail to reject it for the positive relationships between previous ownership of another enterprise and having obtained a degree or higher of the enterprise owner/manager. The Hypothesis is rejected for the age and gender variables.

5.6.3 Exploring the relationship between enterprise control factors and enterprise performance – H_4

The regression of enterprise performance and enterprise control factors (age of business and full-time employees) showed that these factors explained about 22 % of the variance in enterprise performance in the OLS estimation and 6 % in the robust estimation. Similar to the discussion of the regression on individual control factors, the results indicate that there might have been influential outliers that explained the relatively high Adjusted R-Square in the OLS model, compared with the R-Square value in the robust estimation.

The results of the coefficients and significance of the regressors indicate that both ages of business enterprise and number of full-time employees had a positive relationship with enterprise performance in the two estimations. In addition, the two independent variables had a significant relationship with enterprise performance in the OLS estimation, while only the number of full-time employees was significant in the robust estimation. Based on these results, we fail to reject Hypothesis 4 that enterprise control factors have a positive and significant relationship with enterprise performance in the OLS estimation. In the robust estimation, we fail to reject the hypothesis on both the positive sign and significance for the number of full-time employees variable, and partially fail to reject the positive relationship between age of business and enterprise performance.

The results mean that as business enterprises operate for a number of years, the owners and managers learn from experiences and use these lessons to improve

their operations to boost their performance. In this case, it is critical for sustainable enterprise owners and managers to institute learning experiences from day-to-day experiences to help improve the performance of their businesses. On the other hand, a high number of full-time employees is an indication of growing business, and small enterprises would hire more employees as their businesses grew. This implies that measures to help grow sustainable enterprises have the potential to create more employment opportunities in Gauteng Province, as the enterprises employ more people as their businesses grow. More business opportunities in the sustainable development area have the potential to contribute to creating important green jobs that the country has promised to generate (Economic Development Department, 2011).

5.7 Conclusion

This chapter presented a discussion of the empirical findings of the study and conclusions on the hypothesised conceptual framework. The discussion indicated that the enterprise performance scale factored into three factors, constituted in economic, social and environmental objectives of performance. This supported the notion that sustainable entrepreneurs usually have multiple objectives that transcend beyond purely economic objectives, as discussed in Chapter 2. The motivation scale factored into four factors (intrinsic and extrinsic motivations, income security and financial independence motivations, and necessity motivations). These factors were used as regressors in the regression analysis to test their effect on enterprise performance. The EFA results supported Hypothesis 1 that non-economic factors are important drivers of sustainable entrepreneurship in Gauteng Province.

Based on the empirical findings from the regressions, the study fails to reject the two Hypotheses H_{2a} and H_{2b} and concludes that both extrinsic and intrinsic motivations are important factors that affect enterprise performance. Regarding the individual control factors, the study fails to reject Hypothesis 3 only for the business management experience, and partially fails to reject it for the positive

relationships between previous ownership of another enterprise and having obtained a degree or higher of the enterprise owner/manager. The hypothesis is rejected for the age and gender variables. The results of the enterprise control factors regression indicate that we should fail to reject Hypothesis 4 that enterprise control factors have a positive and significant relationship with enterprise performance in the OLS estimation.

CHAPTER 6: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

6.1 Introduction

The chapter presents the conclusions and recommendations of the research. The main findings and conclusions from the empirical estimations are summarised. The contribution of the research is also presented, as well as recommendations and areas for further research.

6.2 Conclusions of the study

6.2.1 Recap of main objective, hypotheses and main findings

The main objective of this research was to analyse motivations for starting and maintaining sustainable enterprises in Gauteng Province and to estimate the relationships between these motivations and enterprise performance. Research of this nature provides important information that can help contribute to informing the planning and implementation of measures to support sustainable entrepreneurship activities (Benzing & Chu, 2009).

To test the conceptual framework, the study was based on quantitative research methods, based on a positivist research paradigm. The empirical analysis of these hypotheses was based on primary survey data collected from 91 sustainable entrepreneurs in Gauteng Province. The enterprise performance and motivations scales were tested for reliability using the Cronbach's alpha coefficient and were found to be acceptable. Exploratory Factor Analysis was used to further test the factorability of the scale items into specific factors, and the items were found to relate to the respective scales. Multiple regression analyses (both OLS and robust estimations) were used to test the relationships

in the conceptual framework. A summary of the conclusions on each of the hypotheses is presented in Table 6-1 below.

Table 6-1: Summary of the main conclusion for each hypothesis

Hypothesis	**Conclusion**
H_1: Non-economic entrepreneurial motivations are most important drivers of sustainable entrepreneurship in Gauteng Province.	Fail to reject
H_{2a}: There is a significant positive relationship between extrinsic motivations and performance of sustainable enterprises in Gauteng Province.	Fail to reject
H_{2b}: There is a significant positive relationship between intrinsic motivations and performance of sustainable enterprises in Gauteng Province.	Fail to reject
H_3: There is a significant positive relationship between individual control factors and performance of sustainable enterprise in Gauteng Province.	Fail to reject only for business management experience variable
H_4: There is a significant positive relationship between enterprise control factors and performance of sustainable enterprises in Gauteng Province.	Fail to reject

The conclusions related to each of the hypotheses are presented in more detail below.

6.2.2 Dimensions of motivations of sustainable entrepreneurship

The motivations of sustainable entrepreneurship in Gauteng Province were analysed for the current study using a multidimensional approach to entrepreneurial motivation that considers various motivations as drivers of entrepreneurial behaviour. This is supported by other research that argues that a better understanding of entrepreneurial motivations transcends beyond the dualistic necessity-driven and opportunity-driven categories (Jayawarna et al., 2013; Williams & Williams, 2012). The empirical results from Exploratory Factor Analysis factored the motivation scale into four distinct motivations: extrinsic motivations; intrinsic motivations; income security and financial independence motivations; and necessity motivations.

The findings relate to the different dimensions of entrepreneurial motivation identified in literature that range from the need for achievement, independence and control; improved social status, contribution to community welfare; personal development; economic gain; emulation of role models; to opportunity to innovate and create new products (Carsrud & Brännback, 2011; Cassar, 2007; Jayawarna et al., 2013). The results supported Hypothesis 1 that non-economic factors are important drivers of sustainable entrepreneurship in Gauteng Province. Again, the findings showed that sustainable entrepreneurs have multiple objectives that transcend beyond purely economic objectives, as discussed in Chapter 2.

6.2.3 Testing the relationship between dimensions of entrepreneurial motivations and enterprise performance

The four motivation factors described above were used as independent variables to verify the relationship between enterprise performance and motivations. Multiple regression analyses (both OLS and robust regression estimations) were used to test the hypothesised conceptual framework of the study. Based on the empirical findings from the regressions, the study fails to reject the two Hypotheses H_{2a} and H_{2b} and concludes that both extrinsic and intrinsic

motivations are important factors that affect enterprise performance. The results confirm the arguments of incentive theories that extrinsic motivations (external rewards for particular behaviour such as power, money, status, and social acceptance) or intrinsic motivations (internal individual interest in entrepreneurial tasks such as to succeed and accomplish a goal), or both, are important determinants of entrepreneurial behaviour and performance (Carsrud & Brännback, 2011; Cassar, 2007; Kuratko et al., 1997). The results imply that interventions aimed at developing and strengthening intrinsic and extrinsic motivations among entrepreneurs and or potential entrepreneurs in Gauteng Province would contribute significantly to performance and sustainability of sustainable enterprises.

6.2.4 Testing the relationship between individual control factors and enterprise performance

Based on review of previous studies (Benzing & Chu, 2009; Benzing et al., 2009; Kuratko et al., 1997) the following individual factors of the owner/manager of the enterprise were used in the regression analysis: age (years), gender (male = 1), educational level (degree and postgraduate level = 1), previous ownership of an enterprise (yes = 1), sector experience (years), business management experience (years), number of full-time employees). Based on the results, we conclude that only business management experience has a positive and significant relationship with enterprise performance. This means that we fail to reject Hypothesis 3 only for this variable, and partially fail to reject it for the positive relationships between previous ownership of another enterprise and having obtained a degree or higher by the enterprise owner/manager. The Hypothesis is rejected for the age and gender variables.

