EXPLORING THE YOUTH-AGRICULTURE NEXUS: IMPLICATIONS ON HOUSEHOLD FOOD SECURITY AND LIVELIHOODS

by

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ABSTRACT

The youth-agriculture nexus in Africa is critical to food and nutrition security, employment and livelihoods at multiple scales through multiple pathways. The Zimbabwean government, like several other African governments enacted policies and interventions to harness this opportunity. Despite the government's efforts, getting youth attracted or interested in agriculture has been a challenge while success has been elusive. The information gaps characterising most of Africa's policy environment are contributing to the failure of most youth policies and interventions. Robust and compelling evidence on the intersection of youth and agriculture is lacking. It is against this background that the study explores the youth-agriculture nexus and its implications on household food security and livelihoods. The study's specific objectives include determining the factors affecting rural youth participation in agriculture; examining the factors influencing migration willingness and choice of destination; determining the factors affecting life satisfaction and lastly; examining the factors influencing livelihood choice and food security among youth.

The study examines the youth-agriculture intersection from various disciplines, considering noncognitive, demographic, social and economic factors. This is because of the complex and multi-dimensional nature of the youth-agriculture nexus. A pre-tested structured questionnaire collected data from 200 youths across three districts of Mashonaland East Province in Zimbabwe. Various econometric techniques of discrete choice and descriptive statistics analysed the data. The rights to anonymity, informed consent, and confidentiality were upheld to make the study ethical. The descriptive statistics show that most of the youth were males, household heads, unemployed, married, looking for a job and have a secondary level of education. Also, the results show that most of the youth in the study were food insecure, dissatisfied with their lives and willing to engage in migration.

The study sheds light on the importance of noncognitive factors (expectancy and subjective task value) in understanding the youth-agriculture nexus. The results reveal that expectancy, utility and intrinsic value and cost statistically significantly influences youth career decisions and life outcomes. It follows that youth with expectancy, intrinsic or utility value engage and spent more hours in agriculture. Further, youth with utility or intrinsic value have high life satisfaction compared to their counterparts without utility or intrinsic value. The study also reveals that traditional factors such as age, marital status, level of education, access to land, household size and employment status statistically significantly influence youth career decisions and life outcomes. The study concludes that both noncognitive and traditional

factors are critical in understanding youth career decisions and life outcomes and combined can provide a holistic and better understanding of the youth-agriculture nexus.

In line with the literature, the future of agriculture and food security in rural Zimbabwe is uncertain. The results reveal that most of the youth are leaving or losing interest in agriculture. In the study, over 70 percent of the youth expressed low interest in engaging in the sector in the coming years. Second, a relatively high number of youths were willing to migrate. The results show that 69 percent of the youth in the study were willing to engage in migration. Last, low life satisfaction was a general characteristic among the youth. Over 60 percent of the youth in the study expressed dissatisfaction with their lives. Further, the study reveals a shift in some youth narratives in agriculture. First, a significant number of youths in the study opted for non-agricultural livelihoods over agriculture. Second, international migration has accelerated in rural Zimbabwe. Thus, rural migration is no longer limited to internal migration as many youths opted to engage in international migration.

With a shift in youth narratives and uncertainty in agriculture and food insecurity in rural Zimbabwe, the study recommends the integration of noncognitive factors in policy decisions. Further, the study suggests the adoption of an interdisciplinary approach to the design of youth policies and interventions in agriculture. Also, the study recommends the need to set up multi-stakeholder platforms in policy decisions, planning and investment. Last, policy priority should focus on closing the large disparities between urban and rural Zimbabwe in terms of social services such as education, credit and communication.

DECLARATION 1: PLAGIARISM

I, **Bright Takudzwa Mukwedeya,** declare that:

1. The research reported in this thesis, except where otherwise indicated, is my original research.

2. This thesis has not been submitted for any degree or examination at any other university.

3. This thesis does not contain other people's data, pictures, graphs, or other information unless specifically acknowledged as being sourced from other people.

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a. Their words have been re-written, but the general information attributed to them has been referenced.

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Signed  Date 03/07/2023

Bright Takudzwa Mukwedeya

As the candidate's supervisors, we agree to the submission of this thesis:

Signed _____ Date 03/07/2023

Prof M. Mudhara (Supervisor)

DECLARATION 2: PUBLICATIONS

The following manuscripts (accepted or under review) form part of the research presented in this thesis.

Manuscript 1- Chapter 3

Mukwedeya, B., T. and Mudhara, M. Factors affecting rural youth participation in smallholder: (Accepted: Agraris: Journal of Agribusiness and Rural Development Research).

Manuscript 2- Chapter 4

Mukwedeya, B., T. and Mudhara, M. Exploring the factors influencing migration willingness and choice of destination (under review: Journal of Immigrant and Refugee Studies).

Manuscript 3- Chapter 5

Mukwedeya, B., T. and Mudhara, M. (2022) 'The determinants of life satisfaction among rural youth in Mashonaland East Province, Zimbabwe', *Innovative Issues and Approaches in Social Sciences*, 15 (1), pp. 242-262. doi.org/10.5281/zenodo.7040183.

Manuscript 4- Chapter 6

Mukwedeya, B., T. and Mudhara, M. (2023). 'Factors affecting livelihood strategy choice and food security among youths in Mashonaland East Province, Zimbabwe', *Heliyon,* 9 (4), pp. 1-12. https://doi.org/10.1016/j.heliyon.2023.e14735.

Conference contributions:

Mukwedeya, B., T. and Mudhara, M. 'Factors affecting rural youth participation in smallholder: Paper presented at the 2nd ARUA, CoE-USD International Conference, 28th-30th July 2021 Cape Town, South Africa (***Received best paper award***).

Author contributions

Bright Mukwedeya came up with concepts for all four articles. Bright also did data gathering, analysis, and drafting of the articles, while Mudhara, M. provided valuable supervision, direction, advice, and comments on each step of the production process.

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LIST OF ACRONYMS

AGRA	Alliance for a Green Revolution in Africa
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
COVID-19	Coronavirus Disease
EVT	Expectancy-value theory
FAO	Food and Agriculture Organization
FEWS NET	Famine Early Warning System Network
GDP	Gross Domestic Product
ILO	International Labour Organization
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organisations
NYP	National Youth Policy
SDGs	Sustainable Development Goals
SWB	Subjective Well Being
SWLS	Satisfaction With Life Scale
Stats SA	Statistics South Africa
UN	United Nations
ZFU	Zimbabwe Farmers Union
ZimStat	Zimbabwe Statistics
ZIMVAC	Zimbabwe Vulnerability Assessment Committee

CHAPTER 1: INTRODUCTION

1.1. Background to the study

Africa has the world's youngest population with nearly 225 million individuals between the ages of 15 and 24 years, representing 22.7 percent of the world's youth (Fox and Gandhi, 2021). If one includes all individuals under 35 years, the number increases to almost a billion people. According to Luis and Moncayo (2022), the youth population will continue to grow throughout the twenty-first century, reaching two billion by 2030. A key contributor to this growth is the so-called youth bulge, defined by Inayatullah (2016) as a stage of development in a country where child and infant mortality rates have fallen significantly in the context of mothers having a high fertility rate. This youth bulge presents both opportunities and challenges for the continent. On the opportunities side, the World Bank (2020) reveals that if youth are employed in productive activities, holding other factors constant, they can have a transformative impact on socio-economic growth and development. This impact is referred to as the demographic dividend. The economic miracle of East Asia is an example of the potential influence of the demographic dividend in Africa. Between 1965 and 1990, the East Asian region's gross domestic product (GDP) per capita increased at an annual rate of more than 6 percent (Mason and Kinugasa, 2004). It is argued that the youth bulge accounted for one-fourth of this growth. In terms of challenges, Munyoka (2020) posit that if the youth are unable to find work or economic prospects, the youth bulge can turn into a demographic problem, as a large group of unhappy youth can cause social and political upheaval.

The current record in Africa, however, is not encouraging. Several African countries, if not all, are failing to provide decent employment opportunities to millions of youths who are becoming economically active (Cloete, 2015; Abshoko, 2016; Giller, 2020; Munyoka, 2020; Fox and Gandhi, 2021). According to the International Labour Organization (ILO) (2021), over 60 percent of African youth are unemployed, most of whom face long-term unemployment. Those employed are either in the informal sector or underemployed. South Africa, Namibia and Zimbabwe provide a case in point as the prevailing youth unemployment rates are twice the rate of the general population (International Labour Organization, 2016). Youth unemployment in Africa is a socio-economic crisis affecting individuals, families and communities through different pathways (Fox and Gandhi, 2021). For instance, Meyer and Dunga (2014) and Herrera et al. (2021) found that unemployment is negatively influencing life satisfaction, a condition linked with low performance, poor health

and weak social relationships. Also, Cloete (2015) found a statistically significant association between unemployment and psychological and health-related factors such as pain, obesity, anxiety, stress, depression and chronic illness. Aslany and Sommerfelt (2020) add that youth unemployment is contributing to increased crime and social unrest in developing countries. When youth face limited employment opportunities they may become disillusioned and resort to illegal activities to survive or express frustration. Roopchund et al. (2020) found that youth unemployment is contributing to social exclusion and inequality. Youth who cannot secure stable employment face difficulties in accessing basic needs, such as education, food, shelter and health care. This leads to feelings of marginalization, frustration, and alienation, which have negative social consequences (Abdelwahed et al., 2020).

In the context of growing youth unemployment in Africa, Tiraieyari and Krauss (2018) argue that more structured economic participation of youth can prevent the dangers of unemployment. According to Daudu et al. (2011), Akpan et al. (2015) and Yunusa and Giroh (2017), the agriculture sector in Africa is naturally endowed with enormous potential for creating economic opportunities for millions of youths entering the labour market. The growth in income, population and urbanization has created a sharp increase in demand for food in Africa. The markets for food and beverages in Africa are projected to increase by more than 200 percent between 2010 and 2030, and the annual food import bill will rise to $110 billion by 2025 (Mckenzie and Williams, 2015). Sumberg et al. (2021) are of the view that this growth offers opportunities for youth in agricultural production, processing, marketing, retailing and business. At the same time, Udemezue (2019) and Magagula and Tsvakirai (2020) view youth engagement in agriculture as an opportunity to improve agriculture production and feed the growing population. According to Cheteni (2017), Magagula and Tsvakirai (2020) and Sumberg et al. (2021), youth possess skills, knowledge, attitudes and capacities that, if properly harnessed, can lift smallholder farmers out of the persisting challenge of low agriculture productivity. Chipfupa and Tagwi (2021) reveal that youth are creative, innovative, flexible, imaginative and open to new technologies and ideas in agriculture. Also, Gyimah-Brempong and Ondiege (2013) reveal that African youth are more educated compared to the general population. However, harnessing the youth-agriculture nexus requires research and policy to show an exhaustive understanding of youth's socio-economic characteristics, demographics, expectancies, aspirations, values, resource endowments and concerns.

1.2. Research problem

Several studies in Africa reveal that the youth-agriculture nexus is critical to food and nutrition security, employment and livelihoods at multiple scales through multiple pathways (Adesina, 2014; Magagula and Tsvakirai, 2020). This is because of the potential of the nexus to empower youth and address some of the global challenges such as food security, climate change, unemployment and migration (Chipfupa and Tagwi, 2021; Kafle et al., 2019). However, evidence shows that youth in Africa are getting disillusioned with agriculture, and their engagement in it is declining year after year (Afande et al., 2015; Akpan et al., 2015; Tedla, 2019; Chipfupa and Tagwi, 2021; Geza et al., 2021). This is reflected by the decrease in the number of hours spent by youth in agriculture. In Tanzania and Uganda, for example, Maiga et al. (2015) show that the number of hours spent by youth in agriculture per week decreased by 2.7 percent between 2008 and 2011 and by 9.2 percent between 2005 and 2012. Also, evidence in rural Malawi, Nigeria, Zimbabwe, South Africa and Tanzania shows that a significant number of youths are choosing to engage in non-agriculture livelihoods over agriculture (Kafle et al., 2019; Magagula and Tsvakirai, 2020; Chipfupa and Tagwi, 2021).

In response, several African governments have enacted youth-specific policies and interventions to stimulate interest or attract youth to agriculture. Examples include the Comprehensive Africa Agriculture Development Programme (CAADP), the Youth Employment in Agriculture Programme (YEAP) in Nigeria, the Youth Desk in the New Partnership for Africa's Development (NEPAD), and the National Youth Policy. In Zimbabwe, key national policies such as the National Youth Policy and National Skills Development Policy outline different approaches to attracting youth to agriculture. These include the provision of land, facilitating access to credit and providing training in agricultural production (Hlungwani et al., 2021). The expectation is that by addressing the challenges and capacitating youth with agricultural skills and knowledge, they will engage in the sector.

Despite the government efforts, youth interest in agriculture has remained relatively low, fitful and not reflective of the investment made in the sector thus far (Bhebhe et al., 2015). According to Lukwa et al. (2020), a significant number of youths are unemployed, food insecure, poor and dissatisfied with their lives. In Zimbabwe, the youth unemployment rate has remained relatively high, projected to be around 90 percent (Munyoka, 2020). Sumberg et al. (2012) and Magagula and Tsvakirai (2020) are of the view that information gaps characterising most of Africa's policy environment are limiting the drafting and

implementation of effective youth policies and interventions in agriculture. Robust and comparable evidence is lacking on the youth-agriculture nexus in Africa hence, certain policy decisions have been made based on common knowledge, misconceptions and wrong assumptions about youth. Sumberg et al. (2012) assert that these information gaps are unlikely to result in good policy and development outcomes hence, there is a need to unpack the complexities of the youth-agriculture intersection.

It is against this background that the study aimed to explore the youth-agriculture nexus and its impact on food security and livelihoods. However, Cheteni (2017), Yunusa and Giroh (2017) and Udemezue (2019) describe the youth-agriculture nexus as a complex and multifaceted concept that requires a comprehensive understanding of social, economic, environmental, psychological and cultural factors. As a result, Magagula and Tsvakirai (2020) argue that no single discipline can adequately capture the intricacy of the youth agriculture nexus. Hence, the study adopts an interdisciplinary approach to examine the youth-agriculture nexus. By incorporating different disciplines, the study explores the social, psychological, economic, and technological factors influencing the youth-agriculture nexus. The findings of this study can, theoretically, be used by other researchers as a benchmark for literature and research methods. Policy-wise, several government agencies and non-governmental organisations in Africa, Zimbabwe in particular, can use the study as a guide to design interventions targeted at harnessing the youth-agriculture nexus for improved food security, livelihoods and agriculture production.

1.3. Research objectives

The main research objective is to explore the youth-agriculture nexus and its implications on household food security and livelihoods. Specifically, the study seeks to achieve the following research objectives:

1) To determine the factors affecting rural youth participation in smallholder farming.
2) To explore the factors influencing migration willingness and choice of destination.
3) To examine the determinants of life satisfaction among rural youth.
4) To determine the factors influencing livelihood strategy choice and food security among youth.

1.4. Organization of the thesis

The thesis is divided into seven chapters, including an introductory chapter, a brief literature chapter, four empirical chapters and a conclusion chapter. The overall context, the research

problem and the study objectives are provided in the introductory chapter. A review of the literature on the youth-agriculture nexus is presented in Chapter 2. The chapter starts by delineating the characteristics of youth and their role in food security. This is followed by a discussion of the benefits of engaging youth in agriculture, and policies to improve youth engagement in the sector. The chapter also discusses the empirical evidence on the factors affecting youth career decisions and life outcomes. Lastly, the chapter discusses the importance of noncognitive factors and an interdisciplinary approach in agriculture studies.

Chapter three examines the factors affecting youth's decision to participate and the extent of participation in smallholder farming. The chapter uses econometric techniques of discrete choice (Probit and Ordinary least squares regression model) and descriptive statistics to analyze the data. The description of the study area is only done in this chapter, and chapters four, five and six refer to it. This is because the four empirical chapters use the same set of data gathered in Mashonaland East Province. Chapter four follows and examines the factors influencing migration willingness and choice of destination. Descriptive statistics analysed the demographics and social-economic characteristics of the youth. The binary logistic and multinominal logistic regression model examined the factors influencing migration willingness and choice of destination. Chapter Five identifies the factors affecting life satisfaction among rural youth. Like chapters three and four, both inferential and descriptive statistics examined the factors influencing life satisfaction. Chapter six is the last empirical chapter and determines the factors influencing livelihood choice and food security among youth. The chapter analyses the data using both descriptive (percentages and frequencies) and inferential statistics (multi-nominal logistic and Tobit regression model) and presents the results, discussion, and conclusions. Chapter Seven concludes the thesis and presents the main findings of the study. Policy recommendations as well as future research suggestions are presented in this chapter.

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CHAPTER TWO: A REVIEW OF THE YOUTH-AGRICULTURE NEXUS

2.1. Introduction

This chapter presents the literature on youth and agriculture nexus. Concerning the organization of the chapter, sections 2.2, 2.3 and 2.4 present youth demographics in Africa, the definition of youth and youth characteristics. Sections 2.5, 2.6 and 2.7 examine the importance of the youth-agriculture nexus. Section 2.8 provides an overview of the policies and interventions that support youth engagement in agriculture. Section 2.9 gives an analysis of empirical evidence of the factors affecting youth career decisions and life outcomes. Section 2.10 provides a summary of noncognitive factors while section 2.11 discusses the interdisciplinary approach. Section 2.12 concludes the chapter by pointing out the main findings of the review. In general, several research gaps exist in the youth-agriculture literature despite the growing research and policy interest. These gaps form part of the reasons why youth policies are not successful in attracting youth to engage in agriculture. Hence the study aims to provide an in-depth understanding of the youth-agriculture nexus and its implications on food security and livelihoods.

2.2. Demographics in Africa

Africa has experienced a significant increase in its population during the past few decades. Compared to its size in 1950, its current population is five times bigger now. According to Fox and Gandhi (2021) projections, Africa's population will continue to grow significantly while all the other continents will see a relatively slow increase or decline in their total population. Africa's population will double to 2.4 billion in 2050 and is projected to eventually reach 4.2 billion by 2100. Luis and Moncayo (2022) conclude that the future of humanity is increasingly African. At the same time, Africa is described as a youthful continent. In 2021, Africa’s population under 35 years represented almost a billion people, amounting to 22.7 percent of the global youth population (FAO, 2020). Projections show that the African youth population will grow rapidly in the foreseeable future. The youth population will reach 1 billion by 2030 and will more than double from current levels by 2055 (Figure 2.1) (United Nations, 2020). The picture given in Africa is the same in Zimbabwe. According to Zimstat (2019), Zimbabwe is a youthful country, with approximately 67.7 percent of its total population made up of youths. In general, the youth population in Zimbabwe has been growing steadily in all ten provinces since 2000.

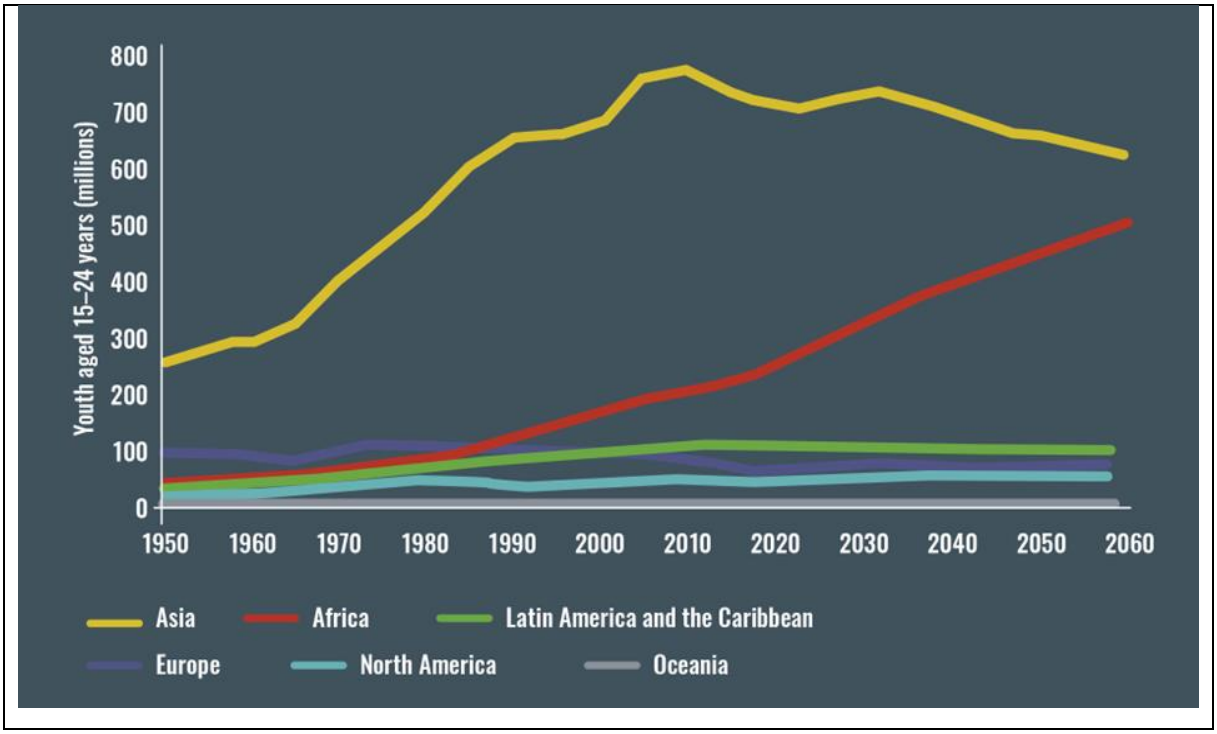

Figure 1.1: Global distribution of the youth population

Several factors are contributing to the consistent growth of the youth population in Africa. Some of these factors are educational while others are economic and demographic. Combined, these factors have become an engine behind Africa's rapid youth population growth. FAO et al. (2018) summarize the factors as follows: high crude birth rates, high fertility rates, childbirth at a young age, limited access to family planning, urbanization, conflict and displacement and a decline in infant mortality rates. Fox and Gandhi (2021) posit that many African countries have high fertility rates compared to other regions. Cultural norms, limited access to family planning, and a desire for larger families contribute to higher birth rates, resulting in a larger youth population in Africa. Further, Inayatullah (2016) is of the view that improvements in healthcare, access to medical facilities, vaccinations, and disease control measures have led to a decline in infant and child mortality rates across Africa. As more children survive and reach adolescence, the youth population grows. Despite efforts to improve education systems, Fox and Gandhi (2021) argue that many African countries still face challenges in providing quality education for all. Limited access to educational opportunities, especially for girls, can lead to higher dropout rates and early marriages, resulting in a larger youth population.

2.3. Defining youth

In general, youth refers to the transitional period between childhood and adulthood. Hlungwani et al. (2021) describe this phase as a period of transition and exploration, marked by physical changes, cognitive development, identity formation, and increased independence. During this phase, individuals transition from dependence on their parents to becoming independent adults. Also, individuals during this period often experience changes in identity, relationships, education, and career choices, shaping their future paths and roles in society (Luis and Moncayo, 2022). Step by step they obtain new social roles and extend their scale of social performance. Deotti and Estruch (2016) reveal that age is the easiest way to define this complex group of individuals. However, there is little consensus on the definition as different institutions and governments parade various age capsules (e.g., 14 to 25, 15 to 25, 15 to 35 and 15-34). For instance, the United Nations (UN) defines youth as a person between the ages of 15 and 24 years while the African Youth Charter characterizes youth as individuals between 15 and 35 years old. In Zimbabwe, youth are defined as persons between the ages of 15 and 35 years. This age range is specified in the Constitution of Zimbabwe and is in line with the African Youth Charter (Phiri, 2015). For this study, the term youth refers to individuals between the ages of 15 and 35 years.

2.4. Youth characteristics

African youth hold certain characteristics that make them an asset for sustainable development and food security especially in rural areas. The youth are more educated compared to the general population. Gyimah-Brempong and Ondiege (2013) reveal that on average, educational attainment rates are 53 percent higher among African youth when compared to the general population. This is in line with Scoones et al. (2019) who found that the youth literacy rate in Zimbabwe stands at 90.4 percent. Also, youths have high energy levels and enthusiasm. For instance, Khan et al. (2022) found that youth approach tasks and challenges with enthusiasm, curiosity, and a sense of adventure. They are motivated to make a positive impact, pursue their passions, and embrace new opportunities. Further, youth exhibit a certain level of adaptability and resilience as they navigate the complexities of their changing environment. According to Ntshangase et al. (2018) and Myeni et al. (2019), youth are often open to new ideas and willing to adapt to evolving technologies and innovations. In Morocco, for example, the youth are promoting sustainable environmental practices as their contribution to combating climate change and improving people's lives (HLPE, 2021).

Another example is in Egypt, where youth are leveraging frontier technologies and digital connectivity to promote social development, including among those marginalized.

Gyimah-Brempong and Ondiege (2013) found that the youth have a strong sense of idealism and a desire to make a positive impact on the world around them. They are often passionate about social justice, environmental sustainability, and addressing global issues. They are advocating for better governance, human rights, gender equality, and environmental sustainability. Youth often engage in activism and advocacy to raise awareness and promote change on various social and political issues (Kafle et al., 2019). They organize protests, rallies, and campaigns to express their concerns and demand action from governments, institutions, and society at large (Hlungwani et al., 2021). Overall, youth play a significant role in their communities, and harnessing this opportunity in agriculture can lead to food and nutrition security, sustainable livelihoods and development, particularly in rural areas.

2.5. Intersections of youth and food security

In line with Maslow's hierarchy of needs, food security is at the baseline of human needs. Napoli et al. (2011:11) define food security as a situation when all people, always, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. However, achieving food security is a persuasive problem in Africa. Evidence reveals that 821 million Africans live in poverty (FAO, 2020). In Zimbabwe, the affordability, availability, and access to quality food is a challenge affecting the lives of millions of people. According to ZIMVAC (2020), nearly 5.5 million rural Zimbabweans were food insecure in 2022. If one includes the urban population, the number increases to 7.7 million people, representing 60 percent of the total population. Multiple and complex reasons including widespread poverty, unemployment, migration, low agriculture production, recurrent climate-induced shocks and economic and political instability are causing food insecurity in the country (Sadiddin et al., 2019; Food Security Information Network, 2020). The COVID-19 pandemic, the greatest public health threat of our time further worsened the situation, especially among smallholder farmers. Most farmers reduced or stopped production because of increased input prices, disruption in labour, COVID-19 deaths, agriculture advisors not visiting farms, travel disruptions and low demand for farm produce (Wegerif, 2021).

As the population grows, the demand for food is increasing as well. Sharma and Kumar (2020) are of the view that food production in Africa should increase by 70 percent in 2050 if

it's to match the growing demand. Already feeding the rapidly growing population in Africa is a serious challenge for stakeholders in the agricultural sector, especially the farmers. Wegerif (2021) show that the demand for food is overweighing the supply threatening the already food-insecure population. Extreme weather events and climate change, poor access to markets, and limited access and adoption of modern production technologies are some of the factors influencing the ability to meet the food demand of a growing population (FAO, 2018; Giller, 2020; Jambo et al., 2021). This, therefore, demands urgent solutions that can sustainability increase agriculture production. Several studies show that the youth form part of these solutions (Akpan et al., 2015; Akinyemi and Mushunje, 2017; Cheteni, 2017; Abubakar et al., 2019; Fawole and Ozkan, 2019; Twumasi et al., 2019). As discussed earlier, youth have characteristics that can lift communities and nations out of poverty and food and nutrition security.

2.5.1. Food availability

According to the World Food Programme (2009), the availability of enough food through production, imports, food stocks, and food aid is referred to as food availability. Studies reveal that smallholder farming in Africa is critical to household food supply or production (Mutami, 2015; Pienaar and Traub, 2015; Kuivanen et al., 2016; Wegerif, 2021). According to FAO (2016), 70 percent of food consumed in Africa comes from smallholder farming. However, the farmers face a myriad of challenges including climate change, limited access and adoption of modern production technologies, lack of education and poor access to markets (Mutami, 2015; Pienaar and Traub, 2015). These factors directly affect agricultural production and food availability. In support, a survey in Zimbabwe revealed that most farming households are producing below the subsistence level (FAO, 2020).

To improve agriculture production among smallholder farmers, Redding et al. (2011) propose improving access and adoption of modern agricultural technologies and approaches. Ntshangase et al. (2018) and Myeni et al. (2019) reveal that youth play a significant role in technology adoption in agriculture. Youth can embrace modern agricultural practices, machinery, and techniques that can increase productivity better compared to other age groups. In support, Ntshangase et al. (2018) and Myeni et al. (2019) found that technology adoption is higher among youth compared to the older generation. Myeni et al. (2019) in South Africa found that youth have a high adoption rate of modern production methods compared to elderly farmers. By adopting improved farming technologies, youth can

contribute to increased agricultural production and the availability of food at the household and national levels.

2.5.2. Food Access

Food access requires that an individual or household has enough resources to obtain or produce food for a nutritious diet (Russell et al., 2011). Food access involves three elements namely economic, sociocultural, and physical means (Napoli et al., 2011). According to Gross et al. (2000), physical access becomes an issue when food is available but not uniformly distributed across the population due to poor storage and road networks, a case in Zimbabwe. The economic dimension is illustrated when food is readily available and fairly distributed, yet people cannot afford to buy the food. From the sociocultural viewpoint, food insecurity arises when food is physically available, and the consumer can afford to buy the food but cannot do so because they belong to a particular social group or gender (Napoli et al., 2011).

Youth play a significant role in improving food access among the rural population. As discussed earlier, youth have the potential to improve agriculture production which can be translated to improved farm income. Ngema et al. (2018) found a positive and significant association between income and food security. Thus, the chances of being food secure increase as farm income increases. This is because high-income earners can purchase foods of higher nutritional quality compared to lower-income households (French et al., 2019). In other words, income earned from smallholder farming allows for greater economic access to nutritious food available on the market and promotes diversity of diet (Diouku et al., 2013).

2.5.3. Food utilization

According to Gross et al. (2000), food utilization is the term used to describe the body's capacity to absorb and digest food. Food utilization concentrates on food safety, nutritional knowledge, food storage, sanitation and food preparation. So, for a healthy and active life, the food consumed must supply enough energy and nutrients. This is significant in agriculture, where most of the activities are strenuous and labour-intensive (Napoli et al., 2011). The youth play a significant role in ensuring food utilization. One area of impact is the ability of youth to produce more nutritious food. Van Averbeke and Khosa (2007) found a statistically significant and positive association between agricultural production and household nutrition in terms of micronutrient intake. In the study, fresh produce in the form of fruit and vegetables produced were additions to the diet enabling household members to consume a

nutritionally adequate diet. Another important contribution of youth toward utilization is through improved incomes (Pienaar and Traub, 2015a). Myeni et al. (2019) posit that youth can adopt modern technologies and approaches which can improve agricultural production and farm incomes. Apart from production, youth play a vital role in promoting nutrition education and raising awareness about the importance of healthy eating habits. They engage in school nutrition programs and campaigns that educate individuals about the nutritional value of different foods, balanced diets, and malnutrition (Auta et al., 2017). By disseminating knowledge about proper food utilization, youth contribute to improving dietary practices and overall nutritional well-being.

2.5.4. Food stability

Food stability requires food to always be present in terms of availability, access and utilization (Napoli et al., 2011). Stability is when the supply of food remains constant during the year and in the long term at any level. Youth contribute significantly to food stability through their active participation in various areas of the food system. Youth contribute to food stability by cultivating crops, raising livestock, and practising sustainable agricultural techniques. According to Ntshangase et al. (2018), youth bring innovation, entrepreneurship, and energy to the agricultural sector, increasing food production and diversification. Further, youth are often at the forefront of promoting sustainable agriculture and environmental stewardship. Youth actively adopt and promote sustainable farming practices, including organic farming, agroforestry, conservation agriculture, and water management techniques (Myeni et al., 2019). Their efforts contribute to long-term food stability by preserving natural resources and promoting ecological balance.

2.6. Intersections of Youth and Agriculture

In the context of growing food insecurity, poverty and unemployment there has been increasing policy and research interest in the youth-agriculture nexus, especially in rural areas (Chipfupa and Tagwi, 2021; Fox and Gandhi, 2021; Sumberg et al., 2021). Chipfupa and Tagwi (2021) posit that both the youth and agriculture benefit from the nexus. For instance, a large body of literature found that the youth can sustainably improve agriculture production by adopting new ideas and approaches in agriculture and bringing in their enthusiasm, curiosity, and a sense of adventure in the sector (Naamwintome and Bagson, 2013; Afande et al., 2015; Akpan et al., 2015; Akinyemi and Mushunje, 2017; Cheteni, 2017; Abubakar et al., 2019; Fawole and Ozkan, 2019; Twumasi et al., 2019). On the other hand, agriculture offers livelihood opportunities for the growing youth population. Cheteni (2017) and Twumasi et al.

(2019) posit that there are employment and business opportunities along the agriculture value chain that can ensure sustainable livelihoods for youth in Africa. Furthermore, agriculture provides food security to the youth by making food available for consumption. Overall, the nexus is two-fold and crucial to the youth and agriculture. It empowers youth, addresses global challenges such as food security, climate change, unemployment, migration, and promotes rural development, and drives economic growth. Cheteni (2017) is of the view that by harnessing the nexus, a more resilient, inclusive, and sustainable agricultural sector can be created for generations to come.

2.6.1. Youth, Agriculture, and Unemployment

For millions of African youths, finding a decent job is a drawn-out uphill struggle (FAO, 2017). Over 60 percent of African youth are unemployed, most of whom face long-term unemployment (International Labour Organization, 2016). In Zimbabwe, youth unemployment is a serious national crisis linked to crime, migration, food insecurity, poverty, and inequality (Fox and Gandhi, 2021). Bhebhe et al. (2015) found that youth unemployment is contributing to increased crime rate and engagement in social ills such as drug abuse, prostitution and alcoholism. Also, Meyer and Dunga (2014) found an inverse relationship between unemployment and life satisfaction. Further, Cloete (2015) found that unemployment leads to psychological and health-related factors such as pain, obesity, anxiety, stress, depression and chronic illness.

Given the worsening state of youth unemployment and underemployment in Africa, Gollin (2014) and Yunusa and Giroh (2017) posit that the agriculture sector, particularly smallholder farming, offers great potential for addressing youth unemployment on the continent. Globally and in Africa, food markets are booming due to rapid population growth, rising income and shifts in diets (Kearney, 2010). The World Bank projects that Africa's agriculture and agribusiness sector will be a US$ 1 trillion market by 2030. This offers more opportunities for youth in processing, packaging, storage, transportation, marketing, distribution of agricultural products, Agri-entrepreneurship, agricultural extension and advisory services and research and innovation. Agriculture thus, provides employment opportunities that can lift young Africans out of poverty and food insecurity (Mbah et al., 2016). Indirectly, agriculture offers an opportunity to address the criminal and illegal activities unemployed youth engage in, thus, creating a better and safer environment for all.

2.6.2. Feed the growing population

Feeding the rapidly growing population in Africa has already been a serious challenge for stakeholders in the agricultural sector, especially the farmers. Hall et al. (2017) show that the demand for food is overweighing the supply and this has been the situation in Africa for many years. This has resulted in the continent being a net importer of food. According to Food and Agriculture Organization (2018), overall food production should increase by 70 percent to feed a global population of 9.1 billion people in 2050. In several developing countries like Zimbabwe, agricultural production would need to almost double. Rehman and Hussain (2016) and Al-Kodmany (2018) argue that farmers need to adopt innovative production methods and technologies such as monoculture, geographic information software, drone technology, genetically manipulating plants, aeroponics and hydroponics to sustainably improve agricultural production.

Despite the potential of technology and innovation to change Africa's agriculture sector, the ageing farm population dominating the agriculture sector is less likely to embrace these new ideas and technologies (Ntshangase et al., 2018; Myeni et al., 2019). The ageing farmers find it difficult to adopt the technology required to sustainability increase agricultural production. For instance, Myeni et al. (2019) found a low rate of adoption of Sustainable Agricultural Practices (SAPs) such as land cover cropping and tied ridging among elderly farmers in rural South Africa. Similarly, Olwande and Siker (2009) analysed the adoption rate among farmers and found that for an added year of age, fertilizer use intensity declines by 0.12 kg/acre. On the other hand, Kwakye et al. (2021) posit that youth are eager and more likely to adopt modern technologies and apply them to agriculture. Khan et al. (2022) in rural Egypt found a high adoption rate of modern technologies in agriculture among young farmers. Youth are leveraging frontier technologies and digital connectivity to promote socioeconomic development in their communities. Myeni et al. (2019) argue that youth have a high-risk aversion and interest in long-term investments in agriculture compared to their ageing counterparts who have a low interest in long-term investments in agriculture and low-risk aversion. By adopting new production technologies and sustainable approaches in agriculture, the youth can significantly improve productivity and meet the growing food demand.

2.6.3. Youth, migration and agriculture

Most youths in rural Africa are leaving their rural communities for places they perceive better in terms of economic opportunities and living standards (Khatir and Rezaei-Moghaddam, 2014). Alarima (2019) found that more than 60 percent of youth in rural areas are willing to

engage in migration. This is because of factors such as poverty, food insecurity, climate change, poor rural infrastructure, unemployment, socioeconomic characteristics and individual preferences (Grote and Waibel, 2017; Wondimagegnhu and Zeleke, 2017; Johnes, 2020). In Zimbabwe, Munyoka (2020) found unemployment to be one of the main factors forcing people to migrate. There is a dearth of economic opportunities for the growing youth population due to political and economic instability. According to Mlambo (2018), more than four million Zimbabweans are reported to have left the country during the last two decades.

The process of rural migration, however, has negative effects on both the migrants' areas of origin and destination. In most rural areas, migration has resulted in an uncontrolled loss of the youth who are the most active, healthy, and productive elements of the population. Pam (2014) and Alarima (2019) argue that the loss of youth negatively influences agricultural production and farm incomes. Destination areas share this burden through the socioeconomic marginalization of rural migrants. Rural migrants find it difficult to join the labour market because they lack networks and the required resources for job searching. As a result, they end up engaging in illegal activities such as theft, drug abuse and prostitution while some find themselves in low-paid and insecure jobs (Amrevurayire and Ojeh, 2016). Mbah et al. (2016) and Grote and Waibel (2017) found that the costs associated with rural migration often outweigh the benefits. For this reason, several studies are encouraging youth to engage in agriculture to reverse migration (Mbah et al., 2016; Grote and Waibel, 2017; Wondimagegnhu and Zeleke, 2017; Johnes, 2020). Munyoka (2020) argues that engaging youth in agriculture can limit rural migration and at the same time lift youth out of poverty, food insecurity and engagement in social ills and crime.

2.6.4. Youth, life satisfaction and agriculture

Life satisfaction is an assessment of a person's feelings and attitudes towards life at a given time (Valois et al., 2002). It is emerging as a complement to the more traditional and material ways of measuring poverty and food insecurity. Life satisfaction is generally low in most developing countries, especially among youth due to challenges such as unemployment, food insecurity and poverty (Asfahani et al., 2019; Chima et al., 2020). Empirical evidence reveals a strong correlation between life satisfaction and health-related factors such as pain, obesity, anxiety, smoking and chronic illness (Chima et al., 2020). Also, Valois et al. (2002) found life satisfaction to significantly influence violence, sexual risk behaviour and substance abuse. For improved life satisfaction, Chima et al. (2020) argue that agriculture forms part of the solution. Agriculture offers business and employment opportunities for unemployed

youths to engage economically. At the same time, rural youth engagement in agriculture can lead to improved food availability and access, leading to higher levels of life satisfaction.

2.7. Policies to engage youth in agriculture

The youth constitute a substantial share of the population of most African countries and are an integral part of the strategy of achieving the international goals of poverty and food insecurity eradication. However, there has been growing concern over the limited youth interest or participation in agriculture. Several studies show that youth in Africa are getting disillusioned with agriculture, and their engagement in it is declining year after year (Magagula and Tsvakirai, 2020). This has been hastened by among others, less investment in agriculture, climate change, and lack of access to credit and agricultural knowledge (Redding et al., 2011; Afande et al., 2015; Akpan et al., 2015; Yami et al., 2019; Geza et al., 2021). For this reason, African governments have committed to reigniting youth interest in agriculture by developing and implementing youth-specific policies and interventions. Examples include the Comprehensive Africa Agriculture Development Programme (CAADP), the Youth Desk in the New Partnership for Africa's Development (NEPAD), and the Youth Employment in Agriculture Programme (YEAP) in Nigeria. In Zimbabwe, youth participation in agriculture has been a key focus area of important policies and initiatives such as the National Youth Policy of 2013 and the Youth Development Programme by the Zimbabwe Farmers Union (ZFU). Below is a detailed explanation of youth policies and programmes drafted and implemented in Zimbabwe.

2.7.1. National Youth Policy

Several African governments implemented policies to foster the conditions that will allow youth to realise their potential and integrate into society at large as productive members of society. According to the Youthpolicy think tank, thirty-two out of the fifty-four countries (e.g., Zimbabwe, South Africa, Zambia, Kenya Ghana) in Africa have a youth policy, while two (The Central African Republic and Cote d'Ivoire) have one in draft form and a further fourteen have no youth policies (e.g., Congo, Somalia, Algeria, Sudan, and Mali). For the remaining six, the status is unclear (e.g., Egypt, Lesotho, South Sudan, and Djibouti). Each country's policy attempts to address its own set of issues, but notable common themes which stand out are economic participation, education and skills and health and well-being. In Zimbabwe, Malawi, and South Africa, engaging youth in agriculture is seen as a vital strategy to promote economic participation. Malawi's youth policy lists among its interventions, measures to provide tax exemptions on agricultural tools and machinery,

modernization of agriculture, and improve access to productive agricultural land. In South Africa, the policy proposes the provision of land, extension services, training in agricultural skills, and farming implements as part of the efforts to improve youth participation in agriculture.

In Zimbabwe, the National Youth Policy (NYP) was first introduced in 2000 to create a supportive environment for the empowerment and development of youth in a comprehensive, coordinated and multi-sectoral manner. Owing to the developments that occurred at the national, regional, and international levels since 2000, the policy was later revised and published in 2013. The revised policy outlines the goals and plans that must be followed by all parties involved in youth empowerment and development. The new policy highlights the desired need to see youth contribute constructively to national development through the creation of an enabling environment that fosters youth to realise their full potential. Several guiding frameworks, including the African Youth Charter (AYC), the World Programme of Action for Youth (WPAY), and the Global Political Agreement (GPA), have contributed to the policy. The strategy adheres to significant regional and global Conventions and Agreements to which the Government of Zimbabwe is a party, as well as the Zimbabwean Constitution.

The policy acknowledges that there are several major issues (social, economic, and cultural) that need to be addressed in the country. The National Youth Policy promotes equality of opportunity and acknowledges the interconnectedness of the issues impacting youth. The policy signals areas for intervention and priorities for development to enable the optimal development of young Zimbabweans. The following areas are prioritised in the policy: education and skills development, youth empowerment and participation, youth employment and sustainable livelihoods, youth health and gender equity and equality. The National Youth Policy recognizes that decent employment and participation in agriculture provide sustenance and sustainable livelihood to most of the youth. Through this recognition, the policy seeks to engage youth in agriculture first by training them in agricultural production, utilizing modern methods and current information and communication technologies to gain access to existing lucrative markets. The second is the need to provide land rights to youth and youth organisations to encourage socio-economic development. The third concerns the facilitation of access to credit to encourage youth engagement in agricultural activities. These interventions are spearheaded by the Ministry of Youth Development, Indigenisation and Empowerment (MYDIE) with the expectation that by addressing the challenges and

capacitating youths with agricultural skills and knowledge, they will become interested in agriculture.

2.7.2. Youth development programme

Zimbabwe Farmer's Union (ZFU) is one of the significant farmer's union organisations in Zimbabwe that aims to advance farmers' interests and welfare through advocacy, networking, information sharing, capacity building, the establishment of profit-making businesses, gender mainstreaming, and mobilisation of resources and members. ZFU focuses on farmers of all age groups. However, with the realization of the important role of youth in socio-economic development, food security and rural development, there has been a deliberate thrust to focus on them. The youth now have their structure from the ward to the national level. Together with several development partners, the Zimbabwe Farmers Union implemented the Youth Development Program (YDP). All ZFU departments endeavour to support the Youth Development Program by putting in their best efforts in the direction of empowering and inspiring young farmers. The following theme areas are included in the youth development programme: capacity building, ICTs, market access, promoting participation and strengthening young farmers club structures.

Despite the government's ardent efforts, the initiatives and policies have not been met with enthusiastic buy-in from the youth. Thus, the policies and initiatives have not produced the expected flow of youth into agriculture (Lukwa et al., 2020). Most of the youths have remained in the vicious cycle of unemployment, while millions have been pushed into an extremely vulnerable condition of food insecurity (Ghimire, 2017; Scoones et al., 2019; ZIMVAC, 2020). In Zimbabwe, unemployment has averaged 60 percent since 2010 and food insecurity has remained relatively high affecting an estimated seven million people (ZIMVAC, 2020). While the policies and programmes are worthwhile, the empirical data demonstrates that they are also quite limited. For one, they only aim to ensure that youth receive their fair share rather than necessarily rearranging development projects to suit the requirements of youth. Second, most of the policies and initiatives are not evidence-based (Mtwezi, 2014). Those at the forefront of national and youth policy development rely heavily on "common knowledge" to develop and argue policy alternatives to respond to the problem of youth and agriculture. This is attributed to the fact that information regarding youth and agriculture is not based on actual evidence from the youth's lives and experiences (Gyimah-Brempong and Kimenyi, 2013; Mtwezi, 2014; Chipfupa and Tagwi, 2021). Hence the study,

engage with the youth to understand the factors affecting their career decision and life outcomes.