6.2.5 Testing the relationship between enterprise control factors and enterprise performance

The results of the enterprise control factors regression indicate that we should fail to reject Hypothesis 4 that enterprise control factors have a positive and significant relationship with enterprise performance in the OLS estimation. The results indicate that as sustainable enterprises operate for a number of years and become successful, they can contribute significantly to national targets of generating green jobs, as elaborated in the New Growth Path Framework (Economic Development Department, 2011).

6.3 Recommendations

The research has contributed to providing empirical findings on the motivations of sustainable entrepreneurship and their effect on enterprise performance in a developing country context. The results identified extrinsic, intrinsic, income security and financial independence, and necessity motivations that drive sustainable entrepreneurship in Gauteng Province. The results of the relationship between these motivations and enterprise performance showed that extrinsic and intrinsic motivations are important determinants of the later. This means that efforts by the Gauteng Department of Economic Development to promote sustainable entrepreneurship could be strengthened, if appropriate support could be provided to both current and potential sustainable entrepreneurs to build motivations in these factors.

In addition, efforts to promote and strengthen sustainable entrepreneurship in the province should target individuals who show appropriate motivations to start sustainable enterprises beyond those who only want to start enterprises just because there is some financial support provided for start-ups in that area. Results of the relation between individual and enterprise control factors and enterprise performance means that efforts to support sustainable entrepreneurial activity in the province should target developing appropriate business

management skills to ensure the success of the start-ups and existing enterprises. Furthermore, the results imply that ensuring that existing sustainable enterprises grow to maturity has great potential to contribute to the provincial and national objectives of generating inclusive socio-economic growth and so make a significant contribution to employment creation (particularly the green jobs).

6.4 Areas for further research

The research on motivations of sustainable entrepreneurship could be broadened by undertaking a nationwide study to better understand the drivers of entrepreneurial behaviour related to sustainable entrepreneurship across the country. This can also be extended to the regional and continental levels.

Further research could also explore the relative importance of the different dimensions of entrepreneurship in driving sustainable entrepreneurship, and how investments in the different dimensions would affect sustainable entrepreneurial activities.

Beyond understanding entrepreneurial motivations, further research should consider analysing contributions of sustainable entrepreneurship to priority objectives such as green job creations, and provincial and national economic output.

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APPENDIX 1: REGRESSION RESULTS WITH SEPARATE ENTERPRISE PERFORMANCE FACTORS AS DEPENDENT VARIABLES

Appendix 1a: Regression results for enterprise factors as dependent variables and motivations

Table A-1: Regression model results of enterprise performance factor 1 and motivations

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	1.06		0.2441	-0,74 to 2,87	0	0.25		0.548	-0.57 to 1.08
Factor1	0.29	0.16	0.2058	-0,16 to 0,74	1.54233	0.62***	0.35	0.000	0.41 to 0.83
Factor2	0.16	0.11	0.4169	-0,23 to 0,54	1.71422	0.20**	0.14	0.031	0.02 to 0.39
Factor3	0.17	0.14	0.2053	-0,09 to 0,43	1.17681	0.02	0.02	0.777	-0.11 to 0.15
Factor4	0.04	0.02	0.8503	-0,38 to 0,46	1.21948	0.03	0.02	0.773	-0.17 to 0.23
R Square	**0.09**					**0.18**			

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

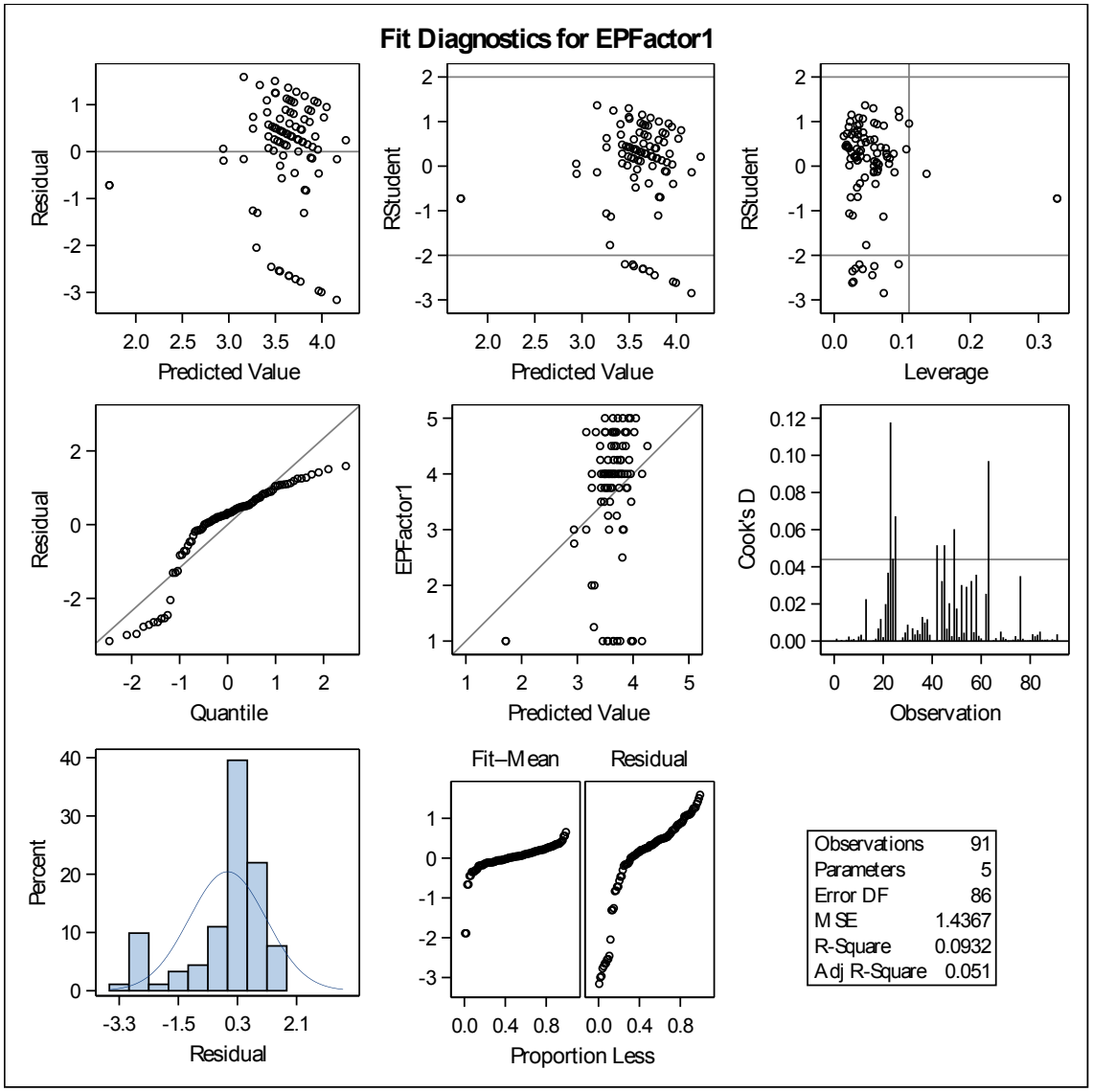


Figure A-1: Fit diagnostic for the regression model between enterprise performance factor 1 and motivation factors

Table A-2: Regression model results of enterprise performance factor 2 and motivations

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	1.89**		0.026	0,23 to 3,55	0	1.33		0.134	-0.41 to 3.08
Factor1	-0.04	-0.02	0.863	-0,45 to 0,38	1.542	0.08	0.05	0.721	-0.36 to 0.52
Factor2	0.09	0.06	0.630	-0,27 to 0,44	1.714	0.06	0.05	0.741	-0.31 to 0.43
Factor3	0.49***	0.43	0.000	0,25 to 0,73	1.177	0.61***	0.54	0.000	0.36 to 0.87
Factor4	-0.25	-0.14	0.201	-0,63 to 0,14	1.219	-0.30	-0.17	0.157	-0.72 to 0.12
R Square	**0.18**					**0.19**			
Adj. R Square	**0.14**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