2.8. The determinants of youth career decisions and life outcomes

2.8.1. Participation in agriculture

The growing importance of the youth-agriculture intersection has seen several studies examining the factors affecting youth participation or interest in agriculture (Afande et al., 2015; Akpan et al., 2015; Akinyemi and Mushunje, 2017; Auta et al., 2017; Cheteni, 2017; Yunusa and Giroh, 2017; Udemezue, 2019). Kafle et al. (2019) classified the factors into three main themes namely individual, socio-economic and resource endowment. Individual characteristics include age, gender, marital status, education, religion and income (Cheteni, 2015; Magagula and Tsvakirai, 2020). In similar studies, household characteristics such as household size, social group membership and access to markets influenced youth participation in agriculture (Kimaro et al., 2015; Sichone and Kwenye, 2018; Kafle et al., 2019). Also, studies show that factor endowments such as land, social and human capital influence youth interest or participation in agriculture (Chipfupa and Tagwi, 2021).

Although several studies have examined the factors influencing youth participation in agriculture, several gaps exist in the literature. First, the general focus of the studies has been on traditional factors (e.g., age, marital status, gender and access to land). Few studies have integrated noncognitive factors in their analysis of youth participation in agriculture (Magagula and Tsvakirai, 2020; Chipfupa and Tagwi, 2021). Also, the review shows that the influence of socioeconomic and demographic factors on youth participation in agriculture is inconclusive. For instance, Magagula and Tsvakirai (2020) in South Africa found that married youth are less likely to participate in agriculture compared to their non-married peers. This may be because of limited resources (e.g., time and finances) to engage in extracurricular pursuits like farming. Contrary, Yunusa and Giroh (2017) in Nigeria found the likelihood of engaging in agriculture to be higher among married youth. A probable explanation is that in married households, the availability of labour to engage in different livelihood options is better compared to unmarried households. This contradiction in results reveals that the direction of influence of marital status is indefinite. This is a case for several factors such as education, gender, age, access to land and credit and employment status. The review also showed a geographical clustering of studies on youth participation in agriculture. Most studies on youth participation in agriculture are in West Africa, specifically Nigeria.

Few studies have explored the factors affecting rural youth participation in agriculture in sub-Saharan Africa particularly in Zimbabwe.

2.8.2. Life satisfaction

Life satisfaction in various contexts continues to be a crucial topic for policymakers. Hence a growing body of literature has examined the construct (Valois et al., 2002; Strine et al., 2008; Ebrahim et al., 2013; Meyer and Dunga, 2014; Muzindutsi and Sekhampu, 2014; Ngoo et al., 2015; Aysan and Aysan, 2017; Geldenhuys and Henn, 2017; Chen and Hou, 2019; Chima et al., 2020; Bialowolski and Weziak-Bialowolska, 2021; Sabri et al., 2021; Ansah et al., 2022). Yakubu and Aidoo (2015) grouped the factors affecting life satisfaction into economic and non-economic factors. Economic factors include inflation, income, gross domestic product and price stability while non-economic factors include gender, marital status, age, education, religion, unemployment, social security and service delivery (Chima et al., 2020; Sabri et al., 2021; Ansah et al., 2022). Despite the increased attention on life satisfaction, most empirical studies are conducted in developed nations with the findings mostly generalized to developing countries in Africa. Few studies have explored the construct of life satisfaction in the African context especially in rural areas where high levels of poverty and food insecurity prevail. As a result, the determinants of life satisfaction among the rural population are not well understood. Also, studies that solely focus on rural youth in Africa are scarce. The available limited literature concentrates on the elderly or the general population. An exception is Chima et al. (2020) and Ansah et al. (2022) who have examined life satisfaction among youth in Africa. Also, none of the studies have included noncognitive factors in their analysis of life satisfaction.

2.8.3 Migration willingness

Empirical research on migration can potentially provide an understanding of the migration decision-making process. Several empirical studies examined the factors affecting migration in rural Africa (Crush and Tevera, 2010; Herrera and Sahn, 2013; Pam, 2014; Balodi and Council, 2015; Deotti and Estruch, 2016; Edwin, 2016; Mbah et al., 2016; Sithole and Dinbabo, 2016; Wondimagegnhu and Zeleke, 2017; Imuetinyan, 2018; Mlambo, 2018; Alarima, 2019; De Brauw, 2019; Ma et al., 2019; Mkodzongi and Spiegel, 2020; Munyoka, 2020). Alarima (2019) classifies the factors into individual (e.g., age, marital status, gender and level of education), household (e.g., dependency and household size), push (e.g., food insecurity and unemployment) and pull (e.g., economic opportunities and infrastructure) factors. In the migration literature, education is among the main determinants of migration.

Grote and Waibel (2017) and Imuetinyan (2018) for example show that the likelihood of wanting to migrate is higher among educated individuals compared to their counterparts with fewer years of education. Despite the abundance of literature on migration in Africa, few studies have focused solely on rural youth (Deotti and Estruch, 2016; Edwin, 2016; Ibrahim and Shaibu, 2016; Alarima, 2019). Like life satisfaction literature, most migration studies focus on the general population. Also, the review shows that the migration literature is biased towards rural-urban migration. Literature on rural-to-rural and international migration is scarce. An exception is Crush and Tevera (2010), Deotti and Estruch (2016) and Munyoka (2020) who examined migration patterns among young migrants in Africa. This forms a strong bias because the drivers of migration differ with the type of migration pattern (Munyoka, 2020).

2.8.4. Food security and livelihood choice

With the growing interest by governments to uproot food insecurity in Africa, several studies have examined household food security status and its determinants (De Cock et al., 2013; Abegaz, 2017; Maziya et al., 2017; Mojela et al., 2018; Ngema et al., 2018; Nkomoki et al., 2019; Giller, 2020; Lukwa et al., 2020). Due to the multi-dimensional nature of food security, the determinants range from demographic (e.g., age, marital status, gender), and socioeconomic (e.g., employment status, income) to context (e.g., environmental degradation, poor rural development). As highlighted earlier, studies that direct research attention exclusively to rural youth in Africa, particularly in Zimbabwe are limited or rare. This is the case for food security and livelihood literature. The general focus has been on the general population or specific groups such as women, children and the elderly (Sinyolo et al., 2014; De Cock et al., 2013; Giller, 2020; Harrisfry et al., 2015; Jambo et al., 2021; Ngema et al., 2018; Nkomoki et al., 2019; Sadiddin et al., 2019). Also, the limited literature on the factors influencing food security and livelihood choice shows a contradiction in findings. For instance, Ngema et al. (2018) found that education has a positive impact on household food security while Jambo et al. (2021 reported a negative association between education and household food security.

2.8.5. Synthesis of results

While significant research has been conducted on the youth-agriculture nexus, several research gaps still exist. First, studies that focus solely on rural youth in Africa are scarce. Most studies direct their attention to the general population or specific groups such as women, children and the elderly. As a result, conclusions are generalised to rural youth. Sabri

et al. (2021) are of the view that the absence of studies that solely focus on rural youth is a cause of concern given their importance to sustainable development and food security. Deotti and Estruch (2016) argue that the generalisation of results to rural youth should be avoided at all costs. This is because concerns, challenges, expectations and values vary with age (Magagula and Tsvakirai, 2020).

Second, most of the studies have generally focused on traditional factors (e.g., age, gender, level of education) without including noncognitive factors in their analysis. Chipfupa and Tagwi (2021) argue that fostering a host of noncognitive factors such as behaviours, motivation, skills and attitudes is crucial in understanding the youth-agriculture nexus. Several studies found that noncognitive factors directly influence one's decision-making process and life outcomes (Broeck et al., 2010; Ball et al., 2016; Katelyn et al., 2017; Magagula and Tsvakirai, 2020). Magagula and Tsvakirai (2020) argue that incorporating cognitive provides a holistic and better understanding of the youth-agriculture nexus leading to evidence-based policies and interventions that effectively support youth.

Third, there is a geographical clustering of youth studies in Africa. While there is a growing research interest in African youth, most studies are in Western Africa, specifically in Nigeria. According to Aslany and Sommerfelt (2020), the geographical clustering of studies leads to research bias and homogeneity. Findings may be influenced by the dominant region's specific characteristics, norms, or priorities. This can result in a lack of diverse perspectives and a limited understanding of the broader context. Further, Akinyemi and Mushunje (2017) found that geographical clustering limits the generalizability of results. When research studies are clustered in a specific geographic region, the generalizability of the findings may be limited. The findings may not apply to other regions or populations with different characteristics, contexts, or cultures. This can hinder the development of a comprehensive understanding of the topic under investigation. As explained by Cheteni (2017), youth issues, concerns, challenges, values and expectations are complex and should be considered contextually. It is inappropriate to generalize observations made in one situation; rather, each situation must be examined carefully to record its outcomes. Chima et al. (2020) posit that research in different contexts offers a broader perspective, cultural insights, and increased generalizability. It promotes cross-cultural understanding, informs policy and practice, and encourages innovation and collaboration, leading to more meaningful and impactful research outcomes.

Also, the literature shows that the influence of socioeconomic and demographic factors on youth career decisions and life outcomes is inconclusive. For instance, Abegaz, (2017) found a positive and significant association between food insecurity and marital status, while Ngema et al. (2018) found an inverse relationship between food insecurity and marital status. Also, Meyer and Dunga (2014) in South Africa found an inverse relationship between education and life satisfaction, while Ngoo et al. (2015) found life satisfaction to increase as the level of education increases. This is the case for several factors such as gender, education, land ownership and household size. This inconclusive influence of socioeconomic and demographic factors necessitates the need for more studies using different data sets and methods in different contexts. This will help in the generalization of the factors affecting food security and livelihood choice among youth in rural Africa (Ngema et al., 2018).

2.9. Noncognitive factors

According to Wang et al. (2022), noncognitive factors, also known as soft skills, are personal attributes and characteristics that influence how individuals think, feel, and interact with others. These factors include motivation, leadership, behaviour, self-esteem, social skills, perseverance, self-control, attitude, and belief. Kreft et al. (2021) reveal that noncognitive skills can predict numerous adult outcomes, including academic achievement, career decisions, financial stability, criminal behaviour, and health. By incorporating social sciences and cultural studies into agricultural research, researchers can identify and understand the socio-cultural barriers that impact smallholder farmers (Chipfupa et al., 2021). Factors such as gender norms, traditional practices, social hierarchies, and local beliefs can significantly influence farmers' decision-making, access to resources, and adoption of new technologies or practices. However, previous studies have neglected the noncognitive factors in their analysis of the youth-agriculture nexus. Chipfupa and Tagwi (2021) argue that although the traditional factors are important to youth engagement in agriculture, noncognitive factors themselves are equally so. By considering noncognitive factors, researchers can design interventions that address not only technical aspects but also social, psychological, and economic aspects. This can lead to more effective strategies for improving youth livelihoods, promoting sustainable practices, and fostering resilience in the face of challenges (Kreft et al., 2021).

2.10. Inter-disciplinary approach

An interdisciplinary approach is a method of problem-solving or knowledge creation that involves integrating knowledge, methodologies, and perspectives from multiple disciplines (Winarto, 2018). It involves combining diverse disciplinary perspectives to gain a more comprehensive understanding of the subject matter. It goes beyond the boundaries of a single discipline and encourages collaboration and synthesis across different fields of study (Kaufmann and Cleveland, 1995). In agriculture, the interdisciplinary approaches recognize that agricultural challenges are not solely technical or scientific but also encompass social, economic, and psychological dimensions (Ryan et al., 2023). By integrating knowledge from various disciplines, researchers can gain a more comprehensive understanding of the complex dynamics and interactions within agricultural systems.

Interdisciplinary research examining the youth-agriculture nexus is crucial for understanding the complex dynamics and challenges related to youth engagement in agriculture. The youth-agriculture nexus is a multifaceted topic that requires a comprehensive understanding of social, economic, environmental, psychological and cultural factors (Magagula and Tsvakirai, 2020; Chipfupa and Tagwi, 2021). Interdisciplinary research integrates insights from disciplines such as agriculture, sociology, economics, psychology and more, enabling a deeper understanding of the complex interactions and interdependencies involved. By incorporating different disciplines, researchers can explore the unique social, economic, and environmental factors influencing youth involvement in agriculture in specific contexts (Ogieriakhi and Woodward, 2022). Interdisciplinary research, therefore, is crucial for understanding the complex and multifaceted youth-agriculture nexus and the development of effective policies or strategies.

2.11. Conclusion

The literature from different empirical studies and data sets in different contexts reveal that the youth-agriculture nexus is critical to food and nutrition security, poverty and sustainable livelihoods in Africa. Although studies have been carried out to understand the youth-agriculture nexus, some gaps are found to exist. These include the exclusion of noncognitive factors in the analysis, a dearth of studies that exclusively focus on rural youth and geographical clustering of youth studies. These gaps form part of the reasons why some youth policies have not resulted in a great deal of success. To fill the gaps, the study adopts an inter-disciplinary approach that involves examining the intersection of youth and agriculture from various perspectives, considering noncognitive factors, and demographic,

social, economic and institutional factors. By employing this approach, the study can gain a comprehensive understanding of the youth agriculture nexus, leading to evidence-based policies and interventions that effectively support youth in rural Africa.

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CHAPTER 3: FACTORS AFFECTING RURAL YOUTH PARTICIPATION IN SMALLHOLDER FARMING

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3.0 Abstract

Several governments in Africa have enacted policies and interventions to improve youth engagement in agriculture, however, their success has been elusive. Youth participation in agriculture has remained relatively low and desultory, suggesting that there could be a poor understanding of the factors influencing youth career decisions. To fill this gap, the study examined the factors influencing youth participation in agriculture. The study integrated noncognitive factors in the analysis of youth participation in agriculture. A pre-tested structured questionnaire collected data from 200 youths across three districts of Mashonaland East Province in Zimbabwe. Both inferential and descriptive statistics analysed the data. The study shows that rural youth are leaving and losing interest in agriculture. Over 70 percent of the youth in the study will not be participating in the sector in the next coming five years. Apart from traditionally investigated factors such as age, marital status, household size, and employment, noncognitive factors namely expectancy and value statistically significantly influenced youth participation in agriculture in the study. The study recommends that the government adopt an interdisciplinary approach to policy decisions and redesign policies to include noncognitive factors.

Keywords: Agriculture, expectancy-value theory, participation, youth, unemployment.

3.1. Introduction

Africa has the youngest population in the world with more than 400 million people aged between the ages of 15 and 35 years (Fox and Gandhi, 2021). Their absolute count makes them the largest generation the continent has ever had. Studies show that this youth audience is contributing daily to the benefit of their communities and nations (Cheteni, 2017; Martinson et al., 2019; Magagula and Tsvakirai, 2020; Sumberg et al., 2021). According to Sumberg et al. (2021), African youth are embracing entrepreneurship and leveraging innovative solutions to address local challenges such as climate change, food insecurity and poverty. Also, Yami et al. (2019) reveal that African youth are actively advocating for better governance, human rights, gender equality, and environmental sustainability. In agriculture literature, a central and recurring theme is the important role of youth in achieving the Sustainable Development Goal of no poverty (SDG1), zero hunger (SDG2) and good health and well-being (SDG3) (Daudu et al., 2011; Afande et al., 2015; Akpan et al., 2015; Fawole and Ozkan, 2019). Cheteni (2017), Magagula and Tsvakirai (2020) and Sumberg et al. (2021) posit that youth possess knowledge, attitudes, capacities, and skills that, if properly harnessed, can lift communities and nations out of the persisting challenges of poverty, unemployment, and low agriculture productivity. Khan et al. (2022) posit that youth approach tasks and challenges with enthusiasm, curiosity, and a sense of adventure. Further, youth exhibit a certain level of adaptability and resilience as they navigate the complexities of their changing environment. According to Ntshangase et al. (2018) and Myeni et al. (2019), youth are often open to new ideas and willing to adapt to evolving technologies and innovations.

In recognising the importance of youth in agriculture, several African leaders and development organizations implemented policies and programs to encourage youth participation in agriculture. The Comprehensive Africa Agriculture Development Programme (CAADP), The Youth Desk in the New Partnership for Africa's Development (NEPAD), and the National Youth Policy in South Africa, Malawi, and Zimbabwe are just a few examples. According to Hlungwani et al. (2021), key national policies in Zimbabwe such as the National Youth Policy and National Skills Development Policy emphasize youth engagement in agriculture as an important driver for addressing unemployment, food insecurity and poverty in the country. In the National Youth Policy (NYP) of 2000, for instance, the importance of engaging youth in agriculture is alluded to as an important factor in the strategies for food insecurity and poverty eradication. The policy spearheaded by the Ministry of Youth Development, Indigenisation and Empowerment (MYDIE) details several options

for implementation. The first is the significance of training youth in agricultural production and utilizing modern methods and current information and communication technologies. The second is the need to provide land rights to youth and youth organizations to encourage socio-economic development. The third concerns the facilitation of access to credit to encourage youth engagement in agricultural activities. The expectation is that by addressing the challenges facing youth and capacitating them with agricultural skills and knowledge, they will become interested in the sector, ultimately improving their participation.

Despite the government's ardent efforts, the return on the amount invested in youth policies and strategies in Zimbabwe is poor (Scoones et al., 2019). Most of the youth remain in the vicious cycle of unemployment, while millions are extremely vulnerable to food insecurity (ZIMVAC, 2018; Lukwa et al., 2020). Magagula and Tsvakirai (2020) are of the view that the information gaps characterising much of Africa's policy environment are one reason for the low success of several youth policies and initiatives in agriculture. Several studies across Africa have examined the factors influencing rural youth participation in agriculture (Adesina, 2014; Afande et al., 2015; Akpan et al., 2015; Akinyemi and Mushunje, 2017; Cheteni, 2017; Martinson et al., 2019; Udemezue, 2019; Chima et al., 2020; Chipfupa and Tagwi, 2021; Geza et al., 2021). The studies show that individual characteristics (e.g., age, gender and marital status), household characteristics (e.g., dependency ratio and household size), factor endowments (e.g., physical, social and human capital) and institutional and organizational support (extension, land tenure and group membership) influence youth participation in agriculture.

Although several studies documented the factors influencing rural youth participation in agriculture, few gaps exist in the literature. First, the general focus of most studies has been on the effect of traditional factors (e.g., age, gender, education) on youth participation in agriculture. Few studies have integrated noncognitive factors in their analysis (Magagula and Tsvakirai, 2020; Chipfupa and Tagwi, 2021). Although traditional factors are important to youth engagement in agriculture, Chipfupa and Tagwi (2021) argue that noncognitive factors themselves are equally so. They further posit that understanding the noncognitive factors provides a holistic and better explanation of the youth decision-making process. Sumberg et al. (2012) are of the view that unless the complexities of rural youth are unpacked, it is difficult to design effective policies and interventions for supporting youth in agriculture. Second, there is a geographical clustering of youth studies in Africa. Most studies on youth participation in agriculture are found in Western Africa specifically in Nigeria. Few studies

have investigated the factors affecting rural youth participation in agriculture in sub-Saharan Africa particularly in Zimbabwe. According to Aslany and Sommerfelt (2020), the geographical clustering of studies leads to research bias and homogeneity. Findings may be influenced by the dominant region's specific characteristics, norms, or priorities which can result in a lack of diverse perspectives and a limited understanding of the broader context. Last, the influence of socioeconomic and demographic factors on youth participation in agriculture is inconclusive. For instance, Magagula and Tsvakirai (2020) found that married youth are less likely to participate in agriculture compared to their non-married peers while Yunusa and Giroh (2017) found that the likelihood of engaging in agriculture is higher among married youth. This contradiction in results reveals that the direction of influence of marital status is indefinite. This is a case for several factors such as education, gender, age, access to land and credit and employment status. This inconclusive influence of socioeconomic and demographic factors necessitates the need for more studies using different data sets and methods in different contexts. This will help in the generalization of the factors affecting rural youth participation in agriculture (Ngema et al., 2018). Against this context, this chapter examines the factors influencing rural youth decisions and the extent of participation in smallholder farming in Mashonaland Province, Zimbabwe. The findings can, theoretically, be used by other researchers as a benchmark for literature and research methods. Policy-wise, several government agencies and non-governmental organizations in Africa, can use the study as a guide to the design and implementation of appropriate policies and interventions focusing on improving rural youth participation in agriculture.

3.2.Theoretical framework

To develop the theoretical framework for youth decisions and the extent of participation in agriculture, the study builds on several behavioural theories. This is in line with Chipfupa and Tagwi (2021) and Magagula and Tsvakirai (2020) who argue that no single approach can explain youth career decisions, hence there is a need to integrate several theories. The theories that aid the understanding of youth decisions and behaviour include the Social Learning Theory of Career Decision-Making and the Theory of Planned Behaviour. The Social Learning Theory accentuate the value of socio-demographic factors (e.g., age, marital status, and gender), knowledge (e.g., formal education and technical education) and attitude or perceptions (e.g., individual perceptions and socio-cultural perceptions) (Esters and Bowen, 2004) while The Theory of Planned Behaviour focuses on the influence of beliefs on the career choice of individuals (Ajzen, 2011). Based on these theories, the study

acknowledges that socio-demographic traits, economic considerations, intentions, motives, and family relationships are critical in studying the elements influencing youth engagement in agriculture. Chipfupa and Tagwi (2021) and Magagula and Tsvakirai (2020) have applied these theories and found that factors such as access to resources, social networks, education, financial support, gender, economic perceptions and marital status influence rural youth career decisions.

In addition to the above theories, the study integrated the Expectancy Value Theory (EVT) to broaden the understanding of the factors influencing youth career decisions. Theorists in this framework argue that expectancy and value explain an individual's performance, persistence and choice of activity (Wigfield, 1994; Eccles and Wigfield, 2002). Expectancies for success tap into one's belief regarding their ability to succeed at a given activity or task while value, in general, refers to the personal importance or significance one attributes to a particular activity or task (Wigfield, 1994; Tonks and Klauda, 2017). The EVT suggests that motivation is highest when individuals perceive a high likelihood of success (expectancy) and assign high personal value to the task or goal (Wigfield and Cambria, 2010). The EVT has widely been used in several fields including education (Ball et al., 2016; Katelyn et al., 2017), unemployment (Broeck et al., 2010), health (Choi et al., 2010), and agriculture (Jones et al., 2012; Schfhuch, 2016) and found to significantly influence individuals' decision and behaviour.

Tonks and Klauda (2017) posit that incorporating both expectancy and value components in analysis aids in the understanding of youth decisions beyond their demographics, socioeconomic characteristics and resource endowment (physical, natural, human, financial and social capital). In the present study, expectations and values would contribute to youth choosing to engage and spending more hours in agriculture. Youth who believe that succeeding in farming is important and that doing so would improve their feeling of being a successful farmer have high attainment values. Others who find engaging in agriculture or spending more time in agriculture enjoyable or fascinating will have intrinsic values, whereas those who find it useful will have utility values. Youth who believe that farming would need too much time and effort will have a low motivation level. The study uses this theoretical framework to examine the key factors influencing rural youth decisions and the extent of participation in agriculture.

3.3. Methodology and materials

3.3.1. Study area and population

The study was conducted in three districts of Mashonaland East Province in Zimbabwe, namely Goromonzi, Hwedza and Seke. The province is in the northeast of the country and neighbours Midland's province in the South, Mashonaland West in the North-West, and Manicaland in the East (Figure 3.1). The province covers roughly 32 230 km^2 of land and has a population size of 1. 35 million people (Tatsvarei et al., 2018). According to FEWSNET (2017), 80 percent of the population in the province is unemployed while 70 percent of the households live in poverty. The youth population account for 60 percent of the total population and the province has a literacy rate of 85 percent (ZIMSTAT, 2019). Combined, represents a huge potential for socio-economic development in the province if properly harnessed.

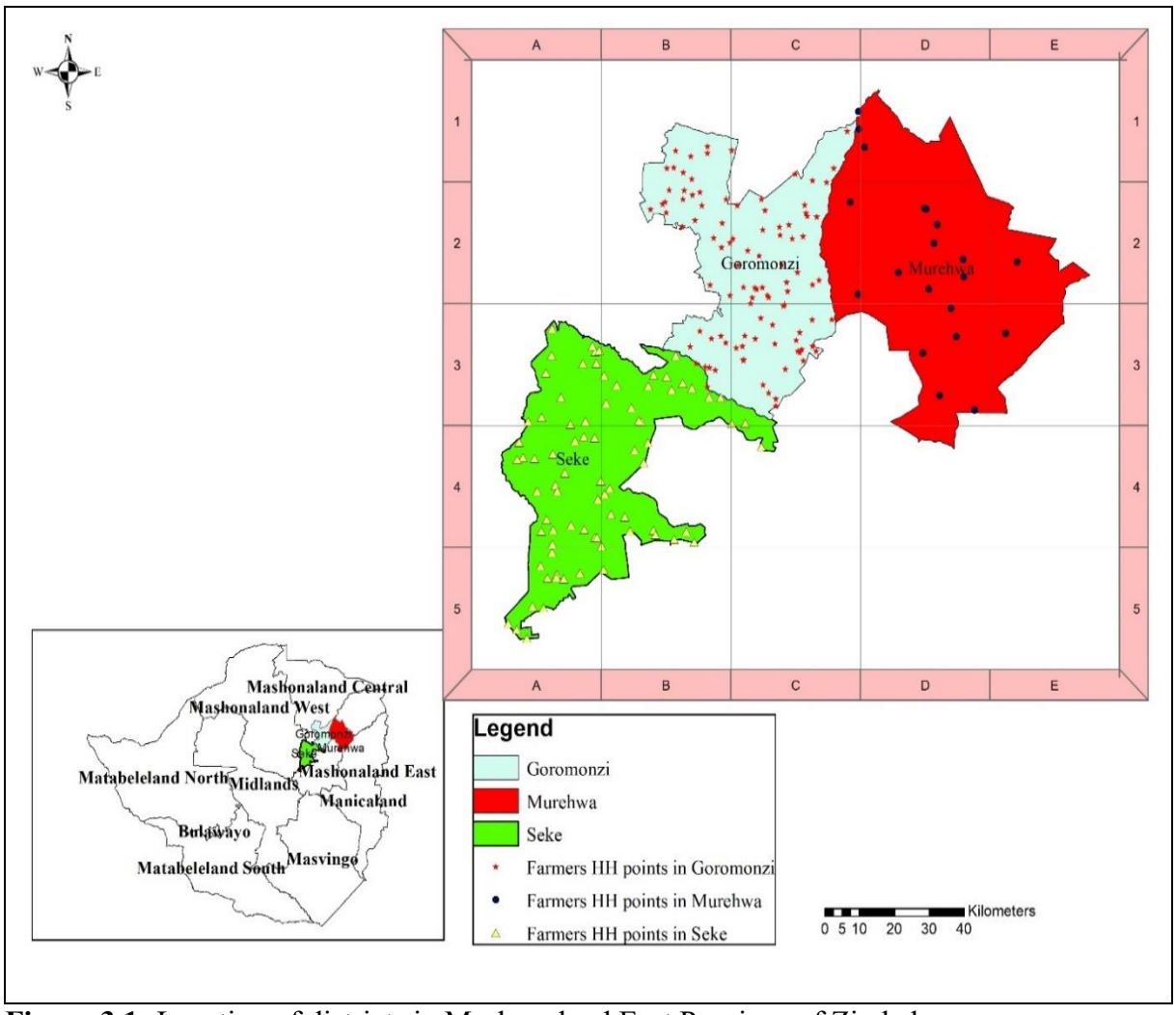

Figure 3.1: Location of districts in Mashonaland East Province of Zimbabwe

Households in the province engage in different livelihood options to meet their food security requirements. These include agriculture, migration, self-employment, cross-border trading, self-employment and formal employment. However, agriculture is the main economic activity in the province (FEWSNET, 2017). The province generally receives good and reliable rainfall (between 500-1000 mm a year) and has fertile soils, making agriculture vital to its economy (Tatsvarei et al., 2018). Maize is the staple crop and the main source of income for farming households in the province. Groundnuts, sunflowers and a variety of vegetables are other crops cultivated by the farmers. These crops not only add to farm revenues but also serve as an essential source of food. However, a survey in the province revealed that most farming households are producing below the subsistence level, leaving them vulnerable to food insecurity and extreme poverty (FAO, 2020). According to Mudimu et al. (2020), harnessing the opportunities available in the province such as production potential, high youth numbers and literacy levels can significantly increase agricultural output.

3.3.2. Sampling and data collection approach

To answer the research questions, the study uses a mixed methods approach. The approach combines elements of qualitative and quantitative research in collecting and analysing data. According to Van Montfort et al. (2010), combining these two approaches increases the chances of creating stronger research outcomes. Due to limited resources such as money and time, it was impossible to gather data from the whole population, therefore, the study selected a sample. According to Alvi (2016: 11), a sample is a more limited subset of a population that is chosen for research while sampling is the process of selecting a portion of the population to represent the total population.

A multi-stage sampling approach selected the target population for the study. According to Alvi (2016), a multi-stage sampling approach concentrates available resources on a limited number of units of the frame. This approach selects units at various stages. In the first stage, a literature review and consultations with experts in the field helped in identifying potential areas for the study. This preliminary research provided a good understanding of the available study area options and their suitability to the research objectives. Purposive selection of three districts: Goromonzi, Hwedza and Seke followed. These districts have high youth population, unemployment and food insecurity rates (FEWSNET, 2017). In the second stage, the researcher through the assistance of extension officers created a list of 600 youths from the three districts. Assigning a unique number to each youth from 1-600 followed. This ensured

equal chances of selection. An online random number generator randomly selected 200 numbers between 1 and 600, representing youth to be included in the sample.

Two approaches determined the suitable sample size for the study. The first one is the Krejecie and Morgan (1970) approach. The ever-increasing need for a representative statistical sample in empirical research created a demand for an effective method of deciding sample size. Krejcie and Morgan (1970) developed a widely referenced table that provides guidelines for deciding sample sizes in research studies. Their work aimed to provide researchers with a systematic approach to selecting a suitable sample size for a given population size (Appendix 3). The table suggests sample sizes based on a desired level of precision, represented as a margin of error or confidence level, and the total population size. The second approach involves data suitability for the suggested empirical analysis methods as explained by Costello and Osborne (2005). For the regression models, the study adhered to the recommended ratio of observations to variables thus at least 10:1 (Costello and Osborne 2005). Following the two approaches, the representative sample size was 200 rural youth.

3.3.3. The instruments for data collection

The process of data collection was carried out from the 7th of July to the 10th of August 2020. A structured questionnaire gathered data for the study. The questionnaire was administered through face-to-face interviews by trained enumerators with good knowledge about rural food systems and conversant in the local language Shona. Before the main study, the questionnaire was subject to a pilot study. Ten youths took part in the pre-testing of the questionnaire, which led to some minor changes. Guided by the sustainable livelihood framework, the questionnaire (Appendix A) collected information on the youth's social, human, physical, financial, and natural capital (resource endowments). Also, the questionnaire collected data on demographics. While certain factors like demographics and socio-economic characteristics are important to all the empirical chapters in the research, others are only relevant to certain chapters. This is noted in the following empirical chapters.

To complement the questionnaire survey, the study employed focus group discussions (FGD) to gain an understanding of the challenges and opportunities available for the youth. According to Noble and Smith (2015), focus groups are in-depth group interviews that provide information on selected topics in a study. FGDs aim to gain data from a purposely selected group of individuals rather than from a statistically representative sample of a broader population. The study conducted three focus group discussions, each consisting of 4-

8 purposively selected participants. Individuals who previously engaged (completed a survey in an early part of the study) in the study took part in the focus groups. These participants had more years of farming experience or leadership roles in the community. A set of questions guided the discussions (Appendix E). The study ensured that participants in each group shared something in common to ensure effective participation in the discussions. This is in line with Sim and Waterfield (2019) who posit that people from diverse backgrounds and experiences can restrict the openness of discussions.

3.3.4. Ethical considerations

The University of KwaZulu-Natal ethics committee granted an ethical clearance to carry out the study in Mashonaland East, Zimbabwe. Also, through the assistance of extension officers, traditional authorities of the areas granted permission to conduct the study. The rights to anonymity, informed consent, and confidentiality were upheld to make the study ethical. All participants were aware of the study objectives, the intended use and storage of the data. The participants completed and signed a consent form (Appendix B) which outlined that participants have the right to withdraw at any time, participation is voluntary, and their names are protected. To take part in the study, minors under the age of 18 years had to get permission from their parents. The minors provided a completed and signed parent's consent form (Appendix C) before participating in the study.

3.3.5. Data analysis

Descriptive analysis in the form of frequencies, mean and percentages provided an analysis of the demographics and socio-economic characteristics of the respondents. The descriptive statistics gave a full insight into how socioeconomic and demographic factors affected the choice and extent of youth involvement in agriculture. The sample participants were in two categories: agriculture participants and non-participants. The chi-square test tested for statistical significance among the variables. A Probit and Ordinary least squares regression examined the factors influencing the decision to and the extent of participation in agriculture among the youths.

3.3.5.1. Conceptual framework

The conceptual framework for the study on youth decision to engage and the extent of participation in agriculture builds on three behavioural theories: the Social learning theory, the Theory of Planned Behaviour and the Expectancy Value Theory. In addition, the study draws from a broad range of literature on the factors influencing rural youth participation in

agriculture in Africa (Afande et al., 2015; Akpan et al., 2015; Akinyemi and Mushunje, 2017; Auta et al., 2017; Cheteni, 2017; Yunusa and Giroh, 2017; Udemezue, 2019). Against this theoretical and empirical background, the study assumes that youth's decision to participate in agriculture is determined by three main factors (Fig. 3.1): (i) non-cognitive skills such as expectancies, value, (ii) household characteristics such as household size, income and dependency ratio and (iii) individual characteristics such as age, gender and marital status.

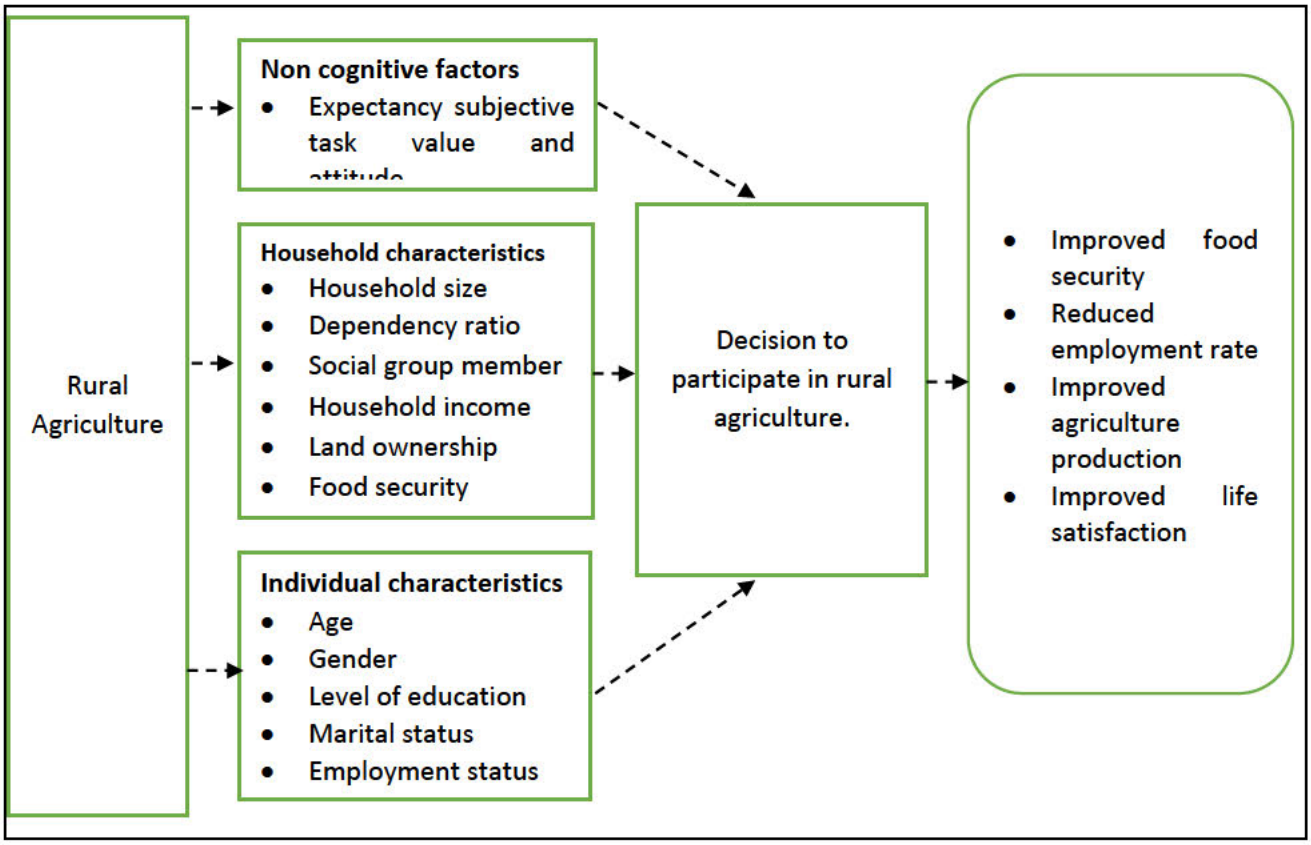

Figure 3. 2: Conceptual framework of youth's decision to participate in agriculture

Household and individual characteristics serve as control variables, while the focus is on non-cognitive factors. The focus is on the influence of non-cognitive factors namely expectancy and subjective task value on youth decision to participate and the extent of participation in agriculture.

3.3.5.2. Measurement of behaviour

In this study, 16 five-point Likert scale questions *(1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)* gathered data on youths' behaviour. The questions asked how youth view themselves, and how they rate themselves with each question. A reliability test (Cronbach alpha = 0.82) showed that the variables were acceptable measures

of behaviour. Appendix D presents the questions asked under each construct and the average scores for the sample.

3.3.5.3. Principal Component Analysis

The Principal Component Analysis (PCA) analysed the 16 items that captured behaviour to determine whether a group of latent components accurately described youth behaviour or decision-making. According to Conradie and Piesse (2016), the basic principle behind PCA is to minimize the width of a collection of data which has several interrelated variables while keeping the distinction existing in the data. Achieving this involves converting the data set into new non-correlated variables, called principal components (PCs), and ensuring that a few PCs preserve most of the distinctions existing among the original variables (Conradie and Piesse, 2016). The Kaiser criteria extracted the principal components from behaviour indicator data. Kaiser-Meyer-Olkin and Bartlett's tests ensured that there was enough correlation between the behaviour indicators to confirm the factor reduction procedure. The Kaiser criterion extracted five principal components (PCs) with eigenvalues greater than 1. Cronbach's alpha analysed the internal consistency between the indicators measuring the behavioural variable.

3.3.5.4. The decision to participate in agriculture

The study estimated the factors influencing youth's decisions to engage in agriculture. The choice to engage in agriculture was in binary form, where "1" indicates engaging in agriculture and "0" indicates not engaging in agriculture. The dichotomous nature of the dependent variable resulted in the use of a Probit model in the study. This is in line with several studies that have examined the factors affecting rural youth participation in agriculture using a Probit regression model (Afande et al., 2015; Auta et al., 2017; Yunusa and Giroh, 2017; Abubakar et al., 2019; Fawole and Ozkan, 2019). The general formula for a Probit model is (Montfort et al., 2010) :

$$Yi = \beta o + \sum_{n=1}^{b} \beta n Xni + \varepsilon i \qquad (3.1)$$

where: Y_i is the dependent variable (1= engages in agriculture and 0 = does not engage in agriculture), β_0 is a constant, β_n are explanatory variables to be estimated, Xni is the vector of explanatory variables and εi is the error term. The theoretical framework and literature guided the selection process of variables to be included in the model (Afande, 2015; Auta et al., 2017; Yunusa and Giroh, 2017; Abubakar et al., 2019; Fawole and Ozkan, 2019). Table 3.1 shows the definitions and anticipated signs of the variables used in the model. Where (+)

shows that the variable increases the likelihood of choosing to engage in agriculture, while (-) shows that the variable reduces the chance of choosing to engage in agriculture.

Table 3.1: Description of variables used in the participation decision model

Variable	Unit	Description	Expected sign
Dependent variable			
Participate	Binary	1 if a youth participates in agriculture, 0 if otherwise	
Individual			
Age	Number	Age of the youth	+
Gender	Binary	1 if male,0 if otherwise	+
Level of education	Binary	1 if tertiary, 0 if otherwise	-
Marital status	Binary	1 if married, 0 if otherwise	+/-
Employment status	Binary	1 if employed, 0 if otherwise	-
Household characteristics			
Size of household	Number	Number of people in the household	+/-
Number of dependants	Number	Number of people that depend on the youth for their well-being	+
Household income	Number	Income from both agriculture and non-agriculture sources	_
Land ownership	Binary	1 if owning land, 0 if otherwise	+
A beneficiary of a government program	Binary	1 If a beneficiary, 0 if otherwise	+
Life satisfaction	Binary	1 Satisfied, 0 if otherwise	-
Food security	Number	Food insecurity score	+
Cooperative member	Binary	1 if belonging to a cooperative, 0 if otherwise	+
Social group	Binary	1 if belonging to a social group, 0 if otherwise	+
Challenges			
The infrastructure is in poor condition	Binary	1 if the infrastructure is in bad condition, 0 if otherwise	-
Access to productive resources	Binary	1 If it is a challenge, 0 if otherwise	-
Lack of markets	Binary	1 if yes, 0 if otherwise	-

3.3.5.5. The extent of youth participation

After examining the factors influencing youth's decision to engage in agriculture, the study estimated the factors influencing the extent of youth participation in agriculture. This was

measured as hours spent in agricultural activities per week (Akpan et al., 2015). A question asked the respondents to reveal the average hours they spent in agricultural activities in a week. Because of the continuous nature of the dependent variable (hours spent in agriculture per week), an ordinary least square (OLS) regression estimated the impact of explanatory variables on the dependent variable. The general formula for the OLS is (Akpan et al., 2015):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots \beta_n X_n + U \qquad (3.2)$$

Where: Y is the dependent variable, $X_1 \ldots X_n$ are explanatory variables, $\beta_0 \ldots \beta n$ are the parameters and U… is the disturbance term. Table 3. 2 shows the definitions and anticipated signs of the variables utilized in the model. Where (+) shows that the variable increases the number of hours spent in agriculture, while (-) shows that the variable reduces the number of hours spent in agriculture.

Table 3.2: Description of variables used in the level of participation model

Variable	Unit	Description	Expected sign
Dependent variable			
Extent of participation		Hours spent in agriculture per week	
Individual characteristics			
Age	Number	Age of the youth	+
Marital status	Binary	1 if married, 0 otherwise	+/-
Gender	Binary	1 if male,0 otherwise	+
Level of education	Binary	1 if tertiary, 0 otherwise	-
Household characteristics			
Household size	Number	Number of people in the household	+/-
Food security status	Number	Food insecurity score	+
A beneficiary of a government program	Binary	1 if a beneficiary, 0 otherwise	+
Life satisfaction	Binary	1 if satisfied, 0 otherwise	-
Distance to land	Binary	1 if close, 0 otherwise	+
Cooperative member	Binary	1 if belonging to a cooperative, 0 otherwise	+
Social group	Binary	1 if belonging to a social group, 0 otherwise	+
Income	Number	Income from both agriculture and non-agriculture sources	+
Challenges			
Lack of access to credit	Binary	1 if yes, 0 if otherwise	-
Poor access to markets	Binary	1 if yes, 0 if otherwise	-
Poor rural development	Binary	1 if yes, 0 if otherwise	-

3.3.5.6. Testing for multicollinearity and heteroscedasticity

Calculation of the variance inflation factor (VIF) for each regression model tested for multicollinearity. As a rule of thumb, a variable is highly collinear if the VIF exceeds 10 (Kim, 2019). Multicollinearity was not an issue in any of the regression models used in the study. Also, the Breusch-Pagan/Cook-Weisberg test determined heteroscedasticity in the data. This test checked if there is variation in the dependent variable throughout the data. Heteroscedasticity was not an issue in the data since the results were inconsequential for both regression models.

3.4. Results and discussion

3.4.1. Demographics and social-economic characteristics

Table 3.3 presents the demographic and socio-economic characteristics of the 200 respondents. Most of the statistics presented in Table 3.3 are in line with the latest Mashonaland East community report (2012) (ZIMSTAT, 2012), suggesting that the study is representative of the province. All the variables except for age and marital status were statistically different between agriculture participants and non-participants in the study area. The results reveal an ageing youth population, with 14 percent of the respondents reported to be between the age range of 15 and 20 years, while 86 percent were between the age range of 21 and 35 years. The results are consistent with Kimaro et al. (2018) who found an ageing youth population to be a general characteristic among farming communities in rural Africa. Magagula and Tsvakirai (2020) found that factors such as education and marital status influence the age distribution of youth in rural areas. The results show that there was no statistically significant difference in terms of age ($p<0.01$).