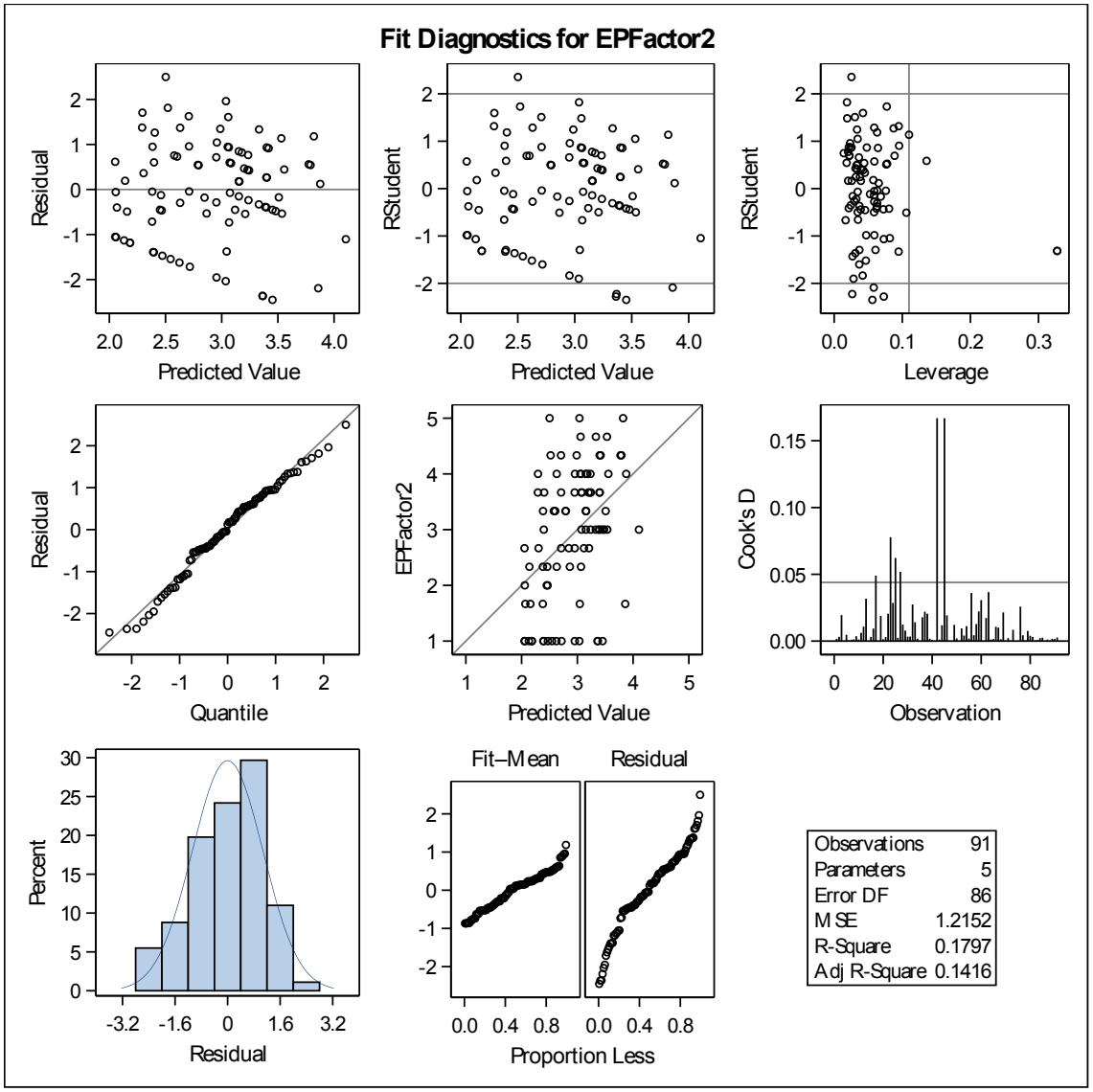


Figure A-2: Fit diagnostic for the regression model between enterprise performance factor 2 and motivation factors

Table A-3: Regression model results of enterprise performance factor 3 and motivations

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	0.99		0.1750	-0,45 to 2,42	0	0.60		0.145	-0.21 to 1.40
Factor1	0.44**	0.30	0.0156	0,09 to 0,80	1.54233	0.64***	0.43	0.000	0.44 to 0.85
Factor2	0.14	0.11	0.3745	-0,17 to 0,44	1.71422	0.13	0.11	0.143	-0.05 to 0.31
Factor3	0.14	0.14	0.1826	-0,07 to 0,35	1.17681	0.07	0.07	0.274	-0.06 to 0.19
Factor4	0.02	0.01	0.9149	-0,32 to 0,35	1.21948	-0 002	0.00	0.98	-0.19 to 0.19
R Square	0.18					0.16			
Adj. R Square	0.14								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

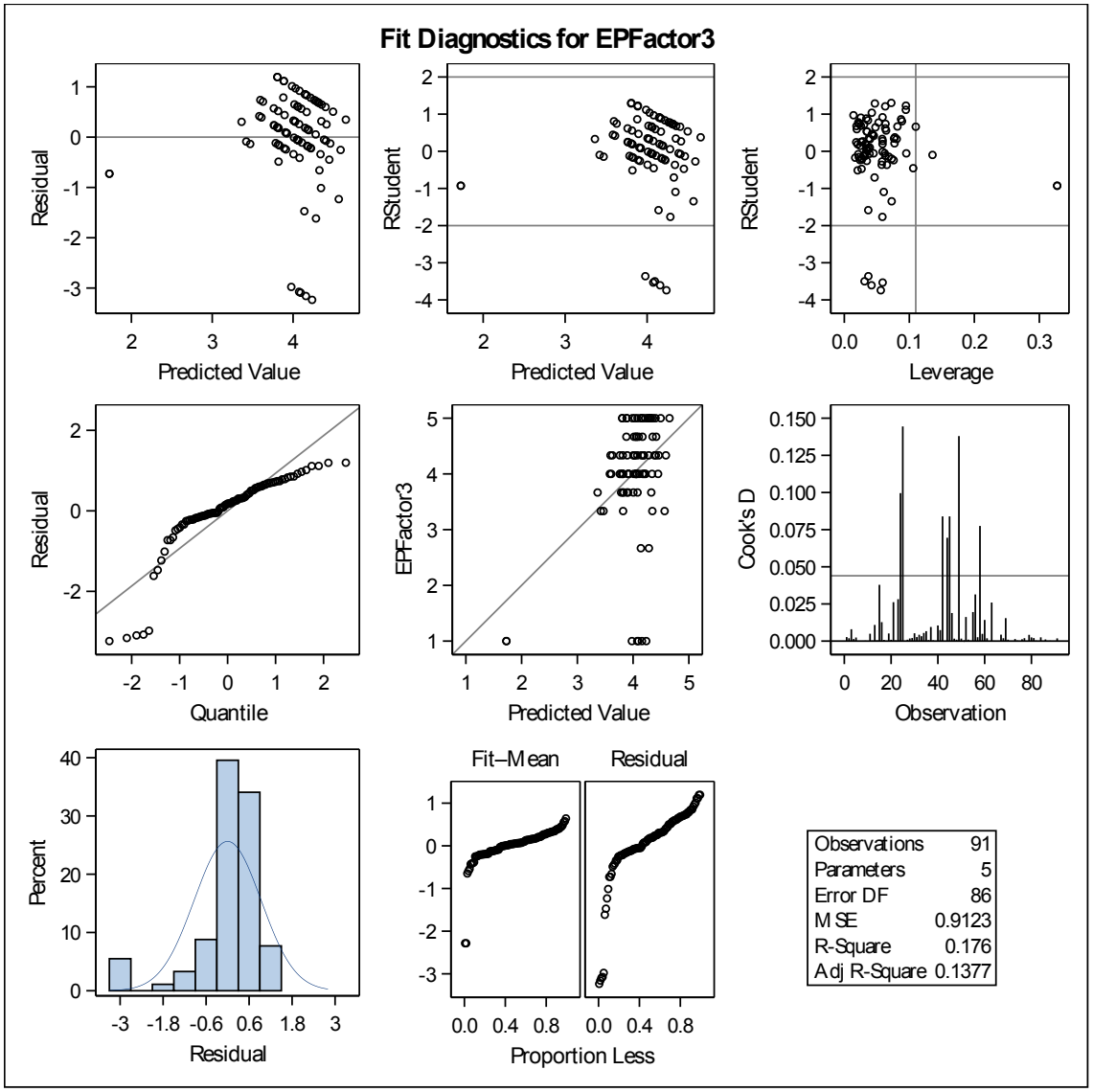


Figure A-3: Fit diagnostic for the regression model between enterprise performance factor 3 and motivation factors