In line with Yunusa and Giroh (2017), literacy was a general characteristic among the youth, with only 3 percent reported having no formal education, whereas 4.5 percent had a primary level of education, while the majority (73%) had a secondary level of education and 19.5 percent had a tertiary level of education. Thus, the secondary level was the dominant level of education among the youth. This implied that few individuals obtained post-secondary qualifications for a myriad of reasons which may include low pass rates, a lack of information, a lack of financial resources, and a lack of career assistance, to name a few (Chipfupa and Tagwi, 2021). As a result, even if employment opportunities are present, their employability is constrained by a lack of education. Table 3.3 shows that youth with a secondary level of education took part more in agriculture compared to youth with other levels of education and the difference in the level of education between agriculture

participants and non-participants was statistically significant ($p<0.05$). In terms of the gender distribution of the participants, the results show that male youth (52.8%) took part more in agriculture compared to their female counterparts (47.2%) and the difference was statistically significant at the 5 percent level. This might be because males are traditionally the heads and breadwinners of their families, therefore there is pressure on them to engage in agriculture for economic empowerment to satisfy their family needs and wants.

Table 3.3: Demographic and socio-economic characteristics of the participants

Variable	Percentage rating			
	Agriculture participants (125)	Non-participants (75)	Total (200)	Sig Diff
Age				
15-20	46.4	53.6	14	
21-28	32.6	67.4	44.5	.359
29-35	39.8	60.2	41.5	
Gender				
Male	52.8	33.3	45.5	.007
Female	47.2	66.7	54.5	
Level of education				
None	1.6	5.3	3	
Primary	5.6	2.7	4.5	
Secondary	87.2	49.3	73	.000
Tertiary	5.6	42.7	19.5	
Household head				
Yes	69.3	50.4	57.5	.009
No	30.9	49.6	42.5	
Marital status				
Married	64.8	35.2	45.5	
Single	65.2	34.8	46	
Divorced	33.3	66.7	6	.533
Widowed	40	60	2.5	
Employment status				
Formally employed	5.6	30.3	15	.001
Unemployed	94.4	69.3	85	
Job searching				
Yes	30.4	45.3	60.5	.001
No	69.6	54.7	39.5	

n=200

Concerning employment status, participants not engaging in agriculture were more formally employed (30.3%) compared to their counterparts engaging in agriculture (5.6 %) and the difference was significant at the 5 percent level. A more immediate explanation is that youth in formal employment may not feel the need to engage in agriculture because they are aware of the challenges associated with the sector and may not be willing to take the risk. These challenges include persistent shocks such as climate change, market shifts and price changes (Mapfumo et al., 2013). In general, 85 percent of the respondents in the study are unemployed. The results agree with Magagula and Tsvakirai (2020) who found youth unemployment in rural Africa to be a general characteristic. This highlights the lack of economic opportunities in rural communities.

Table 3.3 shows that youth who are the head of the household (69.3%) are more likely to take part in agriculture compared to youths who are not the head of the household (50.4%), and the difference is statistically different at the 5 percent level. This is because the head of the household must provide for their family and hence may benefit from engaging in agriculture. Overall, most of the youth in the study were household heads (57.5%). Table 3.3 shows that 46 percent of the respondents were single while 6 percent were divorcees and 2.5 percent were widows. Contrary to Akinyemi and Mushunje (2017) and Magagula and Tsvakirai (2020), there was no statistical difference, implying that youth engaged in agriculture regardless of their marital status.

3.4.2. Youth participation in agriculture

Agriculture participation in the study refers to engagement in any of the activities along the agricultural value chain such as ploughing, planting, weeding, harvesting, processing, marketing, and transporting (Kimaro et al., 2018). Intriguingly, the results show that most of the youth are leaving and losing interest in agriculture. Table 3.4 shows that 86.7 percent of the agriculture participants and 60 percent of the non-participants will not be participating in the sector in the next five years. In general, 73.3 percent of the respondents in the study will not be engaging in agriculture in the next five years. The finding is consistent with literature which shows that young Africans have become disenchanted with agriculture to the point that their engagement in the sector is declining every year (Akpan et al., 2015; Akinyemi and Mushunje, 2017; Cheteni, 2017; Martinson et al., 2019; Udemezue, 2019; Chima et al., 2020; Chipfupa and Tagwi, 2021; Geza et al., 2021).

Several factors are contributing to the shift in youth interest from agricultural livelihoods to non-agricultural livelihoods. Some of these factors include constraints in access to resources such as land, finance, training and climate change (Akpan et al., 2015; Mukembo et al., 2016; Yunusa and Giroh, 2017). Others involve having more to do with the way youth think or perceive careers in agriculture (Magagula and Tsvakirai, 2020; Chipfupa and Tagwi, 2021). The low youth interest in agriculture reveals that the future of the agriculture sector and food security in Zimbabwe is uncertain. Youth disinterest in agriculture results in a shortage of agricultural labour and a loss of human capital leading to decreased agricultural productivity (Chipfupa and Tagwi, 2021). The youth often bring new ideas, knowledge, and skills that can contribute to improved farming techniques, increased efficiency, and the adoption of advanced technologies. The absence of their involvement may hinder progress in the agricultural sector. Also, youth disinterest in agriculture perhaps explains why Mkodzongi and Spiegel (2020) found a sharp increase in drug abuse, robbery, theft and prostitution in Zimbabwe. Youth who cannot secure stable employment face difficulties in accessing basic needs, such as education, food, shelter and health care. This leads to feelings of marginalization, frustration, and alienation, forcing them to resort to illegal activities to survive or express frustration (Abdelwahed et al., 2020). In this context, youth disinterest in agriculture should be cause for concern and policy priority.

Table 3.4: Youth participation in agriculture

Question		Percentage rating		
		Agriculture Participants	**Non-participants**	**Total**
Participate in agriculture in the next 5 years?	No	86.7	60	73.3
	Yes	13.3	26.4	19.9
	Not sure	0	13.6	6.8

n=200

Through focus group discussions, the activities engaged by the youth in agriculture were revealed. The results show that retailing, agribusiness, transporting, marketing and processing were the least activities engaged in by the youth. Further, the results show that weeding was the main activity followed by harvesting, planting, animal or poultry rearing and watering (Appendix F2). A common feature among these activities is that they are labour-intensive. This is in line with Mgbakor et al. (2014) who reveal that youth perform most of the onerous agricultural activities such as planting, weeding and harvesting. This is because youth generally have higher levels of physical fitness and stamina due to their age. They often have

more energy, strength, and endurance, which can be advantageous in engaging in physically demanding tasks in agriculture. Kimaro et al. (2018) add that youth can recover quickly from physical exertion or fatigue. Their bodies have a faster rate of recovery and resilience, allowing them to bounce back more efficiently after engaging in labour-intensive activities. It is important to note that while youth may have physical advantages for manual labour, it does not mean that older individuals are incapable of engaging in agricultural activities. The experience, knowledge, and skills acquired by older individuals over the years can also be valuable in agricultural work. A diverse and inclusive workforce that includes individuals of different age groups can bring a range of strengths and perspectives to agricultural activities.

3.4.3. Reasons for participating and not participating in agriculture.

The study identified the reasons for engaging in agriculture among the participants. As shown in Table 3.5, 41.6 percent of the youth engaged in agriculture to ensure enough food in the household. This testifies to the important role of agriculture in rural food security. Another 22.4 percent of the youth participated in agriculture to earn income. Further probing revealed that the youth earned income in two main ways, thus through selling their labour-power to other farmers and /or selling their farm produce. Table 3.5 shows that 15.2 percent of the youth engaged in agriculture to create employment for themselves. This is because of the lack of economic opportunities in rural Africa. Only 6.4 percent of the youth reported that they engaged in agriculture for leisure.

The study also explored the reasons for not engaging in agriculture. Table 3.5 shows that 29.3 percent of the respondents cited disinterest in agriculture as their main reason for not participating in agriculture. This might be because agricultural incomes and working conditions are not capable of providing the lifestyle and prestige that youth expect and desire (Udemezue, 2019). The youth view agriculture as a poor person's occupation, going beyond living standards to people's feeling of dignity and self-respect. Yunusa and Giroh (2017) argue that if agriculture continues to be unable to provide desirable living standards or opportunities for upward mobility, the chances of attracting and maintaining youth in the sector will remain low or decline.

Poor government assistance was another reason why 24.2 percent of the youth were not participating in agriculture. Table 3.5 shows that a dearth of infrastructure was cited by 21.3 percent of the respondents as a reason for not engaging in agriculture. Rural Zimbabwe is notably deficient in physical and social infrastructure such as roads, electricity, Internet,

potable water and healthcare which all play an important role in agriculture production (Cheteni, 2017). Lack of information and skills in agriculture (13.3%) was another reason for youth not to participate in agriculture. Several youths in rural Africa lack the necessary skills needed in agriculture, making it less remunerative and attractive (Akpan et al., 2015). The absence of effective career guidance in schools was a reason why 12 percent of the youth were not participating in agriculture. The results agree with Udemezue (2019) who found a lack of career expos in rural Africa to be a major component derailing youth participation in agriculture.

Table 3.5: Reasons for participating and not participating in agriculture

Reason for participating (125 agriculture participants)	**Number**	**Percent**
Sufficient food	52	41.6
Income	28	22.4
Self-employment	19	15.2
Employment for others	18	14.4
Leisure	8	6.4
Reasons for not participating (75 nonparticipants)		
Disinterest	22	29.3
Dearth of infrastructure	16	21.3
Lack of information on agribusiness opportunities	10	13.3
Lack of career guidance	9	12.0
Poor government assistance	18	24.0

n=200

3.4.4. Principal Component Analysis (PCA)

The results from the correlation analysis show that all correlation coefficients were greater than 0.3. Thus, the correlation matrix satisfied the basic requirement for successful factor extraction. The Kaiser-Meyer-Olkin (KMO) sample adequacy value was 0.88, which was higher than the 0.8 threshold that is regarded as fair (Eze et al., 2021). The presence of a high KMO value suggests that correlation patterns are compact, and the factor analysis should provide credible components (Mohd et al., 2019). Bartlett's test of sphericity was significant ($\chi2=11271$, $p<0.000$), implying that obtaining the correlation matrix from a population with zero correlation is exceedingly implausible. Cronbach's alpha was 0.82, which is higher than the acceptable value of 0.7 (Cronbach, 1978). This implies that the scale has a high level of internal consistency, meaning that the 16 items are all measuring the same underlying behavioural variable consistently. The results of the experiments show that it is possible to conduct a credible principal component analysis. The Kaiser criterion extracted five principal

components (PCs) with eigenvalues greater than 1 explaining about 70.7 percent of the variance in the data. Table 3.6 presents the significant (>0.05) factor loadings included.

Table 3.6: PCA components

	Principal Component				
Variable	**PC 1 Intrinsic**	**PC 2 Utility**	**PC 3 Cost**	**PC 4 Attainment**	**PC 5 Expectancy**
I am interested in a career in agriculture	**.829**	.153	-.119	.096	-.041
I am confident in my ability to adopt new farm technologies	**.823**	.215	-.070	.160	.169
I am interested in farming as a lifetime career	**.820**	.203	-.180	.181	-.103
I like farming	**.819**	.241	-.189	.171	-.117
I am interested in learning more about agriculture	**.765**	.143	.070	.014	.404
I find working in agriculture interesting	**.762**	.227	-.088	.180	-.147
I am confident that am a better farmer than my parents	**.752**	.043	-.060	.082	.309
Agriculture can meet my goals and dreams	.235	**.765**	.037	.221	-.043
Compared to other livelihood strategies, agriculture is useful to me	.258	**.745**	.237	-.043	-.048
Participating in agriculture will bring positive change to my life	.131	**.710**	.027	.255	.216
Agriculture is useful to me	.080	**.613**	-.313	-.241	.040
Am willing to work on weekends	-.089	.037	**.833**	.053	-.162
Am willing to work alone	-.358	.020	**.636**	-.117	.178
Compared to other livelihoods, agriculture is important to me	.213	.046	-.302	**.790**	.096
Agriculture is important to me	.175	.151	.372	**.714**	.125
I expect to do well in agriculture	.179	.058	-.042	.149	**.812**
Eigenvalue	7.24	1.91	1.41	1.13	1.02
% Of variance	40.24	10.63	7.85	6.27	5.69
Cumulative % of the variance	40.24	50.86	58.71	64.99	70.68

Table 3.6 shows that PC1 captured the highest number of indicators and accounted for 40.2 percent of the variation in the original indicators. The main indicators for PC1 were "I am interested in working in agriculture", "I like farming", "I am interested in a career in agriculture", and "I am interested in farming as a lifetime career". These PC1's dominant factors represented the intrinsic value. The indicators captured in PC2 were "Agriculture can

meet my goals and dreams", "Compared to other livelihood strategies, agriculture is useful to me", "Participating in agriculture will bring positive change to my life", "Agriculture can meet my goals and dreams", and "Agriculture is useful to me". The PC2 main factors represented the utility value.

The main indicators for PC3 were "Am willing to work on weekends" and "Am willing to work alone" which represented the cost value. PC4 captured two behavioural statements, "Compared to other livelihoods, agriculture is important to me" and "Agriculture is important to me". PC4 captured the attainment value and accounted for 6.27 percent of the variation in the original indicators. Table 3.6 shows that PC5 captured the lowest number of indicators and accounted for 5.69 percent of the variation in the original indicators. The dominant indicators for PC5 were " I expect to do well in agriculture" and represented expectancy.

3.4.5. Factors affecting the decision to participate in agriculture

Using the individual and household characteristics and principal components, the study examines the factors influencing youth's decision to participate in agriculture. Table 3.7 shows that the coefficient of intrinsic value (PC1) was statistically significant and positively associated with youth decision to engage in agriculture. Thus, individuals with intrinsic value are 16.8 percent more likely to participate in the sector compared to their counterparts without intrinsic value. This implies that youth who believe that they will derive enjoyment from participating in agriculture are more likely to participate in agriculture compared to their counterparts who do not believe that they will derive enjoyment from engaging in the sector. This finding is consistent with the expectancy-value theory which posits that an individual who intrinsically values an activity is more likely to choose to engage in it. Cheteni (2017) found that enjoyment from agriculture comes from the community and social interactions. Agriculture often fosters a strong sense of community. Farmers may collaborate with neighbours, participate in farmers' markets or agricultural fairs, and engage in shared experiences with other agricultural practitioners. These social interactions can create a sense of belonging, camaraderie, and enjoyment.

Consistent with a priori expectations, the study found a positive and statistically significant association between utility value (PC2) and participation in agriculture. In other words, respondents who believe that participating in agriculture is beneficial and will allow them to achieve their personal and career goals have a 4.4 percent greater chance of participating in agriculture compared to those who felt that agriculture would not help them accomplish their

personal and career goals. This finding agrees with the expectancy-value theory as the youth appraised the usefulness and practicality of the activity and regarded it as beneficial when they decided to participate in the activity. In line with the EVT, cost (PC3) had a statistically significant and negative association ($p<0.005$) with youth participation in agriculture. This implies that the chances of participating in agriculture decreased as the cost increased. Cost focuses on the unfavourable aspects of completing a task or activity (Wigfield, 2002). In this context, the cost included the low-profit margins and labour-intensive nature of most agricultural activities. The results suggest that the respondents viewed the option to participate in agriculture as a cost-benefit decision based on utility value and cost. The respondents likely weighed the labour-intensive nature and profit margins of alternative activities and what the benefits might be if they participated in agriculture. The benefits reflected how agriculture might help them achieve their current and future goals and advance their career interests. As a result, the cost and utility value elements combined indicate a cost-benefit motivation in the study.

Table 3.7 shows an inverse relationship between marital status and youth participation in agriculture ($p< 0.05$). This implies the chances of participating in agriculture decrease by 5.9 percent among married youth. Thus, married youth are less likely to participate in agriculture compared to their non-married peers. The results are in line with previous studies which also found a statistically significant and negative relationship between marital status and youth participation in agriculture (Akinyemi and Mushunje, 2017; Magagula and Tsvakirai, 2020). One probable reason is that marriage often brings added responsibilities and commitments, such as managing a household, raising a family and attending to the needs of a spouse which might limit the number of resources (financial or time) available for extracurricular pursuits like farming. Already these resources are limited in rural Africa. Contrary, Yunusa and Giroh (2017) found that the probability of participating in agriculture is higher among married youth compared to unmarried youth. A plausible explanation is that a household with a married couple is more likely to have large household sizes and high social-economic needs to meet hence, may benefit from participating in agriculture. The results show that although marital status is an important deciding factor for the decision to participate in agriculture, the direction of influence is indeterminate.

Table 3.7: Factors influencing rural youth participation in agriculture

Variables	Coefficients		Marginal Effects	
	Value	**Standard Error**	**Value**	**Standard error**
Noncognitive skills				
Intrinsic value (PC1)	1.691***	.320	.178***	.023
Utility value (PC2)	.414**	.196	.044**	.019
Cost value (PC3)	-.384**	.222	-.040**	.022
Attainment value (PC4)	-.037	.173	-.004	.018
Expectancy (PC5)	-.417	.273	-.044	.028
Individual characteristics				
Age	.095*	.052	.0100*	.005
Gender	-.069	.406	-.007	.043
Level of education	-.178	.380	-.019	.040
Marital status	-.587*	.347	-.062*	.356
Employment status	1.184*	.552	.125*	.055
Household characteristics				
Size of household	.206**	.118	.022*	.012
Number of dependants	-.059	.124	-.006	.013
Household income	-.117	.209	-.012	.022
Land ownership	-1.084**	.456	-.114**	.045
Beneficiary of a government program	-.328	.588	-.034	.062
Life satisfaction	-.200	.172	-.021	.018
Food security	-.025	.030	-.003	.034
Cooperative member	-.389	.721	-.041	.076
Social group member	.038	.569	.004	.059
Challenges				
Infrastructure condition	-.263	.247	-.028	.026
Access to productive resources	.110	.296	.012	.031
Lack of markets	.038	.295	.003	.031
Cons	1.224	3.785	.001	.032
Pseudo R^2	0.72			
Prob> chi2	0.000			
Predicted correctly	94 %			
Number of observations	200			

The study supports a widely held view that household size significantly influences youth participation in agriculture. In line with Yunusa and Giroh (2017), the study found a statistically significant and positive association between household size and youth participation in agriculture. Thus, a unit increase in the size of the household results in a 2.5 percent increase in the likelihood of participating in agriculture. This might be because of labour availability. Yunusa and Giroh (2017) are of the view that larger households tend to have more labour available to engage in agricultural activities. Adesina and Favour (2016) agree and add that, bigger households typically have higher consumption needs and expenses and engaging in agriculture can be a way for youth to contribute to the household income and meet the economic requirements of the family. It may also provide a more stable and reliable source of income compared to seeking employment in other sectors, especially in rural areas where alternative job opportunities may be limited.

The coefficient of age had a statistically significant and positive influence on youth participation in agriculture. The results show that a unit increase in age by a year increases the chances of participating in agricultural activities by 9.5 percent. Thus, the older the youth the greater the probability of participating in agriculture. This finding agrees Akpan et al. (2015) who found that age positively influences youth's decision to engage in agriculture. This may be because of accumulated knowledge and skills. Older youth are more likely to hold the necessary expertise and skills required for agricultural activities, making them valuable contributors to agricultural operations. Akpan et al. (2015) add that as youth grow older, they may start considering agriculture as a viable livelihood option. They may have explored various career paths or experienced other job opportunities, and some may find that agriculture aligns with their interests, capabilities, or long-term goals.

In line with Fawole and Ozkan (2019), employment status was statistically significant and with a positive sign. The results show that the chances of participating in agriculture increased by 11.9 percent among employed youth. In other words, the chances of participating in agriculture are high among employed youth compared to unemployed individuals. Engaging in agriculture provides employed youth with an additional source of income (Masuka et al., 2016). Even if they have stable employment in non-agricultural sectors, participating in agricultural activities can offer an opportunity to diversify their income streams and increase their overall earnings. This is relevant in Zimbabwe where there is price and exchange rate instability, high informality, low investment and limited structural transformation (Mutami, 2015). Another reason is that income from salaried jobs acts as an

important determinant in agricultural production as it improves access to inputs such as machinery and equipment, seeds, fertilizer, and labour. This implies that even though unemployed youths can benefit from engaging in agriculture they cannot do so because they have no or limited access to the resources needed.

A counter-intuitive result is that the coefficient of land ownership is negatively correlated with youth participation in agriculture. One would expect to see youth who own land engaging more in agriculture compared to their counterparts who do not own land. The results show that the likelihood of engaging in agriculture is 1.084 percent lower among youth who own land. A plausible explanation is that many youths who own land administered by the traditional leadership or benefited from the Fast-track land reform of 2000 are finding it difficult to operate due to a lack of capital, skills, knowledge, and machinery required for agricultural production, hence ending up leasing out their land. They may view this approach to maintain land ownership and potentially generate income without personally engaging in the labour-intensive aspects of agriculture. This land leasing can lead to reduced direct involvement of youth in agricultural activities. Also, most of the youth inherit land from their parents that is exposed to years of land degradation, exhausted and not fit for agricultural production, hence the youth opt for non-agriculture livelihoods (Mutami, 2015).

3.4.6. Extent of youth participation in agriculture

Measuring the extent of youth participation in agriculture involved asking the respondents the average hours they spend in agricultural activities per week. The results show that the maximum number of hours spent in agriculture per week is 80 hours and the mean is 12.81 hours. Also, the participants indicated the number of hours spent in agriculture during their first year of farming. This provided information to find out whether the level of youth participation in agriculture is increasing or decreasing. Table 3.8 shows that the maximum number of hours spent in agriculture per week was 90 hours and the mean was 15.12 hours. The results support the earlier finding which showed a decrease in youth participation in agriculture. The respondents in the study are now spending fewer hours in agriculture compared to the hours they spent in their first year. This finding is in line with Kafle et al. (2019) who found that in Tanzania and Uganda, the number of hours spent in agriculture per week has declined by 2.7 percent from 2008/2009 to 2010/2011; and 9.2 percent from 2005/2006 to 2011/2012, respectively. Auta et al. (2017) and Magagula and Tsvakira (2020) found that factors such as age, gender, marital status, lack of capital, erratic rainfall patterns, poor access to markets and lack of government assistance are affecting youth participation in

agriculture. However, with the growing youth population in Africa, youth disinterest in agriculture can in its extreme have severe consequences, such as food insecurity, and political and social unrest. Therefore, there is a need to identify ways to improve youth engagement in agriculture.

Table 3.8: Level of youth participation in agriculture

	Minimum	Maximum	Mean
Number of hours spent in agriculture in the first year	0	90	15.12
Number of hours spent in agriculture now	0	80	12.81
Number of years in agriculture	0	25	3.91

n=200

3.4.7. Factors affecting the level of participation in agriculture

The Ordinary Least Squares (OLS) results in Table 3.9 present the factors influencing the level of youth participation in agriculture (measured as hours spent in agriculture per week). The highly significant F value revealed that the OLS model fits the data relatively well. The model had no problem with multi-collinearity as the average Variance Inflation Factor (VIF) was 1.43, with the highest VIF of 2.11. The Rumsey RESET test (F= .14, p= .34) revealed no evidence of model misspecification, implying the estimated model is appropriate for the data. Therefore, the computed coefficients of the OLS model are accurate, reliable, and effective.

The findings show that youth expectancies and values have a statistically significant impact on the level of youth participation in agriculture. Table 3.9 shows that the variable expectancy (PC5) was positive and statistically significant at 1 percent. This implies that youth who believe they will do well in agriculture currently and in the future are likely to spend more hours in agricultural activities. This finding is in line with the EVT literature which posits that when individuals have high self-efficacy, they are more likely to believe that their efforts will lead to successful outcomes (Tonks and Klauda, 2017; Tiraieyari and Krauss, 2018). This belief increases their motivation and willingness to engage in activities or make decisions they perceive as having a higher likelihood of success.

Intrinsic value is defined as one's level of interest in a task or activity. According to Eccles and Wigfield (2002), people driven by intrinsic value seek instant pleasure from a task or activity. Table 3.9 shows that intrinsic value (PC 1) had a positive and statistically significant influence on the level of youth participation in agriculture. This implies that youth who believe that they will derive enjoyment from participating in agriculture are likely to spend

more hours in agricultural activities compared to their counterparts who believe otherwise. This is in line with the expectancy-value theory which reveals that when an activity is intrinsically valuable to individuals, it naturally motivates them to engage in it more (Wigfield, 1994; Tonks and Klauda, 2017). The enjoyment and satisfaction they derive from the activity serve as internal motivators, driving them to invest more time and effort into it. This intrinsic motivation helps individuals sustain their engagement and dedication, even when faced with challenges or setbacks. Schfhuch (2016) are of the view that activities with intrinsic value can positively impact an individual's emotional well-being. Engaging in activities that bring joy, fulfilment, and a sense of purpose can contribute to overall happiness and life satisfaction. As a result, individuals may willingly allocate more time to activities that improve their emotional well-being and contribute to their overall quality of life.

Table 3.9 shows that the variable cost (PC3) was negative and statistically significant at a 5 percent level, implying that as the level of cost increases, the number of hours spent in agriculture decreases. Engaging in agriculture often means forgoing other livelihood alternatives such as mining, cross-border trading, and self-employment. Individuals must consider the opportunity costs associated with allocating their time to agriculture. If the perceived costs of agriculture are high, individuals may be less likely to invest a significant amount of time in it, as they might prefer to allocate their time to other activities that they believe offer greater benefits or rewards. In this context, costs include the low profit margins, time commitment and labour-intensive nature of most agricultural activities.

As expected, distance to land had a positive (10% level) and statistically significant relationship with the level of youth participation in agriculture. The positive effect suggests that youth who stay close to the land are more likely to spend more hours in agriculture compared to those who stay far. This is because the closer the land is to the youth's household, the more accessible it is for them to engage in agricultural activities (Fawole and Ozkan, 2019). If the land is nearby, youth can easily allocate time to visit the land, tend to crops or livestock and manage farming tasks. In other words, longer distance reduces the likelihood of regular and consistent participation in agriculture. If the land is far away, it can result in longer travel times. Youth may have limited time availability due to other responsibilities, such as employment, education, or family obligations. The longer the distance, the more challenging it becomes for them to allocate enough time to engage in agriculture.

Table 3.9 shows that the coefficient of household size had a positive and statistically significant effect on the level of agriculture participation at a 5 percent probability level. This implies that a unit increase in household size increases the level of youth participation in agriculture. This finding concurs with Khoza et al. (2019) who found that the size of the household positively influences the level of participation in agriculture. The explanation here is that larger households often own more land, livestock, and agricultural resources compared to smaller households. This abundance of resources creates a greater need for labour hours to utilize and manage them effectively. Youth in such households are more likely to engage more in agricultural activities to ensure the optimal utilisation of available resources.

In line with Martinson et al. (2019), the level of education negatively influenced the extent of youth participation in agriculture. This implies that an added year of education is associated with a decrease in the number of hours spent in agriculture. This is understandable because higher levels of education often open a wider range of job opportunities outside agriculture (Mukembo et al., 2016). With high levels of education, youth may have better access to non-agricultural employment options that offer higher wages, better working conditions, and opportunities for career advancement. They may prioritize these alternative jobs over engaging in agricultural activities, leading to reduced hours spent in agriculture.

In line with Mohammed (2014), income level had a negative and statistically significant influence on the level of youth participation in agriculture. This implies that households with high incomes spent fewer hours in agriculture per week compared to households with low incomes. High-income earners have the financial means to outsource or hire agricultural labour to manage their farming operations. By doing so, they can reduce their involvement and allocate their time to other income-generating activities. Khan et al. (2022) add that high-income earners often have better access to modern agricultural technologies and practices that can improve efficiency and reduce the time required for agricultural tasks. They may invest in mechanization, automation, and precision farming techniques, enabling them to achieve desired outcomes with fewer hours of personal labour. This allows them to maintain involvement in agriculture while minimizing time commitment. Mohammed (2014) posits that high-income earners have diversified sources of income beyond agriculture. They may engage in other business ventures, investments, or professional pursuits that generate substantial earnings. With multiple income streams, they may allocate fewer hours to agriculture, as they have the flexibility to prioritize other activities that contribute to their overall financial well-being.

Table 3.9: Factors influencing the level of youth participation in agriculture

Hours in agriculture	Coef.	Std. Err.
Noncognitive factors		
Intrinsic value (PC1)	6.684***	1.065
Utility value (PC2)	-.925	.599
Cost value (PC3)	-1.713**	.638
Attainment value (PC4)	-.609	.873
Expectancy (PC5)	1.082**	.397
Individual factors		
Age	.424	.265
Marital status	-1.436	1.227
Gender	-.623	1.491
Level of education	-4.399**	1.448
Household factors		
Household size	.734**	.399
Food security status	-.161	.162
Beneficiary of government program	-.317	3.439
Life satisfaction	-.735	.743
Distance to land	.925*	.544
Occupation of household head	-.657	.674
Social group	-1.492	1.719
Level of income	-.014*	.007
Challenges		
Lack of access to loan	-.523	1.719
Poor access to markets	2.463	2.088
Poor rural development	.534	1.023
Constant	15.269	13.916
R^2	047	
F (19, 180)	21.78***	
Mean VIF	1.43	
Hausman test (F=.9, p= 0.73)		
Ramsey RESET Test (F= .14, p= .34)	.	

Notes: ***, **, and * means significant at 1%, 5%, and 10% levels, respectively.

3.4.8. Conclusion and recommendations

As rural youth engagement in agriculture becomes increasingly a priority in African policy, it is important to understand the factors associated with such decisions for improved policymaking. The study integrates noncognitive factors in the analysis, which have received limited research attention to date in the youth-agriculture nexus literature. By examining the factors influencing rural youth participation in agriculture, the study revealed that most of the

youth are leaving and losing interest in agriculture. The results show that more than 70 percent of the youth will not be participating in agriculture in the next coming 5 years. Thus, the future of the sector is uncertain. Furthermore, the study sheds light on the importance of noncognitive factors (expectancy and subjective task value) in understanding youth career decisions. The results reveal that expectancy, utility and intrinsic value and cost statistically significantly influence youth career decisions. It follows that youth with expectancy, intrinsic and utility value are more likely to participate and spend more hours in agriculture. Traditional factors such as age, marital status, level of education, access to land, household size and employment status also had a statistically significant influence on youth decisions and the extent of participation. The study concludes that both cognitive and traditional factors are critical to youth decisions and combined will provide a holistic and better understanding of the youth decision-making process.

For improved youth participation in agriculture, the study recommends the inclusion of noncognitive factors in policy decisions. The study also reveals that the factors associated with youth decision to participate, and the extent of participation include different disciplines such as psychology, education, development and economics. The study suggests an interdisciplinary approach to the design of youth interventions in agriculture to avoid the use of the traditional silo approach in policy decisions. Further, present and future interventions should be designed and implemented using an integrated approach that considers the diversity of youth's challenges, values, expectations, socioeconomic status and demographics. This implies that the one-size-fits-all approach in policy decisions should be avoided.

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CHAPTER 4: FACTORS INFLUENCING MIGRATION WILLINGNESS AND CHOICE OF DESTINATION

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4.0. Abstract

Youth are important in the rural development process such that their willingness to migrate directly threatens the livelihoods and food security of the rural population in Africa. Based on a combination of migration theories, the study examined the factors influencing migration willingness and choice of destination among rural youth. A pre-tested structured questionnaire collected data from 200 youths across three districts of Mashonaland East Province in Zimbabwe. Econometric techniques of discrete choice and descriptive statistics analysed the data. The results reveal that the future of the agriculture sector in rural Zimbabwe is uncertain. More than 60 percent of the youth revealed that they were willing to engage in migration. In line with migration theories, the willingness to migrate and choice of destination was determined by factors such as access to credit, marital status, education, Internet access, and food insecurity. Contradicting common ideas of internal migration being the main type of migration in rural Africa, the analysis shows that international migration has accelerated in rural Zimbabwe. A significant number of youths revealed that they would want to engage in international migration. Another key theme from the study is the acknowledgement that rural migration in Zimbabwe will continue to grow throughout the 21st century thus, threatening the future of rural economies and food security. Hence, the study recommends that the government implement a more holistic and systematic approach which supports and promotes the development of the agricultural sector in Zimbabwe and closes the large disparities between urban and rural Zimbabwe in terms of infrastructure that provides basic services such as education, communication and credit.

Keywords: Agriculture, food insecurity, development, migration, unemployment, youth.

4.1. Introduction

Over the past decades, there has been an incessant outflow of rural dwellers in Africa, especially the youth to other non-rural areas they perceive as greener pastures (Ehirim et al., 2012; Alarima, 2019; De Brauw, 2019). Ehirim et al. (2012) define rural migration as the movement of people from, to and between rural areas, whether the move occurs within a country or involves crossing a border. Rural migration was initially thought of as a natural process of moving excess labour from the rural sector to the urban industrial sector (Imuetinyan, 2018). However, owing to poor economic situations, food insecurity and poverty, Hungwe (2013) and Munyoka (2020) found that migration is now a survival or risk-coping strategy for the poor rural population, especially in developing countries such as Zimbabwe. According to Hlungwani et al. (2021), households experiencing shocks such as droughts or other natural disasters send their household members to different locations to gain extra income and benefit from remittances.

The characteristics of rural migration in Zimbabwe mirror those of the region. Most of the youth engage in internal migration. Munyoka (2020) for example, shows that people migrating to Harare the capital city of Zimbabwe originate from rural areas in the South and Central parts of the country. These rural migrants typically react to the push factors in their areas which include adverse climatic conditions, disinterest in agriculture, lack of employment opportunities, land degradation and poor rural development (Dingirai et al., 2015). Rural migration, however, has negative consequences on migrants' areas of origin and destination. In most rural areas, the impact of youth migration has negatively affected food security and socio-economic development (Mini, 2000). Through analysing rural migration literature in Africa, it is evident that rural communities are witnessing a significant outflow of youth destined for areas they perceive better. This has resulted in the loss of human capital and agricultural labour force prolonging the cycle of poverty, food insecurity and underdevelopment (Pam, 2014; Alarima, 2019). Destination areas share this burden through the socioeconomic marginalization of youth migrants. According to Amrevurayire and Ojeh (2016), young migrants concentrate in vulnerable areas such as slums and informal settlements, which have high levels of criminality, violence and poor sanitation. Also, the influx of youth in destination areas has increased the population growth and pressure on infrastructures such as schools and hospitals. Several studies agree that the costs associated with rural youth migration often outweigh the benefits hence the need for interventions

(Mbah et al., 2016; Grote and Waibel, 2017; Wondimagegnhu and Zeleke, 2017; Johnes, 2020; Munyoka, 2020).

The topic of migration is extensively studied in development literature. Several studies have examined the determinants of migration decisions (Crush and Tevera, 2010; Herrera and Sahn, 2013; Pam, 2014; Balodi and Council, 2015; Deotti and Estruch, 2016; Edwin, 2016; Mbah et al., 2016; Sithole and Dinbabo, 2016; Wondimagegnhu and Zeleke, 2017; Imuetinyan, 2018; Mlambo, 2018; Alarima, 2019; De Brauw, 2019; Ma et al., 2019; Mkodzongi and Spiegel, 2020; Munyoka, 2020). Also, a plethora of studies explored the determinants of migration willingness in developing countries in general and sub-Saharan Africa in particular (Ibrahim and Shaibu, 2016; Abdelwahed et al., 2020; Aslany and Sommerfelt, 2020; Roopchund et al., 2020). These studies found that several factors including demographic (e.g., age, marital status, level of education and gender) and socioeconomic characteristics (e.g., income, employment status, access to credit and land ownership) influence migration willingness.

However, some gaps exist in the rural migration literature in Africa. As discussed in the previous chapter, few studies on migration have focused solely on rural youth (Pam, 2014; Deotti and Estruch, 2016; Ibrahim and Shaibu, 2016; Alarima, 2019). Most studies direct their attention to the general population resulting in the generalisation of conclusions on rural youth. Deotti and Estruch (2016) argue that the generalisation of conclusions should be avoided since the factors influencing migration decisions vary with the context, demographics and socioeconomic characteristics of an individual. Second, the few studies that have explored the factors affecting migration decisions among rural youth in Africa relied on limited analytical approaches. For example, Edwin (2016) relied on descriptive statistics, whereas Alarima (2019) used the chi-square test to examine the factors influencing migration willingness. The present study relies on two econometric models popular in decision studies, thus, the multinominal and binary logistic regression models (Herrera and Sahn, 2013; Cheteni, 2017; Martinson et al., 2019; Roopchund et al., 2020; Chandio et al., 2021; Chipfupa and Tagwi, 2021). Last, the literature shows that the influence of socioeconomic and demographic factors on migration willingness and destination choice is inconclusive. For instance, Granbanor-Boskovic et al. (2021) found that the probability of being willing to migrate is higher among individuals with Internet access compared to those without Internet access while Timmerman et al. (2014) found an inverse relationship between Internet access and migration willingness. This is the case for several factors such as gender,

education, marital status and age. This inconclusive influence of socioeconomic and demographic factors necessitates the need for more studies using different data sets and methods in different contexts. This will help in the generalization of the factors affecting migration willingness and destination choice among youth in rural Africa (Ngema et al., 2018). This chapter explores the factors affecting migration willingness and choice of destination among rural youth in Zimbabwe. The study solely focuses on rural youth and examines the different migration patterns using different econometric techniques of discrete choice. The chapter extends the migration literature and enables policymakers to devise appropriate policies and interventions that manage rural labour mobility and minimize the negative externalities of migration, contributing positively to food security and agricultural development.

4.2. Theoretical framework

The study adopts several migration theories to understand the factors influencing migration willingness and choice of destination. This is in line with Wondimagegnhu and Zeleke (2017) who argue that no single approach can explain migration intentions or decisions. The theories that explain the complex decision process of migration in the study are Lee's push and pull theory, the Social Network theory and the New Economics of Labour Migration. Lee's push and pull migration theory focuses on factors associated with the area of origin (e.g., unemployment, food insecurity), factors associated with the destination area (e.g., better infrastructure and economic opportunities), intervening obstacles (migration costs and visa requirements) and personal factors (e.g., age and gender) (Lee, 1966). According to the Social Network Theory, migrants often rely on information, support, and resources from their social networks, such as family, friends, and fellow migrants, to make migration decisions (Van Meeteren and Pereira, 2013; Liu et al., 2017). The New Economics of Labour Migration derives from the neoclassical perspective and a key feature of this approach is that it regards migration as a family or household decision rather than an individual decision (Stark and Bloom, 1985).

Several studies have applied these theories and found that factors such as social networks, education, lack of economic opportunities, poor infrastructure, food insecurity, internet access and household size influence migration decisions (Pam, 2014; Balodi and Council, 2015; Mbah et al., 2016; Sithole and Dinbabo, 2016; Wondimagegnhu and Zeleke, 2017; Imuetinyan, 2018; Mlambo, 2018; Alarima, 2019; Munyoka, 2020). Informed by these theories, the study examines the influence of demographic and economic characteristics, push

and pull factors, and family and social networks on migration willingness and choice of destination. The study's theoretical framework provides a more robust base of evidence on rural youth's willingness to migrate which in turn, enables policymakers to devise suitable policies and interventions that manage rural labour mobility.

4.3. Research methodology

4.3.1. Data

As described in Chapter 3, data for this chapter included 200 randomly selected youth from three districts of Mashonaland East province, Zimbabwe. The relevant questionnaire modules for this chapter included information on youth's demographics and socioeconomic characteristics (e.g., age, gender, level of education and employment status) and measures of resource endowments (social, human, physical, financial, and natural capital). The module specific to this chapter asked questions about migration (migration willingness, reasons for migration and migration patterns).

4.3.2. Analytical model

A binary logistic regression model evaluated the factors influencing rural youth's willingness to migrate. Previous studies have used this model to explore the factors influencing migration willingness (Pam, 2014; Balodi and Council, 2015; Ma et al., 2019). The youth revealed their willingness to migrate out of their village within the next five years. The responses are in binary form (WLMGTE), where "Y = 1" is willing to migrate and "Y = 0" is unwilling to migrate. The vector of independent variables, X, represents variables that influence youths' willingness to migrate. Suppose that $f(x)=\beta_0+\beta_1x^1+\beta_2x^2+\ldots+\beta_nx_n$ is a linear function for variables influencing youths' willingness to migrate, then the probability that youth are willing to migrate is $Pi = e^{f(x)}/[1 + e^{f(x)}]$ and the probability that youths are unwilling to migrate is $1-P_i$. By logarithmic conversion, we can obtain $ln\ (\frac{P_i}{1-P_i}) = f(x)$. The basic model of the model estimation (Gujarati, 2004) is as follows:

$$P_i = f(\alpha+\sum_{j=1}^{m}\beta_j X_{ij}) = 1/(-\alpha + \sum_{j=1}^{m}\beta_j X_{ij}) \qquad (4.1)$$

where P_i is the likelihood that i^{th} youth is willing to migrate; β_j is the regression coefficient of the j influencing factor; m is the number of influencing factors; X_{ij} is an independent variable, indicating the j influencing factor of i youth; α is regression intercept. Table 4.1 presents the independent variables included in the binary logistic regression model.

Table 4. 1: Variables influencing youths' willingness to migrate and value assignment

Variables	Variable description
Traditional factors	
Age	Age of the youth in years.
Marital status	Whether the youth is married or not (1 if yes and 0 if otherwise).
Gender	Sex of the youth (0 if female, and 1 if otherwise).
Level of education	Number of years of formal education.
Dependency ratio	Number of individuals that depend on the youth for their well-being
Employment status	If the youth is formally employed (1 if yes and 0 if otherwise)
Access to internet	Access to information and networks (1 if yes and 0 if otherwise
Access to credit	Access to formal or informal loans (1 if yes and 0 if otherwise.
Household income	The total monthly income (US Dollars) earned or received.
Food security status	Household food insecurity measured as an HFIAS score
Development in area	Development in area (1 if undeveloped and 0 if otherwise)
Farm group member	Belong to a farm group (1 if yes and 0 if otherwise)
Agriculture	Engage in agriculture strategy (1 if yes and 0 if otherwise)
Self-employment	Engage in self-employment strategy (1 if yes and 0 if otherwise)
Formal employment	Engage in formal employment strategy (1 if yes and 0 if otherwise)
Remittances	Engage in remittances strategy (1 if yes and 0 if otherwise)
Cross border trading	Engage in cross-border trading strategy (1 if yes and 0 if otherwise)

4.3.3. Migration destination

After examining the factors influencing youth willingness to migrate, the study estimated the factors influencing the choice of migration destination. A multinomial logistic (MNL) regression estimated the effects of the variables that determine youth's choice of migration destination. The motivation for using this model was to predict the likelihood of youth with given characteristics choosing an identifiable migration destination. The probability associated with a youth choosing a migration destination is denoted as P_{nj} (j = 1, 2 and 3), where n represents the youth; j = 1 represents the rural youth choosing to migrate to an urban area; j = 2 represents the rural youth choosing to migrate to another rural area and j=3 represents the rural youth choosing to migrate to another country. If the unobserved portion of the utility (εn) is identically and independently distributed (*ii*d) across alternatives, then the MNL model is specified according to Train (2009), as

$$P_{nj} = \frac{e^{(\beta^i Xnj + Y^i H_{nj})}}{\sum_{j=}^{4} 1 e^{(\beta^i Xnj + Y^i H_{nj})}} \quad (4.2)$$

If the βs and the Ys are set to zero for one of the destinations (for instance, an urban area), the MNL model for each activity (j ≠ 1) can be expressed as:

$$P_{nj} = \frac{e^{(\beta^i Xnj + Y^i H_{nj})}}{1 + \sum_{j=2}^{b} e^{(\beta^i Xnj + Y^i H_{nj})}} \quad (4.3)$$

$$P_{n1} = \frac{1}{1 + \sum_{j=2}^{b} e^{(\beta^i Xnj + Y^i H_{nj})}} \quad (4.4)$$

where Hn is a random disturbance and Xnj is the explanatory variable. Table 4.2 presents the explanatory variables and their definitions

Table 4. 2*:* Explanatory variables used in the multinomial logistic model and their definition

Variable name	Variable definition
Household head	Head of the household (1 if yes, and 0 if otherwise)
Age	Age of the youth in years
Gender	Sex of the youth (0 if female, and 1 if otherwise)
Education	Years of formal education
Household size	Number of people in a household
Youths in the household	Number of youth living within the household
More than one strategy	Engage in more than one livelihood (1 if yes, and 0 otherwise)
Household income	The total monthly income (US Dollars) earned
Migration networks	Access to migration networks (1 if yes and 0 if otherwise)
Present living conditions	Satisfaction of conditions (1 if satisfied and 0 otherwise)
Economic conditions	Satisfaction (1 if satisfied and 0 if otherwise)
Infrastructure	Infrastructure status (1 if bad and 0 if good)
Self-employment	Engage in self-employment strategy (1 if yes and 0 if otherwise)
Agriculture	Engage in agriculture strategy (1 if yes and 0 if otherwise)

4.4. Results and Discussion

4.4.1. Overall patterns of youth's willingness to migrate

Table 4.3 reveals the distribution of migration willingness among the respondents in the study. Among the 200 interviewed participants, 69 percent were willing to migrate, while 31 percent were not willing to migrate in the next five years. Overall, there was a relatively high

willingness to migrate among the participants. The findings concur with Alarima (2019) who found a high willingness to migrate among youth in rural Nigeria. Mapfumo et al. (2013) and Ibrahim and Shaibu (2016) link the high willingness to migrate with socioeconomic characteristics such as age, marital status, gender, income and education. Alarima (2019) associate the high migration willingness with challenges facing youth such as a lack of economic opportunities, food insecurity and adverse climatic conditions. Madebwe and Madebwe (2017) and Munyoka (2020) argue that migration willingness in Zimbabwe is related more to the current economic and political crisis in the country. Zimbabwe's political climate today involves widespread civil repression, inequality, and human rights violations destabilising every province in the country, worsening migration and internal displacement (Munyoka, 2020). Further, the lack of employment opportunities in Zimbabwe is making it extremely difficult for people to remain in the country or rural areas. According to Sithole and Dinbabo (2016), many companies and industries in Zimbabwe have closed resulting in widespread unemployment, pegged at 90 percent in 2022. With few job prospects, the youth become frustrated and hopeless, and a sense of desperation pushes them to migrate in search of better opportunities.