Appendix 1b: Regression results for enterprise factors as dependent variables and individual control factors

Table A-4: Regression model results of enterprise performance factor 1 and individual control factors

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	3.57***		0.000	2,34 to 4,80	0	3.95***		0.000	2.82 to 5.07
Age	-0.01	-0.06	0.601	-0,05 to 0,03	1.207	-0.01	-0.04	0.685	-0.04 to 0.03
Male	-0.30	-0.10	0.348	-0,92 to 0,33	1.206	-0.20	-0.07	0.505	-0.77 to 0.38
Degree & postgraduate (Yes = 1/0)	-0.21	-0.08	0.447	-0,77 to 0,34	1.154	-0.19	-0.07	0.470	-0.71 to 0.33
Owner/manager previous business experience (Yes=1/0)	0.09	0.03	0.783	-0,57 to 0,75	1.104	0.02	0.01	0.945	-0.58 to 0.62
Business management experience	0.27***	0.39	0.001	0,11 to 0,42	1.293	0.16**	0.24	0.029	0.02 to 0.31
R Square	**0.14**					**0.04**			
Adj. R Square	**0.09**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

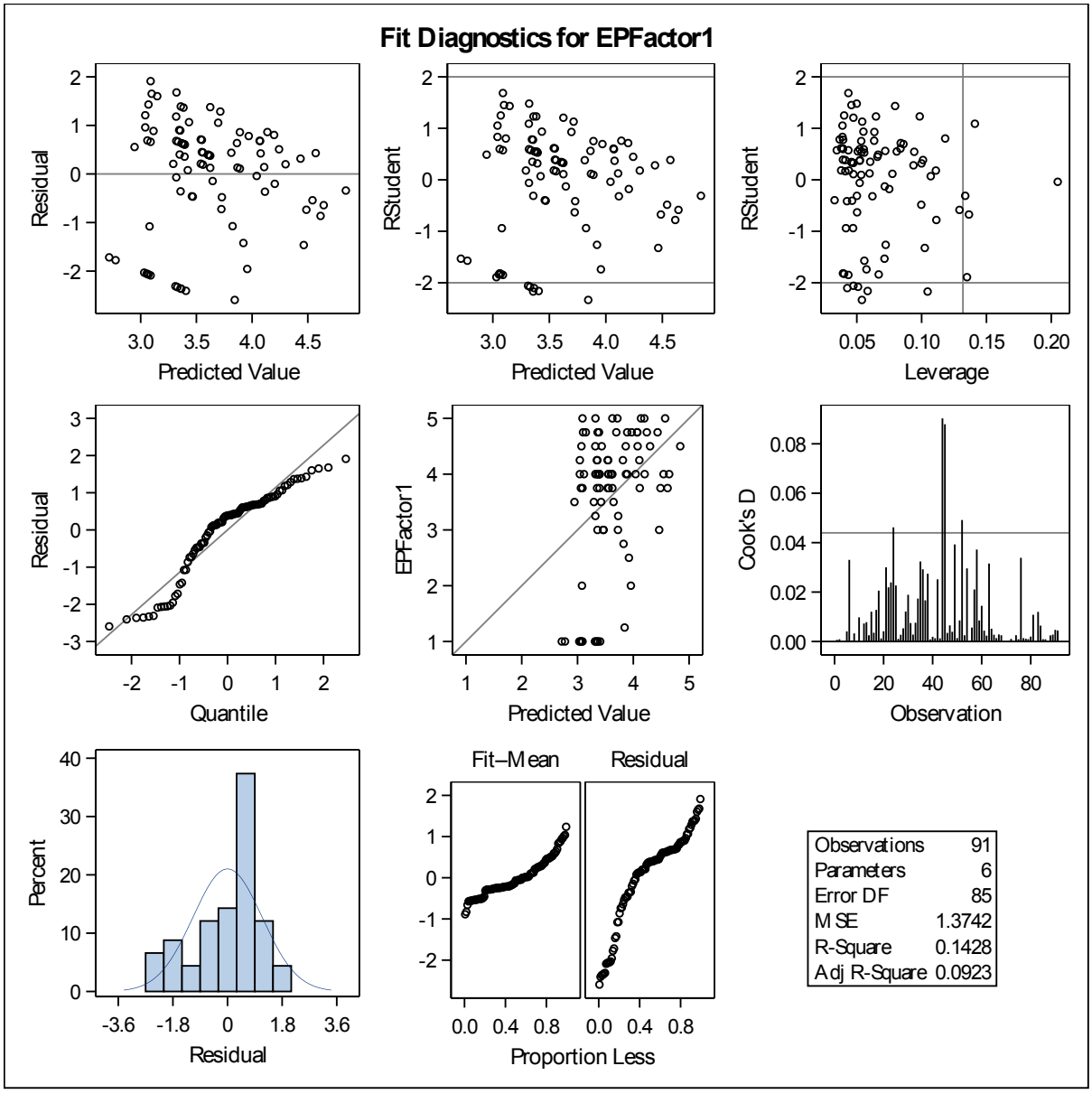


Figure A-4: Fit diagnostic for the regression model between enterprise performance factor 1 and individual control factors

Table A-5: Regression model results of enterprise performance factor 2 and individual control factors

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	1.96***		0.0012	0,80 to 3,11	0	2.06***		0.002	0.73 to 3.39
Age	0 037	0.02	0.8317	-0,03 to 0,04	1.20685	-0 001	0.00	0.968	-0.04 to 0.04
Male	-0.13	-0.05	0.6534	-0,72 to 0,46	1.20560	-0.11	-0.04	0.742	-0.79 to 0.56
Degree & postgraduate (Yes = 1/0)	0.54**	0.22	0.0419	0,02 to 1,06	1.15416	0.61**	0.25	0.045	0.01 to 1.21
Owner/manager previous business experience (Yes=1/0)	0.07	0.02	0.8176	-0,55 to 0,69	1.10448	0.08	0.03	0.823	-0.63 to 0.79
Business management experience	0.23***	0.34	0.0028	0,08 to 0,37	1.29329	0.23***	0.36	0.006	0.07 to 0.40
R Square	0.19					0.16			
Adj. R Square	0.14								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