The high interest in migrating threatens the future of the agriculture sector and food security in Zimbabwe. When rural youths migrate, it leads to labour shortages in the agricultural sector (Chipfupa and Tagwi, 2021). This can result in reduced cultivation and farm maintenance, leading to a decline in agricultural production. The absence of young, skilled workers may also hinder the adoption of advanced agricultural practices and technologies, negatively impacting productivity. Madebwe (2017) add that migration can disrupt the transfer of agricultural knowledge and skills from older generations to younger ones. Traditional farming practices, indigenous knowledge, and local agricultural wisdom may be lost when young people leave rural areas. This knowledge gap can affect agricultural productivity, as younger generations may lack the expertise and experience necessary to sustain and improve agricultural practices. In some cases, when rural youths migrate, they may leave behind neglected or abandoned farmland. This can result in a decrease in cultivated land, leading to reduced agricultural output. Over time, the unused land may become degraded or vulnerable to land use changes, impacting the overall agricultural potential of the region.

Table 4.3: Socio-economic characteristics and willingness to migrate

Variable		Percentage rating			
		Willing to migrate	**Not willing to migrate**	**Total population**	**P-value**
Overall willingness to migrate		**69**	**31**		
	Single	52.9	30.6	46.0	
Marital status	Married	39.1	59.7	45.5	0.005
	Divorced	4.3	9.7	6.0	
	Widowed	3.6	0	2.5	
	Primary	5.8	4.8	5.5	
Level of education	Secondary	73.2	79.1	73.5	0.674
	Tertiary	21.0	16.1	21.0	
Gender	Male	46.4	43.5	45.5	0.710
	Female	53.6	56.5	54.5	
	15-20	16.7	8.1	14.0	
Age	21-28	46.3	40.3	44.5	0.089
	29-34	37.0	51.6	41.5	
	0-50	47.1	21.0	50.5	
Household income	51-150	29.0	58.1	26.5	0.528
	150-300	20.3	17.7	19.5	
	300+	3.6	3.2	3.5	
Formally employed	Yes	13.0	80.6	15	0.089
	No	87.0	19.4	85	

n=200.

In general, Table 4.3 shows that youth who are willing to migrate are unemployed, female, single, have a secondary level of education, earn an income of less than US$50 per month and are between the ages of 21 and 28 years. In line with Abdelwahed et al. (2020), the results show a statistically significant association between migration willingness and marital status. About 52 percent of single youth were willing to migrate in comparison to their married (43%) counterparts. Lack of responsibilities and marital obligations makes it easy for single youths to migrate compared to married youths. Also, age statistically and significantly influenced youth willingness to migrate. The results show that youth who are willing to migrate were predominantly aged between 21-28 years. Table 4.3 reveals that 87 percent of unemployed youth were willing to migrate, and the difference was significant at a 5 percent level of significance. The finding is consistent with Alarima (2019) who found a high willingness to migrate among unemployed youth. The argument is that unemployment brings about financial and social instability, poverty and lower standards of living which all motivate migration willingness.

4.4.2. Reasons for wanting to migrate

Poor households in rural Africa consider migration as a coping strategy against poverty and food insecurity (Pam, 2014; Balodi and Council, 2015; Ma et al., 2019). Reinforcing this finding, most of the respondents associated their reasons for wanting to migrate with economic factors (Table 4.4). Among the seven factors listed, three were economic and made up most of the responses. The economic factors allude to the challenges that youth in rural areas face, such as those related to generating income, finding wage labour opportunities, and food insecurity. When asked about their willingness to migrate, lack of employment opportunities was the commonly cited reason (Table 4.4). With most of the respondents willing to migrate to seek better employment opportunities, it appears that both on-farm and off-farm wage-employment opportunities are not enough for the youth to make a living in rural areas. More so, Ibrahim and Shaibu (2016) posit that the seasonal nature of agricultural labour results in a fluctuation in wages and employment opportunities and poor working conditions, forcing people to migrate in search of better employment opportunities.

Table 4.4. shows that over 60 percent of the youth were willing to migrate due to food insecurity. The results agree with Sadiddin et al. (2019), who found that the willingness to migrate increases as the severity of food insecurity increases. The droughts coupled with the economic meltdown, structural violence, climate change, and political instability have pushed millions of rural Zimbabweans from an extremely vulnerable condition to food insecurity (Gwatirisa and Manderson 2012). This has seen many rural households wanting to migrate to other areas to ensure survival. Table 4.4 shows that even those who are not necessarily food insecure seek to relocate for better incomes. In line with Udemezue (2019), a significant number of the respondents listed seeking better income as another economic reason for wanting to migrate. It appears that income from both farm and off-farm activities is not enough for the youth to make the living they desire or want.

Nevertheless, there were non-economic reasons for wanting to migrate. The results show that a significant number of the respondents included the need for further education as one of their reasons for wanting to migrate. The result agrees with Moses et al. (2017). A possible explanation is that rural areas in Africa do not have schools to provide education at tertiary levels hence the rural population has to travel to urban areas specifically to further their studies. With the collapse of the education system owing to the economic meltdown in Zimbabwe, many youths have gone as far as South Africa, China, Russia and America to further their studies. This has been possible through the Presidential scholarship offered by

the government of Zimbabwe. The scholarship targets disadvantaged, but academically gifted students mainly from schools in remote districts or rural areas to study abroad (Crush and Tevera, 2010; Munyoka, 2020). Many rural youths have benefited from this presidential scholarship and have migrated to other countries to pursue their studies.

Marital obligations were another reason for wanting to migrate among the youth. A study in India found that the most common reason for rural migration is marriage (Krishnan, 2019). The picture given in India is like the situation in rural Zimbabwe. The study found marital obligations to be one of the reasons why 26 percent of the respondents were willing to migrate. This was more common among newlywed ladies who should move and settle with their husbands. The results show that over 40 percent of surveyed respondents are willing to migrate to seek better infrastructure. These respondents associated their intention to migrate with a desire for opulence or modernism independently of the economic challenges in rural areas. In line with the Social Network theory, this group of respondents developed a positive impression of urban areas from friends, relatives and social media, which resulted in dissatisfaction with the rural situation (Mkodzongi and Spiegel, 2020). Regardless of whether the socioeconomic situation improves in rural areas, these respondents would prefer to live in urban areas.

Table 4.4: Reasons for wanting to migrate

Reason	Percentage ratings				
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
Employment opportunities	40.4	43.3	15.2	1.1	0
Food insecurity	10.7	53.9	27.0	4.5	3.9
Better infrastructure	13.5	28.1	41.0	15.7	1.7
Further education studies	12.4	58.4	15.2	11.8	2.2
Better income	30.9	57.9	9.6	1.7	0
Marital obligations	5.1	20.8	21.9	29.2	23.0
Lack of interest in agriculture	11.8	10.1	16.3	42.1	19.7

n=200.

Last, disinterest in agriculture was another reason for wanting to migrate among the youth. According to Mapfumo et al. (2013), most rural youth operate in a vulnerable context characterised by shocks and the seasonality of the agriculture sector. Shocks in the agriculture sector may arise because of the stochastic nature of agricultural activities where rainfall is highly variable because of factors such as climate change. This scenario combined with a dearth of natural, physical, financial, social, and human capital has seen many youths losing

interest in agriculture and opting for non-agricultural livelihoods such as migration (Akpan et al., 2015; Kafle et al., 2019; Yami et al., 2019).

4.4.3. Factors affecting migration willingness

Table 4.5 reveals the factors influencing migration willingness among the respondents. Ten of the seventeen variables (marital status, education food security, access to the Internet, access to loans, social group membership, number of dependants, agriculture livelihood strategy, remittance livelihood strategy, and development of area) had a significant effect on rural youth willingness to migrate. The sign of the coefficient in Table 4.5 shows the independent variable's direction of influence on the dependent variable. It follows that a positive value shows an increase in the likelihood of being willing to migrate, while a negative value implies a decrease in the likelihood of being willing to migrate.

In line with Aslany and Sommerfelt (2020), marital status had a statistically significant and negative effect on youth willingness to migrate. The results show that the odds of migrating are 0.365 times lower among married youth compared to unmarried youth. Thus, the willingness to migrate is more present among single individuals than among married individuals. Ibrahim and Shaibu (2016) posit that married individuals have greater responsibilities within the household, such as caring for children or elderly family members. This can make it more difficult to migrate, as the household would need to find alternative care arrangements. Also, migration decision among married couples involves consideration of many factors such as stability of income, children's priorities, safety and opportunities available for both individuals and ability to overcome the migration costs as it involves more than one person (Roopchund et al., 2020).

Grote and Waibel (2017) and Imuetinyan (2018) found that education increases the chances of engaging in rural migration. This is in line with New Economics of Labour Migration that posits that skills flow to the place of highest return (Massey et al., 1993). Reinforcing this finding, the study found that as the level of education increases by a year, the odds of wanting to migrate increase by a factor of 7.456, holding other variables in the model constant. This could be because of differentials in returns to education between the place of origin and the place of destination (Herrera and Sahn, 2017; Aslany and Sommerfelt, 2020). Destination areas usually have high-paying, stable and secure job opportunities which act as an attraction to highly educated individuals compared to the local job opportunities available which offer low salaries and insecure job opportunities. Sithole and Dinbabo (2016) posit that the current

high literacy levels in Zimbabwe can be a reason why highly skilled and educated individuals are leaving the country. One can conclude that rural areas and Zimbabwe at large have become training grounds for migrant destination areas. In support, Mkodzongi and Spiegel (2020) found that most of the graduates in their study were considering migrating to another country after graduation. This represents a loss of human capital, which has a detrimental effect on development, agriculture production and food security (Sithole and Dinbabo (2016). This questions the future of the country since the youths throughout the literature are viewed as critical to socio-economic development and food security.

Table 4. 5: Factors influencing youth willingness to migrate

Variable	Odds Ratio	Std. Err.	P>z
Traditional factors			
Age	-0.908	0.083	0.298
Marital status	-0.365	0.218	0.092*
Gender	2.291	1.16	0.240
Level of education	7.456	6.281	0.017**
Employment status	-0.736	0.130	0.083**
Farmer group membership	-0.089	0.073	0.003**
Access to internet	-0.151	0.108	0.008**
Access to credit	15.933	19.355	0.023**
Household income	-0.998	0.003	0.547
Food insecurity	-0.877	.045	0.010*
Poor development in the area	3.015	0.949	0.000***
Status urban area	-0.912	0.338	0.803
Agriculture	-0.007	.008	0.001***
Formal employment	1.805	1.757	0.544
Remittances	-1.056	0.019	0.003**
Cross-border trading	-.641	.488	0.599
Self-employment	-0.743	0.566	0.697

Notes: Likelihood ratio test: Chi-Square = p-value = 0.001
*, ** and *** significant at 10, 5 and 1%, respectively.
Overall % households correctly classified = 80 %.
Source: Survey data (2020).

Contrary to Sithole and Dinbabo (2016), the results show that food insecurity had a negative and statistically significant effect on migration willingness. Thus, the odds of being willing to

migrate are 0.877 lower for each unit increase in the food insecurity level. In Zimbabwe, one would expect to see food-insecure people migrating to other places to seek better opportunities and improved livelihoods. Surprisingly, this is not the case in the study. The results are in line with Sadiddin et al. (2019) who found low migration willingness among poor and food-insecure individuals or households. This may be because of a lack of financial resources to cover the costs associated with migration (Sithole and Dinbabo, 2016). Moving to a new place requires a significant amount of money for transport, visa application, shelter, and other related expenses. For the rural youth who are already struggling to put food on the table, the idea of migrating can seem unattainable. Also, Sadiddin et al. (2019) link attachment to land with low migration willingness. This is true for some people as their attachment to the land they live on is strong. They may have deep roots in the community and feel a sense of belonging that is hard to leave behind. This attachment may outweigh the benefits of moving to a new place, even if they are experiencing food insecurity. The results show that although food insecurity is an important deciding factor for the decision to migrate, the direction of influence is indeterminate.

Granbanor-Boskovic et al. (2021) found that the likelihood of wanting to migrate is higher among individuals with Internet access compared to those without Internet access. This is because the Internet provides information that enables an individual to plan and execute migration decisions. However, Timmerman et al. (2014) found that access to the Internet does not always increase migration aspirations. In support, the coefficient for Internet access had a statistically significant and negative effect on youth willingness to migrate. Thus, the odds of being willing to migrate were 0.151 lower among youth with access to the Internet. This implies that youth with access to the Internet are less likely to be willing to migrate compared to youth without access to the Internet. This is because the Internet provides information that may contribute negatively to migration decisions. For rural youth, the Internet is a source of information on the cost of migration, crime and security statistics of the intended place of destination (Timmerman et al., 2014). In other words, the Internet offers a wealth of negative information and knowledge about a destination, country or region that might affect migration willingness. The results show that although access to the Internet is an important deciding factor for the decision to migrate, the direction of influence is indeterminate.

Migration willingness is shaped by the overall development in the community of origin, as suggested by Lee's push and pull migration theory. Rural development, according to Ekpe

(2006), is the provision of physical infrastructure. The rationale behind the concept is that by providing rural areas with socioeconomic amenities like electricity, piped water, schools, hospitals, and leisure centres, they can become desirable places to live (Manggat et al., 2018). Therefore, the lack of such amenities results in low interest to stay in the area hence people develop a desire to migrate to other areas. Table 4.5 shows that the coefficient of poor rural development had a statistically significant and positive effect on migration willingness. The results show that the odds of being willing to migrate are 3.015 times higher among youth living in an undeveloped community. Mutami (2015) describes rural infrastructure in Zimbabwe to be generally poor. Since the economic and political crisis in the late 1990s, the Zimbabwean government has failed to maintain and rehabilitate the existing rural infrastructure. Neglect of the rural areas has resulted in the generalised lack of investment in particular the water and power sectors. The cholera outbreak in 2008 is an example of poor investments in water delivery. Quality service and delivery have declined while conditions of roads have deteriorated to the extent that rural connectivity hardly exists (Hlungwani et al., 2021). Looking ahead, Zimbabwe's infrastructure challenges are likely to worsen threatening the livelihoods of millions. Mutami (2015) concludes that investment in rural infrastructure can be part of the solution to reducing rural migration in Zimbabwe.

Table 4.5 shows that the coefficient of employment status negatively influenced migration willingness among the youth. This implies that the odds of wanting to migrate among employed youth are 0.736 times lower, holding other variables in the model constant. This is because of income satisfaction. Aslany and Sommerfelt (2020) found that individuals who earn high incomes in their place of origin are less likely to be willing to migrate. Long-term considerations also contribute to the lack of migration willingness among employed youth. According to Balodi and Council (2015), jobs that allow career advancement and promotion may retain an individual in their areas of origin even if they do not have attractive wages. The results, however, are contrary to Wondimagegnhu and Zeleke, (2017) who found that employed individuals are two times more likely to be willing to migrate than unemployed individuals. Employed individuals have the financial resources needed to cover the migration cost.

Access to credit, both from formal and informal sources plays an important role in youths' willingness to migrate (Bah and Batista, 2018; Johnes, 2020). In support, the coefficient for access to credit had a statistically significant and positive relationship with youth willingness to migrate. This implies that the odds of being willing to migrate are 15.933 higher among

youth with access to credit relative to their counterparts without access to credit. This is because access to credit, be it formal or informal can help overcome the necessary migration cost. For most rural youth in Zimbabwe, deciding to migrate involves upfront costs and a large amount of money (Mkodzongi and Spiegel, 2020). Access to credit, therefore, provides financial resources needed to cover the costs associated with migration, such as transportation, documentation, and initial living expenses in a new location. It's important to note that while access to credit can facilitate migration, it also introduces individuals to the potential risks of indebtedness and financial vulnerability. Overreliance on credit without the ability to repay it can lead to financial distress and have long-term consequences. Therefore, it's crucial for individuals to carefully assess their financial capacity and consider the terms and conditions of credit before making migration decisions based on borrowed funds.

As expected, the results show that membership in a farmer group negatively influences youth's willingness to migrate. Thus, the odds of being willing to migrate were 0.089 lower among youth belonging to a farmer group. This is because farmer group membership improves agricultural productivity and income (Akinyemi and Mushunje, 2019). Farmer groups enhance productivity by providing access to quality seeds, modern farming techniques, and necessary inputs. With improved agricultural practices and income, the youth are more likely to find their livelihoods sustainable and fulfilling, reducing the need to seek better opportunities through migration. Akinyemi and Mushunje (2019) are of the view that farmer groups foster social support and community cohesion among their members. They create a sense of belonging and provide emotional support through knowledge sharing, networking, and collective decision-making. This strong social fabric within rural communities can make individuals less inclined to leave their familiar social networks, reducing the motivation for migration.

The livelihood strategy “agriculture” had a statistically significant and negative impact on youth willingness to migrate. In other words, the odds of wanting to migrate are 0.007 times less among youth engaging in agriculture compared to youth not engaging in the sector. This can be because of the contribution of agriculture toward household food security. Several studies show that agriculture provides income, employment and food (Afande et al., 2015; Akpan et al., 2015; Fawole and Ozkan, 2019). By actively participating in agricultural activities, the youth have a chance to meet the household food security reducing the need to migrate to another area. Another reason could be family and social ties. Agriculture is often a family-based activity, and youth involved in farming may have close ties with their families

and communities. They may value the support and companionship of their loved ones and prioritise maintaining those relationships. The strong social ties and support systems within rural communities can act as a deterrent to migration.

Similarly, the odds of being willing to migrate were 1.056 lower among youth engaging in the "remittance dependency" livelihood strategy. Thus, youth engaging in the remittance livelihood strategy are less likely to be willing to migrate to another area. A possible explanation is that remittances often provide a stable source of income for the recipient and their family (Mutami, 2015). It can significantly contribute to improving their living standards, meeting basic needs, and supporting education and healthcare expenses. With a reliable income from remittances, households or individuals be less likely to undertake the risks and uncertainties associated with migration (Aslany and Sommerfelt, 2020).

4.4.4. Migration destination

Table 4.6 presents the migration patterns of the sampled respondents. The results show that most migration willingness (36.5%) gravitated towards urban areas, especially the capital city of Zimbabwe, Harare. This is not surprising because of the large disparities in education, infrastructure and economic opportunities between rural and urban Zimbabwe. According to Mutami (2015), urban areas often offer a wider range of economic opportunities compared to rural areas. Harare, as the capital city, has a more diverse and vibrant economy with various sectors such as finance, commerce, manufacturing, and services. The potential for better-paying jobs, formal employment, and entrepreneurship attracts individuals seeking economic advancement. Also, urban areas like Harare offer a wider range of educational institutions, including universities, colleges, and specialized training centres (Munyoka, 2020). Individuals from rural areas may migrate to urban areas to access better quality education, acquire specialized skills, and enhance their career prospects. The results show that only 1.5 percent of the respondents were willing to move to another rural area. The low interest in this type of migration is expected due to the high poverty, food insecurity levels, lack of employment opportunities, and the adverse impacts of climate change in rural areas (Munyoka, 2020). The narrative of rural-to-rural migrants suggests that the migrants are poorer, less educated, and have less wage-labour experience than those who do not migrate or who migrate to urban areas and/or abroad (Chamberlin et al., 2018). Marriage and seasonality of work are some of the factors responsible for rural-to-rural migration.

These two migration patterns represent internal migration which tends to be more common than international migration in rural Africa. According to de Brauw (2020), internal migration allows individuals to stay within their home country, where they are familiar with the culture, language, and social networks. People migrating internally can maintain connections with their communities, families, and support systems, which can be vital for social and emotional well-being (Balodi and Council, 2015). Also, internal migration within a country often incurs fewer costs and barriers compared to international migration. Individuals migrating internally may not require passports, visas, or extensive documentation. The transportation costs and logistical challenges are generally lower for internal migration, making it a more feasible option for individuals with limited financial resources.

Table 4.6: Migration destination of the participants

Destination	Frequency	Percent
Not willing to migrate	62	31
Urban area	73	36.5
Another rural area	3	1.5
Another country	62	31

n=200.

Contrary to migration literature in Africa, the study found that a significant number of participants were willing to engage in international migration. The results show that 31 percent of the respondents were willing to engage in international migration. This is because international migration offers the potential for higher-paying jobs and access to economic opportunities that may be limited or unavailable in Zimbabwe (Hungwe, 2013). Youth may perceive better prospects for employment, career advancement, and income generation in other countries, especially those with stronger economies or specific industries in high demand. Another possible reason is that increased global connectivity through technology and the Internet has made information about international opportunities more accessible to youth (Munyoka (2020). The youth can learn about scholarships, job openings, and immigration processes in other countries, which may incentivize them to explore international migration as a viable option. Dinbabo and Nyasulu (2015) found that migration networks influence international migration. The presence of family members, friends, or acquaintances who have successfully migrated internationally can influence youth's decisions. Migration networks and social ties established by previous migrants can provide support, guidance, and information, making international migration seem like a more feasible and attractive option. From the results, youth narratives in migration are changing. Migration

is no longer limited to the traditional routes in Zimbabwe, thus rural-rural or rural-urban migration. The youth are now considering engaging in international migration.