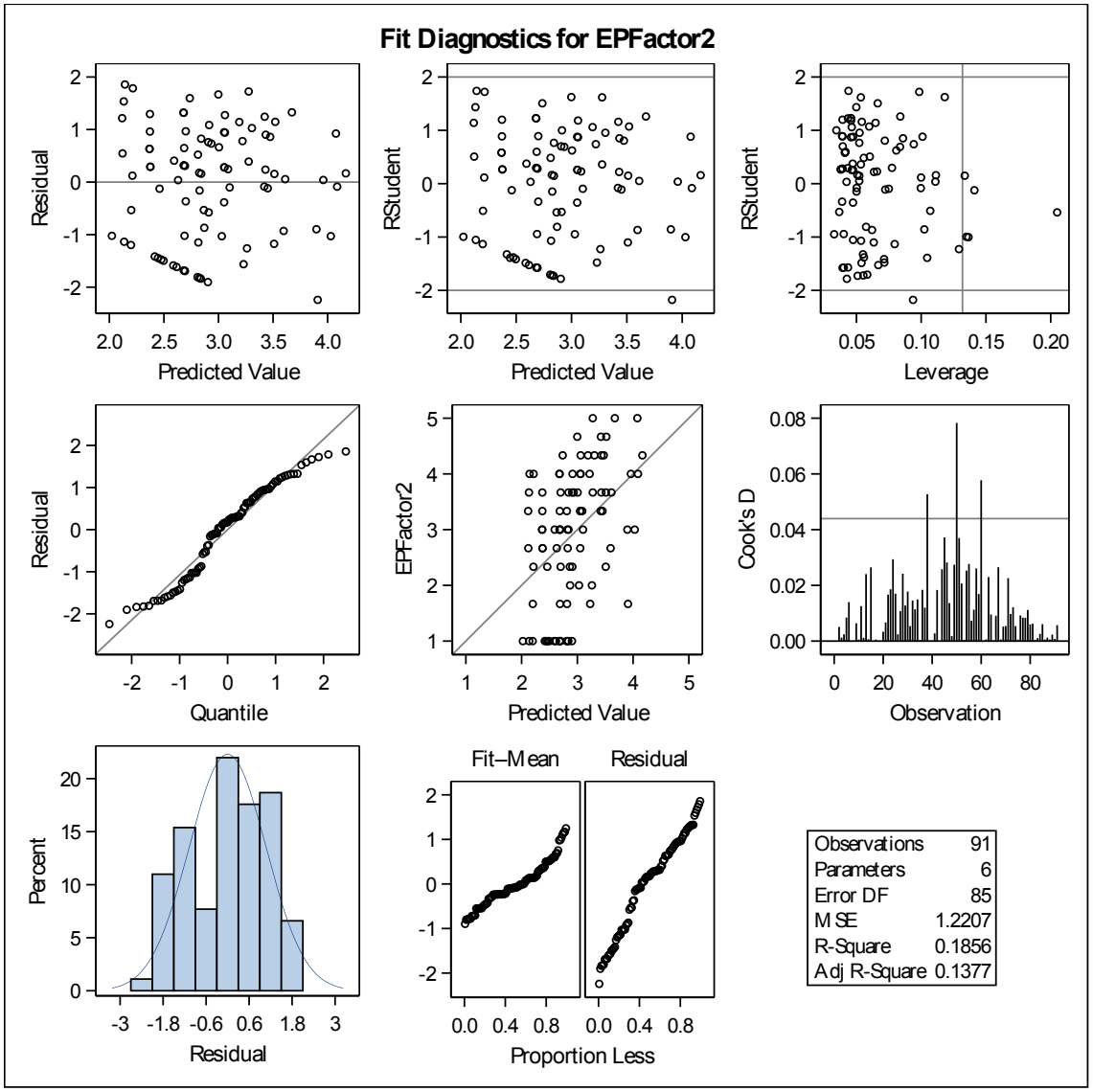


Figure A-5: Fit diagnostic for the regression model between enterprise performance factor 2 and individual control factors

Table A-6: Regression model results of enterprise performance factor 3 and individual control factors

	OLS parameters					Robust Parameters			
Variable	B	β	Pr > |t|	95 % CI	Variance Inflation	B	B	p	95 % CI
Intercept	3.70***		0.000	2,65 to 4,76	0	4.01***		0.000	3.37 to 4.65
Age	-0.02	-0.12	0.306	-0,05 to 0,02	1.207	-0 001	-0.01	0.896	-0.02 to 0.02
Male	0.46*	0.19	0.095	-0,08 to 0,99	1.206	0.27	0.12	0.105	-0.06 to 0.61
Degree & postgraduate (Yes = 1/0)	0.16	0.08	0.498	-0,31 to 0,63	1.154	0.16	0.07	0.275	-0.13 to 0.45
Owner/manager previous business experience (Yes=1/0)	0.08	0.03	0.781	-0,49 to 0,64	1.104	0.22	0.08	0.206	-0.12 to 0.57
Business management experience	0.14**	0.24	0.044	0 003 to 0,27	1.293	-0.02	-0.03	0.673	-0.10 to 0.06
R Square	0.10					0.04			
Adj. R Square	0.04								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

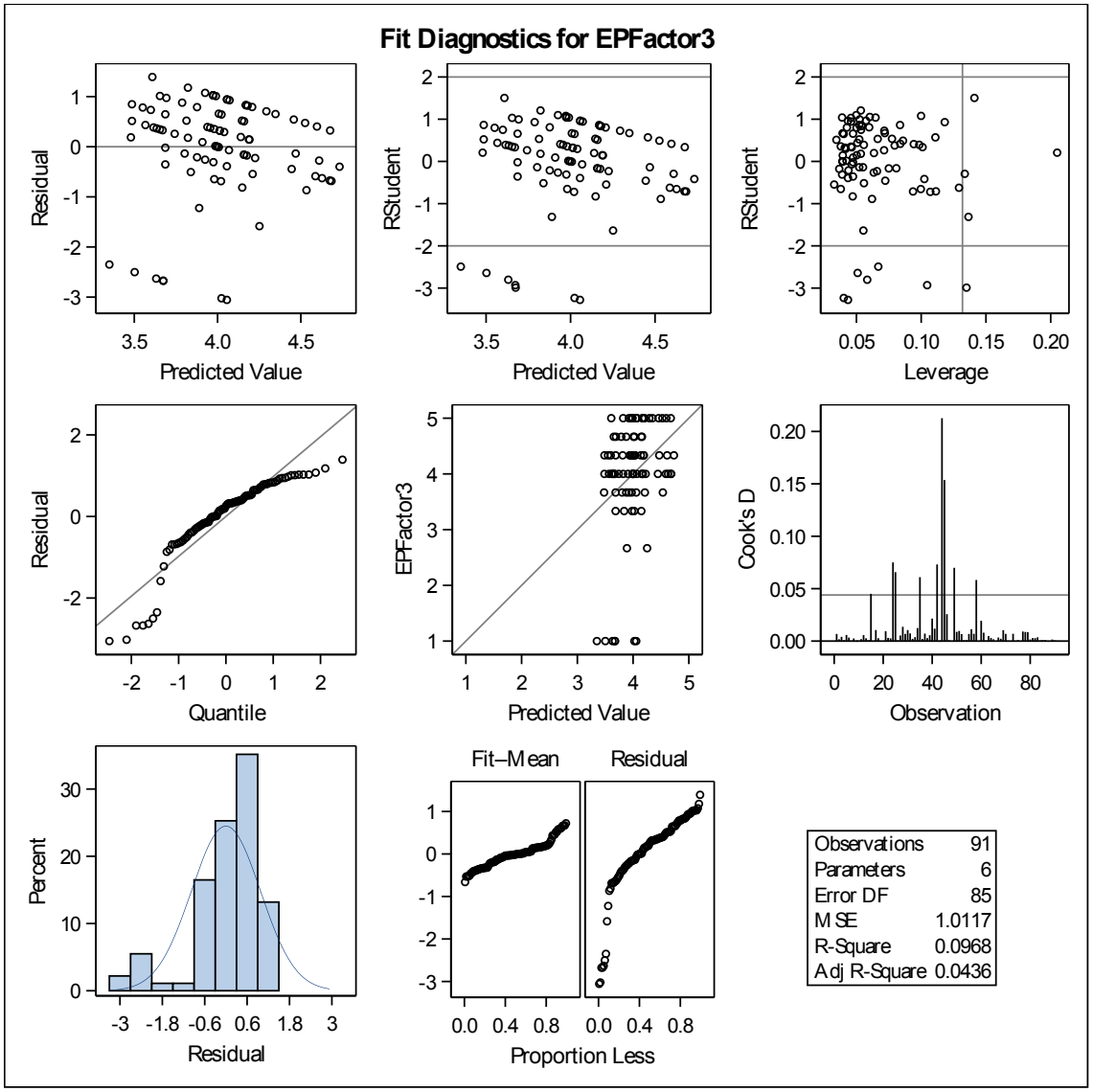


Figure A-6: Fit diagnostic for the regression model between enterprise performance factor 3 and individual control factors

Appendix 1c: Regression results for enterprise factors as dependent variables and enterprise control factors

Table A-7: Regression model results of enterprise performance factor 1 and enterprise control factors

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	2.76***		0.000	2,35 to 3,17	0	3.42***		0.000	3.05 to 3.80
Age of business	0.14*	0.18	0.081	-0,02 to 0,29	1.184	0.06	0.08	0.393	-0.08 to 0.20
Full-time employees	0.30***	0.41	0.000	0,15 to 0,44	1.184	0.19***	0.26	0.002	0.07 to 0.31
R Square	**0.26**					**0.08**			
Adj. R Square	**0.24**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

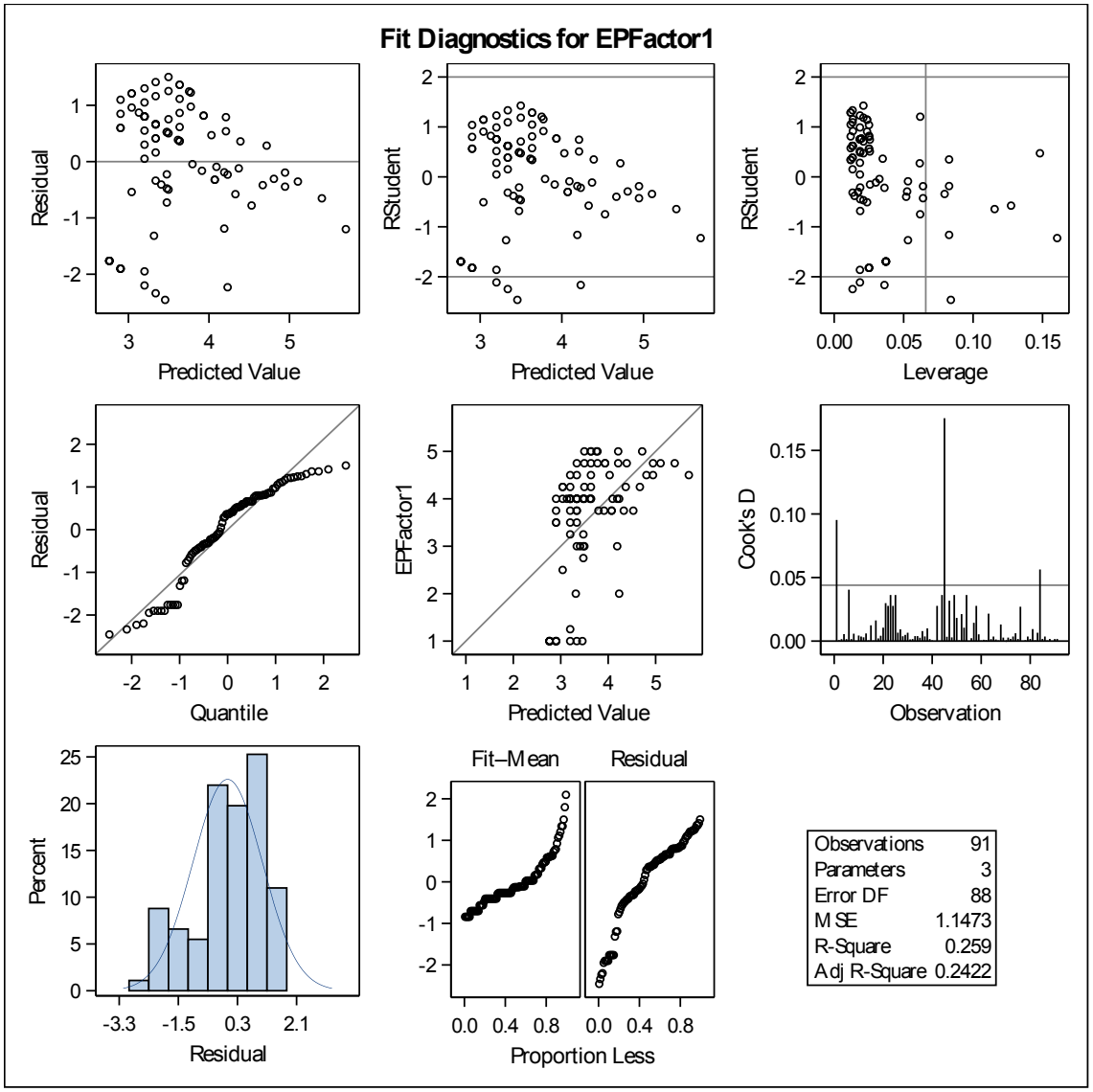


Figure A-7: Fit diagnostic for the regression model between enterprise performance factor 1 and enterprise control factors

Table A-8: Regression model results of enterprise performance factor 2 and enterprise control factors

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	2.25***		0.000	1,82 to 2,67	0	2.16***		0.000	1.68 to 2.64
Age of business	0.18**	0.24	0.028	0,02 to 0,35	1.184	0.20**	0.26	0.029	0.02 to 0.38
Full-time employees	0.15*	0.21	0.054	-0 003 to 0,30	1.184	0.20**	0.29	0.022	0.03 to 0.37
R Square	**0.14**					**0.14**			
Adj. R Square	**0.12**								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

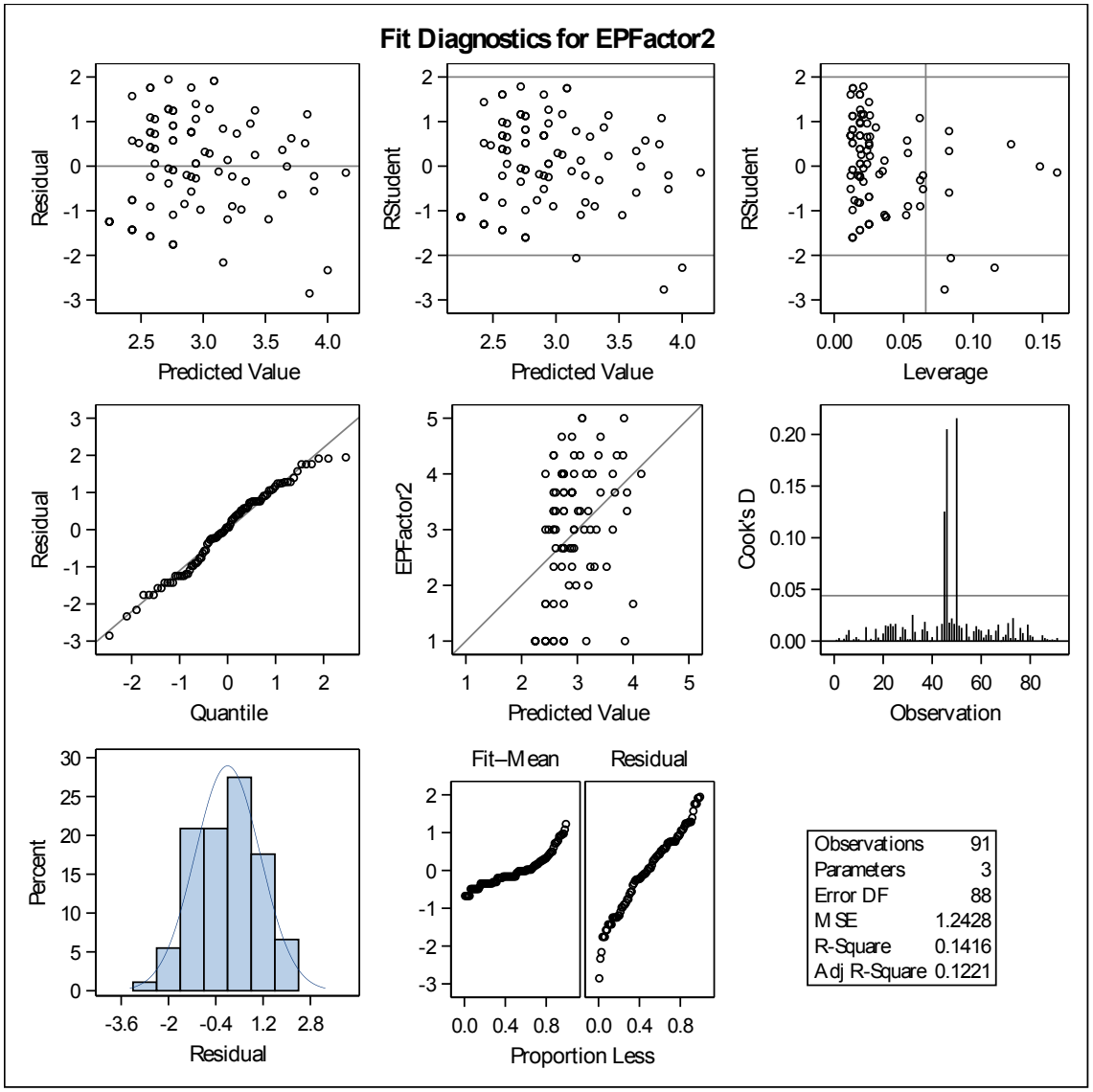


Figure A-8: Fit diagnostic for the regression model between enterprise performance factor 2 and enterprise control factors

Table A-2: Regression model results of enterprise performance factor 3 and enterprise control factors

Variable	OLS parameters					Robust Parameters			
	B	β	Pr > |t|	95 % CI	Variance Inflation	B	β	p	95 % CI
Intercept	3.58***		0.000	3,20 to 3,96	0	4.15***		0.000	3.92 to 4.39
Age of business	0.06	0.10	0.380	-0,08 to 0,21	1.184	-0.01	-0.01	0.849	-0.09 to 0.08
Full-time employees	0.16**	0.27	0.016	0,03 to 0,29	1.184	0.09**	0.14	0.036	0.01 to 0.17
R Square	0.10					0.03			
Adj. R Square	0.08								

*Notes for parameters: B = unstandardised parameters, β = standardised parameters, *** = p < .01, ** = p < .05, * = p < .10.*

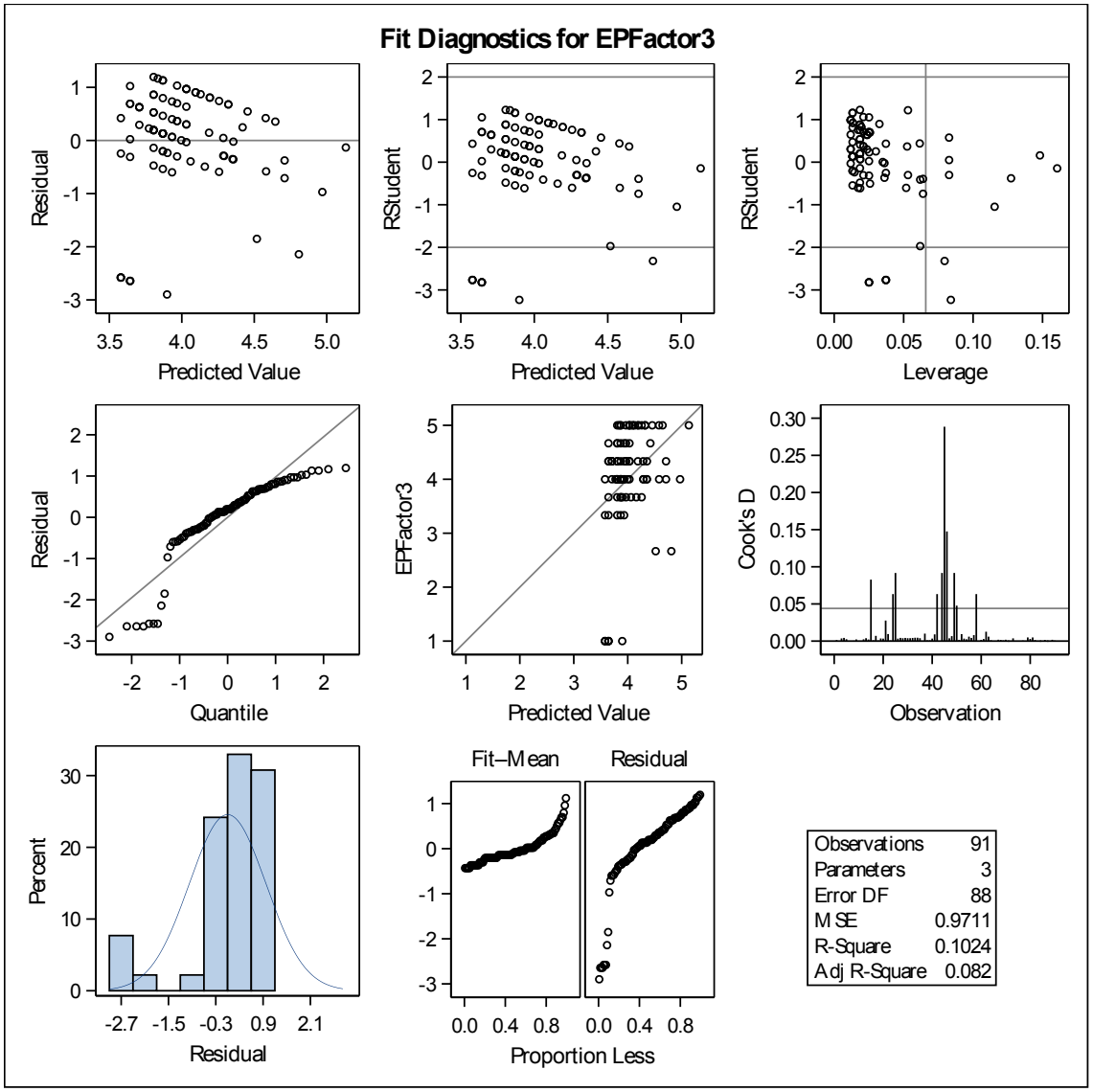


Figure A-9: Fit diagnostic for the regression model between enterprise performance factor 3 and enterprise control factors

APPENDIX 2: RESEARCH INSTRUMENT

1. The following questions will help me to find out more about you and your business. Where relevant place a cross (X) in the block that best corresponds to your answer other write down your response.

1.1 Your age in years: _____ Years

1.2 Your gender: 1. Female ☐ 2. Male ☐ 3. Prefer not to answer ☐

1.3 Indicate your highest level of education

1. Some primary school	☐	2. Primary school completed (grade 7/ standard 5)	☐
3. Some high school	☐	4. High school completed	☐
5. Short programme completed	☐	6. Diploma/degree completed	☐
7. Post graduate qualification completed	☐		

1.4 Indicate your experience working in the sector your business is operating _____ Years

1.5 Indicate your experience in business management _____ Years

1.6 Is this your first business? 1. Yes ☐ 2. No ☐

1.7 If no to 1.6 above how many businesses have you previous started? _____

1.8 How long have you been running this business? _____ Years

1.9 How many employees do you employ?

1. Total number of employees_____ 2. Full-time employees_____ 3. Part-time employees_____

1.10 Indicate the priority area in which your business operates: **(select only one option)**

1. Air quality	☐	2. Waste	☐
3. Climate change	☐	4. Food security	☐
5. Economic development	☐	6. Land use	☐
7. Energy	☐	8. Transport	☐
9. Water and sanitation	☐	10. Other (mention if you haven't ticked above)	

1.11 What do you sell in your business/what service do you offer?

_____

_____

1.12 What is your average annual turnover (in rands)? R _____

1.13 What is your average annual profit/loss (in rands)? R _____

2. The following question will help me to find out more about how you run your business. Indicate how much you agree or disagree with a statement by placing a cross (X) in the box corresponding to your answer.

		Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		1	**2**	**3**	**4**	**5**
2.1	Compared to my competitors, I have introduced more new products/services over the past year					
2.2	Compared to my competitors, I have made more changes and improvements to my existing products/services over the past year					
2.3	Over the past year, I actively engaged in search for big business opportunities					
2.4	In my business, rapid growth this year is my dominant goal					
2.5	Steady growth and stability in my business this year is my primary concern					
2.6	I have managed to create employment for others in my business over the past years					
2.7	Compared to my competitors, my profits have continued to grow over the past year					
2.8	Over the past year, my business helped enhance the environmental image of the local community					
2.9	Over the past year, my business helped reduce overall negative environmental impacts in the local community					
2.10	Over the past year my business helped enhance protection and conservation of natural and environmental resources in the local community					

3. The following questions will help me find out about why you started your business. Indicate how much you agree or disagree with a statement by placing a cross (X) in the block corresponding to your answer.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3.1	I started my current business because I wanted to make a lot of money					
3.2	I started my current business because I wanted to give myself, my partner and children financial security					
3.3	I started my current business because I wanted to control own life/ independence/ freedom					
3.4	I started my current business to create jobs in my community					
3.5	I started my current business because I identified an opportunity (need I could fill)					
3.6	I started my current business because I couldn't find a proper job (full-time employment)					
3.7	I started my current business because I was retrenched/fired					
3.8	I started my current business because I wanted to fulfil my personal vision of being an entrepreneur					
3.9	I started my current business to follow the example of an entrepreneur I admire					
3.10	I started my current business because I wanted to improve the welfare in my local community					
3.11	I started my current business because of government support for sustainability business ventures					
3.12	I started my current business because I wanted to make a positive difference to my community and the environment					
3.13	I started my current business because I wanted to contribute to reduce environmental degradation in my community					
3.14	I started my current business because I had the skills/experience to do the work					
3.15	I started my current business for my own satisfaction and growth					

END OF THE QUESTIONNAIRE

Thank you very much for agreeing to participate in this study. Your input is greatly valued and all responses remain highly confidential at all times.

APPENDIX 3: COVER LETTER

Analysis of motivations of sustainable entrepreneurship in Gauteng Province

Dear Sir/Madam,

My name is Charles Nhemachena, a Masters of Management in Entrepreneurship and New Venture Creation at the University of Witwatersrand Business School (Wits Business School), Johannesburg. My MM research title is: “Analysis of motivations of sustainable entrepreneurship in Gauteng Province”. The overall objective of the research is to understand the entrepreneurial motivations of entrepreneurs to start and sustain their sustainable business ventures and how the motivations affect business venture performance.

As a sustainable entrepreneur in Gauteng Province, you are invited to participate in my research by completing the accompanying questionnaire. The questionnaire is divided into three sections each designed to collect data on different variables as described below. Section 1 asks questions about you and your business venture. Section 2 asks questions about performance of your business. Section 3 asks questions relating to factors that motivated you to start and sustain your sustainable business venture. The questionnaire consists of 38 questions and should take you about 20 minutes to complete.

What will happen if you choose to participate in the research?

1. The research does not present any risk/harm to you if you participate.
2. You are requested to sign a consent form indicating that you are voluntarily agreeing to participate in the research. Please ask any questions you might have before signing the consent form.

3. Your responses to all questions are greatly appreciated and there are no wrong or right answers. However, you may decide not to answer some questions and or to stop answering the questionnaire at any stage.
4. You are free to ask for clarifications of any question that you may struggle to understand.
5. This research is for academic purposes only and the results from the study will be reported only in my thesis and journal articles. Your responses remain strictly confidential and will not be shared with anyone else. The questionnaires from this research will be kept for 5 years for further research after which they will be destroyed.

What will happen if you choose not to participate in the research?

1. Participation in the research is voluntary and you will not be forced to complete the questionnaire.
2. There is no penalty or effect on your part should you choose not to complete the questionnaire.

The research study was approved unconditionally by the Wits Business School research panel. Should you have queries related to the research, please feel free to contact my supervisor: Dr McEdward Murimbika on 083 613 6530 or Email: murimbikam@ftt580.com. You may directly request copies of the results of the research to me on 071 334 44992 or 1564022@students.wits.ac.za/ CNhemachena@gmail.com.

Charles Nhemachena

APPENDIX 4: CONSENT FORM

INFORMATION SHEET AND CONSENT FORM

Analysis of motivations of sustainable entrepreneurship in Gauteng Province

Who I am

Hello, I am Charles Nhemachena (Student Number: 1564022). I am conducting research for the purpose of completing my MM in Entrepreneurship and New Venture Creation at Wits Business School.

What I am doing

I am conducting a quantitative study to understand the entrepreneurial motivations of entrepreneurs to start and sustain their sustainable/green business ventures in Gauteng Province and how the motivations affect business venture performance.

Your participation

I am asking you whether you will allow me to conduct one interview with you. If you agree, I will ask you to participate in one interview for approximately 15 minutes.

Please understand that **your participation is voluntary** and you are not being forced to take part in this study. The choice of whether to participate or not, is yours alone. If you choose not take part, you will not be affected in any way whatsoever. If you agree to participate, you may stop participating in the research at any time and tell me that you don't want to continue. If you do this there will also be no penalties and you will NOT be prejudiced in ANY way.

Confidentiality

Any study records that identify you will be kept confidential to the extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including my academic supervisor/s. (All of these people are required to keep your identity confidential.)

All study records will be destroyed after the completion and marking of my research assignment. I will refer to you by a code number or pseudonym (another name) in the research assignment.

Risks/discomforts

At the present time, I do not see any risks in your participation. The risks associated with participation in this study are no greater than those encountered in daily life.

Benefits

There are no immediate benefits to you from participating in this study. However, this study will be extremely helpful to us in understanding how the internal environment of your organisation support corporate entrepreneurship.

Who to contact if you have been harmed or have any concerns

This research has been approved by the Wits Business School. If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please contact the Research Office Manager at the Wits Business School, Mmabatho Leeuw. Mmabatho.leeuw@wits.ac.za

If you have concerns or questions about the research you may call my academic research supervisor Dr McEdward Murimbika on 083 613 6530 or Email: murimbikam@ftt580.com.

CONSENT

I hereby agree to participate in research on analysis of motivations of sustainable entrepreneurship in Gauteng Province. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop participating at any point should I not want to continue and that this decision will not in any way affect me negatively.

I understand that this is a research project whose purpose is not necessarily to benefit me personally in the immediate or short term.

I understand that my participation will remain confidential.

……..

Signature of participant **Date**: ……..

APPENDIX 5: CONSISTENCY MATRIX

Assess the dimensions of entrepreneurial motivations that drive sustainable entrepreneurship in Gauteng Province. Establish the nature of the relationship between these dimensions and performance of sustainable enterprises in the province.					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
Identify the dimensions of entrepreneurial motivations for sustainable entrepreneurship in Gauteng Province.	(Benzing & Chu, 2009; Benzing et al., 2009; Carsrud & Brännback, 2011; Jayawarna et al., 2013; Kuratko et al., 1997; Naffziger et al., 1994; Robichaud et al., 2001; Stephan, Hart, & Drews, 2015; Williams & Williams, 2012)	**H_1:** Non-economic entrepreneurial (environmental and social) motivations are most important drivers of sustainable entrepreneurship in Gauteng Province	Survey data gathered using research instrument: section 3, questions 3.1 to 3.15	Interval	Exploratory factor analysis, descriptive statistics
Evaluate the impact of entrepreneurial motivation dimensions on performance of sustainable enterprises in Gauteng Province.	(Barba-Sánchez & Atienza-Sahuquillo, 2012; Baum & Locke, 2004; Baum et al., 2001; Benzing & Chu, 2009; Buttner & Moore, 1997; Collins et al., 2004; Robichaud et al., 2001)	**H_2:** There is a significant positive relationship between entrepreneurial motivations and performance of sustainable enterprises in Gauteng Province. **H_{2a}:** There is a significant positive relationship between extrinsic motivations and performance of sustainable enterprises in Gauteng Province. **H_{2b}:** There is a significant positive relationship between intrinsic motivations and performance of sustainable enterprises in Gauteng Province.	Survey data gathered using research instrument: section 2, questions 2.1 to 2.10 and section 3, questions 3.1 to 3.15	Interval	Correlation analysis, Multiple regression analysis

Assess the dimensions of entrepreneurial motivations that drive sustainable entrepreneurship in Gauteng Province. Establish the nature of the relationship between these dimensions and performance of sustainable enterprises in the province.					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
Evaluate the impact of individual and enterprise control variables on performance of sustainable enterprises in Gauteng Province.	(Delmar & Wiklund, 2008; Naffziger et al., 1994; Stephan, Hart, & Drews, 2015)	**H_3:** There is a significant positive relationship between individual control factors and performance of sustainable enterprise in Gauteng Province. **H_4:** There is a significant positive relationship between enterprise control factors and performance of sustainable enterprises in Gauteng Province.	Survey data gathered using research instrument: section 1, questions 1.1 to 1.10 and section 2, questions 2.1 to 2.10	Continuous, Dichotomous, Nominal, Ordinal	Descriptive analysis, correlation analysis, multiple regression analysis