4.4.5. Factors affecting migration destination

Table 4.7 presents the factors influencing the choice of migration destination among the respondents. The urban area was the base strategy in the multinominal logistic regression (MNL) and accounted for 36.5 percent of the respondents. Among the thirteen explanatory variables, seven had a statistically significant influence on rural youth's choice of migration destination. The variables are household head, gender, household size, household income, present living conditions, migration networks and present economic conditions.

The results show that the coefficient of gender had a positive and statistically significant effect on the choice to migrate to another country. Thus, for males relative to females, the odds of preferring to migrate to another country over an urban area are 3.095 times higher, holding other variables constant. In other words, male youth are more likely to engage in international migration than their female counterparts. The results agree with de Brauw (2020) who found male youth to be more likely to migrate internationally than females. This may be because the isolated, and illiterate female youth find it much more difficult to gain the resources and knowledge needed to migrate internationally, as a result, they travel shorter distances or stay within their countries or region. In contrast, male youths move abroad in quest of a job since they have more of the technical skills needed in formal employment (Herrera and Sahn, 2017).

Table 4.7 shows a statistically significant and inverse relationship between household size and migration destination choice. Thus, with a unit increase in household size, the odds of choosing to migrate to another rural area would be 0.323 times less compared to moving to an urban area, holding all other variables constant. In other words, a household with more members is less likely to migrate to another rural area and instead would rather choose to migrate to an urban area. The presence of more household members implies more mouths to feed hence increasing the propensity to migrate to urban areas to seek an extra source of income to sustain the household food security needs.

The coefficient for household head had a negative and statistically significant effect on the decision to migrate to another country as opposed to going to the urban areas. Household heads have a 0.322 less odd of migrating to another country compared to migrating to an urban area. In other words, youth who are the household head are less likely to engage in

international migration. Alarima (2019) is of the view that youth who are not household heads do not have many socioeconomic responsibilities that limit them from migrating to another country compared to household heads.

As expected, household income had a statistically significant and positive effect on the choice of migration destination. The results show that with a unit increase in income, the odds of choosing to migrate to another country would be 1.006 times more compared to moving to an urban area, holding all other variables constant. The result agrees with Crisan et al. (2019) who found household income to have a positive impact on the decision to engage in international migration. A possible explanation is that high incomes relax the constraint to finance the migration cost which increases the likelihood of migrating to another country. In other words, high-income receiving households or individuals can finance the migration costs such as accommodation, visa, transport, and food.

The coefficient migration networks had a positive and statistically significant effect on international migration. For youth with migration networks relative to those without migration networks, the probability of choosing to migrate to another country is 0.303 times higher than for migrating to an urban area. In other words, youth with personal networks such as friendship and kinship connections are more likely to prefer international migration over rural-urban migration. This is in line with Wondimagegnhu and Zeleke (2017). The sources of information are returnees as well as friends and relatives living abroad. Networks reduce migration transaction costs such as information, accommodation and food which increases the probability to engage in international migration (Aslany and Sommerfelt, 2020). The result is in line with the Social Network Theory of migration which argues that migration is caused by the interpersonal ties which connect the potential migrants, the already migrated individuals, and non-migrants in the origin and destination countries through different linkages such as kinship, friendship, and shared community origin.

Table 4.7: Factors influencing migration destination

Variable	To another rural area		To another country	
	B	**Odds ratio**	**B**	**Odds ratio**
Socio-economic factors				
Household head	-0.28	0.324	-1.78*	0.322
Age	0.18	1.073	1.00	1.063
Gender	-0.65	0.286	2.59**	3.095
Level of education	-0.65	0.160	-0.44	0.808
Household size	-1.07*	0.323	-0.51	0.926
Number of youths in the household	0.74	8.047	-0.02	0.995
More than one livelihood	-0.17	0.599	-1.35	0.499
Household income	-0.83	0.788	2.31**	1.006
Migration networks	0.37	2.613	3.16**	0.303
Economic conditions of the area	-0.63	0.127	-2.01*	0.513
Infrastructure	-0.28	0.286	2.86*	3.588
Livelihood strategy				
Self-employment	-0.58	0.081	1.00	1.627
Agriculture	-0.02	2.654	0.68	1.568
Intercept	0.84	1.878	-0.24	0.502

Notes: Likelihood ratio test: Chi-Square = 85.951.
p-value = .001. *, ** and *** significant at 10, 5 and 1%, respectively.
Overall % households correctly classified = 70.1%.
Source: Survey data (2020).

As expected, youths' perceptions of the present economic conditions of their areas had a negative and statistically significant relationship with the decision to migrate to another country. The interpretation of the odds for the perception of present economic conditions of their area shows that holding other factors constant, the probability of youth with a positive perception to choose to migrate to another country is 0.513 times lower than going to an urban area when compared to their counterparts with negative perceptions. This implies that youth who have a positive perception of the present economic conditions are less likely to migrate to another country compared to those with a negative perception. This may be because positive economic perceptions lead to higher standards of living and food security hence the lack of interest in migrating to another country. The finding concurs with Ngwenya (2016) who found that most Zimbabwean migrants living in South Africa migrated because of dissatisfaction with the economic situation in their areas of origin.

The coefficient of infrastructure had a positive and statistically significant influence on migration destinations. Table 4.7 shows that the probability of choosing to migrate to another country is 3.588 times higher among youth living in areas with poor infrastructure compared

to youth living in areas with good infrastructure. Insufficient infrastructure in rural areas can restrict economic activities and job opportunities (Gwatirisa and Manderson 2012). This can lead to a lack of formal employment, limited access to markets, and reduced business development. In such cases, individuals may be motivated to migrate to other countries with better infrastructure to seek better economic prospects and income-generating opportunities. Also, poor infrastructure in rural areas often results in limited access to basic services such as healthcare, education, clean water, sanitation facilities, and electricity. The absence of these services can negatively impact the quality of life and well-being of individuals and families. Migration may be seen as a means to access improved services and amenities that are often more readily available in urban areas. However, in Zimbabwe where urban infrastructure is collapsing due to the economic and political crisis, the youth are forced to migrate to neighbouring countries.

4.4.6. Conclusion

The objective of this chapter is to provide empirical evidence of the factors influencing migration willingness and choice of destination among youth in rural Zimbabwe. In line with the migration theories, the study found that education, gender, income, marital status, farmer group membership, access to the Internet, poor rural development and access to credit statistically significantly influence migration willingness and choice of destination. Further, the study agrees with the literature that the influence of socioeconomic and demographic factors on migration willingness and destination choice is inconclusive. In the study, food insecurity and access to the Internet negatively influenced migration willingness while in the literature, these factors have a positive influence. Contrary to migration literature, factors such as age, gender, and income, did not exert any significant impact on migration willingness.

The study finds a shift in migration narratives. The results show that migration in rural areas is no longer limited to internal migration rather many people are choosing to engage in international migration. This implies that discussions on migration should not focus exclusively on rural-to-rural or rural-urban migration but should also consider international migration. Another key theme from the study is the acknowledgement that rural migration will continue to grow through the remainder of the 21st century. To minimise rural migration, the study recommends that the government invest in closing the large disparities between urban and rural Zimbabwe in terms of infrastructures that provide the basic social services related to education, credit and communication. Also, due to the heterogeneity of the factors

affecting migration willingness and choice of destination, the study recommends that the one-size-fits approach should be avoided at all costs. Further, with the shift in migration patterns, the study recommends the need to update some of the migration policies and interventions to meet the status quo. To mitigate the negative impacts of migration, it is crucial to develop policies and initiatives that encourage rural youths to engage in agriculture. This can include providing access to education and training opportunities, improving infrastructure and market linkages, promoting agricultural entrepreneurship, and creating supportive environments for youth-led agricultural initiatives.

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CHAPTER 5: THE DETERMINANTS OF LIFE SATISFACTION AMONG RURAL YOUTH IN MASHONALAND EAST PROVINCE, ZIMBABWE

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5.0 Abstract

Life satisfaction in various contexts continues to be a crucial topic for both scholars and policymakers. This significance stems from the idea that life satisfaction is an enduring indicator of both social and economic stability in a country. The study examined the level of life satisfaction and the factors influencing such levels. Econometric techniques of discrete choice and descriptive statistics analysed the demographics, social-economic characteristics and life satisfaction data. The results revealed that life satisfaction levels were generally low and varied with the demographics and social-economic characteristics of the respondents. In the regression analysis, the variables that predicted life satisfaction included education, dependency ratio, government programmes, access to credit, type of livelihood strategy, food security status, utility, and intrinsic value. For improved life satisfaction, the study recommends that the government implement interventions that focus on addressing issues affecting the accessibility and availability of food. Also, the government should improve access to basic needs such as credit facilities, education and agricultural programmes.

Keywords: Agriculture, life satisfaction, youth, smallholder farming, unemployment

5.1. Introduction

Although migration, off-farm labour and remittances are significant in sustaining rural life in Zimbabwe, agriculture remains the linchpin for many rural youths in the country (Chikanda and Tawodzera, 2017; Munyoka, 2020). The situation is the same across sub-Saharan Africa. The youth must select one or a combination of techniques, including on-farm, off-farm, and non-farm activities to build their livelihoods (Yakubu and Aidoo, 2015). According to Sabri et al. (2021) and Ansah et al. (2022), youth make these decisions to accomplish certain goals or outcomes. For rural youth, the most likely outcome of any livelihood strategy includes food security, reduced vulnerability, increased opportunities and improved subjective well-being (SWB). The notion of subjective well-being includes both a cognitive and affective assessment of life (Diener et al., 1985). Happiness serves as an explanation for the affective component, while life satisfaction serves as a metaphor for the cognitive component, which is the focus of this study (Duncan, 2010; Ott, 2013). Life satisfaction and happiness are synonymously used in literature to explain SWB, however, there is substantial evidence that they are not the same. According to Diener et al. (2003), life satisfaction focuses on people's opinions about their lives, which may include assessments of their jobs or interpersonal relationships, whereas happiness is more closely related to emotions, feelings, or moods.

According to Diener et al. (1985), life satisfaction portrays an overall evaluation of feelings and attitudes about one's life, at a given period, ranging from negative to positive. It focuses on what benefits a person, improves his or her situation and furthers their interests, or is attractive to them. A person with high life satisfaction is said to be doing well, lucky, or in an admirable situation (Valois et al., 2002). Since high life satisfaction influences the standard of living and economic prosperity, life satisfaction is developing as a complement to the more conventional and material techniques of measuring poverty and deprivation. It serves as the foundation for the case for a more human-centred approach to development and encourages us to reconsider pro-poor policy indicators and measures (Diener et al., 1999). Empirical evidence reveals a strong correlation between life satisfaction, performance, health and social relationships (Meyer and Dunga, 2014; Gerster-Bentaya and Knierim, 2021). For example, Ma et al. (2021) found that life satisfaction statistically significantly influences agriculture productivity in rural China. Further, Chima et al. (2020) found a strong correlation between low life satisfaction and health-related factors such as pain, obesity, anxiety and chronic illness. Also, low life satisfaction is noted to significantly influence violence, sexual risk

behaviour and substance abuse (Valois et al., 2002) In the same study, civil conflicts and political protests were high among dissatisfied communities or individuals.

Life satisfaction in various contexts continues to be a crucial topic for policy decisions hence a growing body of literature has examined the construct (Valois et al., 2002; Strine et al., 2008; Ebrahim et al., 2013; Meyer and Dunga, 2014; Muzindutsi and Sekhampu, 2014; Ngoo et al., 2015; Aysan and Aysan, 2017; Geldenhuys and Henn, 2017; Chen and Hou, 2019; Chima et al., 2020; Bialowolski and Weziak-Bialowolska, 2021; Sabri et al., 2021; Ansah et al., 2022). However, some gaps exist in the literature. Most empirical studies on life satisfaction are of developed nations with the results generalised to developing countries in Africa. Chima et al. (2020) are of the view that the absence of such studies in the African context is a cause of concern given the importance of life satisfaction to social-economic development and food security. Ebrahim et al. (2013) add that limited empirical knowledge of life satisfaction in Africa has resulted in the concept barely featuring in most poverty alleviation and food security strategies in the continent. In support, Ansah et al. (2022) argue that neglect of life satisfaction analysis in Africa is one of the reasons limiting the success of rural development policies and interventions. To provide solutions that can significantly eradicate food insecurity and rural poverty there is, therefore, a need for more empirical analysis of life satisfaction in contexts of poverty and food insecurity, such as in Africa, (Ebrahim et al., 2013; Ansah et al., 2022).

Similar to previous chapters, there is a dearth of studies on life satisfaction in sub-Saharan Africa that focus solely on rural youth (Chima et al., 2020; Ansah et al., 2022). Focus has been more on the elderly or the general population. Last, studies on life satisfaction in the rural smallholder farming context are scarce. The few studies on life satisfaction in Africa have mostly focused solely on Townships or the urban population (Meyer and Dunga, 2014; Muzindutsi and Sekhampu, 2014). As a result, there is a dearth of studies on the determinants of life satisfaction in rural smallholder farming in Zimbabwe. This chapter, therefore, aimed to close these gaps by examining the determinants of life satisfaction using primary data collected from youth in rural Zimbabwe. The findings of this study are significant in terms of theoretical and policy implications. Theoretically, other scholars can use the study as a benchmark for literature and research. Policywise, several government agencies, and non-governmental organisations may use the study as a guide for creating interventions targeted at raising the socioeconomic status of youth, who are an important cohort in the development of rural economies and ensuring sustainable livelihoods and food security.

5.2. Conceptual background

From the view of economists and sociologists, several factors ranging from demographic, and socioeconomic to environmental influence life satisfaction. For instance, some studies found that aspects such as education, income, employment status, gender, poverty, age, marital status and social relationships influence an individual's evaluation of life satisfaction (Meyer and Dunga, 2014; Yakubu and Aidoo, 2015; Chima et al., 2020). Regarding education, there is no wide consensus on the effect on life satisfaction. For instance, Meyer and Dunga (2014) in South Africa found that educated people are more likely to be unhappy with their lives while some studies have found life satisfaction to increase as the level of education increases (Ngoo et al., 2015; Sonmez and Altunsu, 2018). Well-being literature captures the effect of marital status on happiness (Ebrahim et al., 2013; Ngoo et al., 2015; Yakubu and Aidoo, 2015; Asfahani et al., 2019; Chima et al., 2020). Chima et al. (2020) show that married people are more likely to be happy compared to unmarried people (widowed, divorced and separated). Similarly, Ngoo et al. (2015) found marital status to be an important determinant of life satisfaction in South, Centre/West and Southeast Asia. In the study, married people had high levels of life satisfaction compared to their single counterparts.

Concerning household/ individual income, several studies have found a positive association between income and life satisfaction (Diener et al., 1985; Meyer and Dunga, 2014; Ngoo et al., 2015). According to studies, the impact of income on life satisfaction is lower in developed countries than in developing countries. High income does not, however, enable high levels of life satisfaction when a specific income threshold is reached (Chima et al., 2020). Hence, Frey and Stutzer (2002) found an inverse relationship between income and life satisfaction. Yakubu and Aidoo (2015) reveal the importance of food insecurity on subjective well-being in Ghana. The study reveals that food insecurity and life satisfaction have a negative and statistically significant association. Similarly, Frongille et al. (2019) examining data from 138 countries found a significant and negative association between food insecurity and subjective well-being. Social class is another determinant of life satisfaction. Sonmez and Altinsu (2018) found a positive association between social status and life satisfaction. In the study, people in the upper class were happier and more satisfied with life when compared to lower-level classes. This led to the conclusion that life satisfaction increases as an individual moves to a higher social class. Table 5.1. summarizes the factors affecting life satisfaction gathered during the literature review process.

Table 5. 1: Summary of some of the determinants of subjective well-being

Variable name	Generalised correlation with life satisfaction
Unemployment	Employed people have a higher life satisfaction than unemployed people
Level of education	Higher levels of education are associated with higher levels of life satisfaction.
Marital status	Unmarried people have lower life satisfaction than married people.
Gender	Women have lower levels of life satisfaction than men.
Age	People in their early life (in the 20s) and later life (above 50) are happier than people in their mid-years
Social class	People in the upper class were happier and more satisfied when compared to lower-level classes
Food insecurity	Food-insecure people or households have lower life satisfaction than food-secure people or households.
Income	High income has a positive influence on life satisfaction or happiness.

5.3. Research methods

5.3.1. Data

As described in previous chapters, data for this chapter included 200 randomly selected youth from three districts of Mashonaland East province in Zimbabwe namely Goromonzi, Hwedza and Seke. The relevant questionnaire modules for this chapter included information on youth's demographics and socioeconomic characteristics (e.g., age, gender, level of education and employment status) and measures of resource endowments (social, human, physical, financial, and natural capital). The module specific to this chapter captured data on life satisfaction.

5.3.2. The Satisfaction with Life Sc)

The Satisfaction With Life Scale (SWLS), developed by Diener et al. (1985) measured life satisfaction among youth in rural Zimbabwe. Ngoo et al. (2015) and Chima et al. (2020) used the SWLS to measure life satisfaction and proved to be reliable with high internal consistency. In line with Diener et al.(1985), a scale of 0-7 measured the life satisfaction of the respondents in the study. Zero represents individuals dissatisfied with their life (low subjective well-being) and seven represents those satisfied (high subjective well-being) with the ends of their livelihood. The seven-point scale is further categorised into 3 groups for analysis purposes: 0-3 represents low satisfaction, 5-7 represents high satisfaction and 4 represents the neutral point of scale or medium satisfaction (Diener et al., 1985).

5.3.3. Empirical approach

In the study, the data for life satisfaction is in ordinal form. Thus, an appropriate method for the analysis is an ordered logit regression model (Ebrahim et al., 2013; Ngoo et al., 2015; Chima et al., 2020). The maximum likelihood estimation based on ordered logit regression gauges the optimum set of coefficients for predicting values of the logit-transformed probability of the dependent variable being in one category rather than another. Ordered logit specification is represented in the form of a latent regression model as follows (Yakubu and Aidoo, 2015):

$$\boldsymbol{y}^* = \sum_{i=l}^{m} \boldsymbol{\beta}_i \boldsymbol{X}_i + \boldsymbol{\varepsilon} \qquad (5.1)$$

$\boldsymbol{y}^*$ is an unobserved latent variable, $\boldsymbol{X_i}$ is independent variables and $\boldsymbol{\varepsilon}$ is an error term. The observed ordinal variable (y) has values between one and k, as follows:

$$\boldsymbol{y_l = j} \Leftrightarrow \boldsymbol{\alpha_{j-y} < y_i *\leq \alpha_k}$$ for completeness, $\boldsymbol{\alpha_0}$= -∞ and $\boldsymbol{\alpha_k} = +\infty$

where αs are the unknown threshold parameters separating the adjacent ordinal categories **(j)** The probability of **y** observing a value of **j** is:

$$\boldsymbol{P_{ij}} = \mathbf{Pr}(\boldsymbol{y = j}) = \mathbf{Pr}\left(\boldsymbol{\alpha_{j-1} < y^* \leq \alpha_j}\right) = \mathbf{Pr}\ (\boldsymbol{\alpha_{j-i} < \sum_{i=l}^{m} \beta_i X_i + \varepsilon \leq \alpha_j} \qquad (5.2)$$

The error term, ε, is assumed to be logistically distributed. The dependent variable, y, which represents life satisfaction in this study has the values k = 1 to 3. Table 5.2 shows the hypothesized expected effect of each factor on the level of satisfaction of the respondents.

Table 5.2: Definition of variables in the ordered logistic model

	Unit	Description	Expected sign
Dependent variable	Ordinal		
Level of satisfaction		Satisfaction with life (1 if between 0 and 3, 2 if 4 and 3 if between 5 and 7).	
Independent variables			
Marital status	Binary	Whether the respondent is married or not (1 if yes and 0 if otherwise)	+/-
Gender	Binary	Sex of the respondent (1 if male and 0 if otherwise)	+
Age	Number	Age of the respondents in years	+/-
Level of education	Number	Number of years of formal education	+
Government programme	Binary	Respondents benefit from any government programme (1 if yes and 0 if otherwise)	+
Dependency ratio	Number	Number of individuals that depend on the respondent for their well-being	-
Household income	Number	The total monthly amount of income earned or received by the household unit (US$)	+/-
Land ownership	Binary	Ownership of any form and size of land (1 if yes and 0 if otherwise)	+/-
Access to credit	Binary	Access to formal or informal credit (1 if yes and 0 if otherwise)	+/-
Food insecurity	Number	Household food insecurity status	-
Livelihood strategy			
Agriculture	Binary	Engage in agriculture strategy (1 if yes and 0 if otherwise)	+/-
Migration	Binary	Engage in migration strategy (1 if yes and 0 if otherwise)	+/-
Remittance dependency	Binary	Engage in remittance dependency strategy (1 if yes and 0 if otherwise)	+/-
Cross border trading	Binary	Engage in cross-border strategy (1 if yes and 0 if otherwise)	+/-
Noncognitive			
Intrinsic value	Number	Derives interest and enjoyment in an activity	+
Utility value	Number	The usefulness of an activity to an individual's future	+
Cost	Number	What an individual must give up doing a task	-
Attainment value	Number	How well in performing in an activity	+
Expectancy	Number	Individual's beliefs regarding their ability to succeed	+

5.4. Results and discussion

5.4.1. Differences in life satisfaction

Table 5.3 reveals the distribution of life satisfaction among the 200 respondents in Mashonaland East, Zimbabwe. The results reveal that 68.5 percent of respondents expressed low life satisfaction (between 0 and 3), while 17 percent expressed middle satisfaction (4), and only 14.5 percent stated high levels of life satisfaction (between 5 and 7). Thus, the results show, first, that the level of life satisfaction among the youth in rural Zimbabwe is low. The results concur with Ansah et al. (2022) who found low life satisfaction to be a general characteristic among youth in Ghana. They further argue that low life satisfaction in Africa is mainly driven by economic factors. This is true in the context of Zimbabwe. Low life satisfaction among youth is not surprising given the economic decline taking place in the country for the past two decades. Poverty and unemployment are both endemic in the country, driven by political and economic instability (Hlungwani et al., 2021). The poverty rate in 2020 was nearly 70 percent while the unemployment rate was estimated to be around 90 percent during the same time (Kiiza, 2021). The onset of the COVID–19 pandemic further exacerbated the situation disrupting the livelihoods of more than 1.3 million people, increasing extreme poverty to 38 percent in 2020 (World Bank, 2021).

Low life satisfaction among youths threatens the future of agricultural production and food security in rural Zimbabwe. Chima et al. (2020) posit that low life satisfaction among youth can result in a lack of interest or motivation to pursue agricultural activities. If young people are dissatisfied with their lives, they may be less inclined to engage in farming or agricultural work. This can lead to a reduced workforce in the agricultural sector, potentially resulting in decreased agricultural production and productivity. Sabri et al. (2021) add that low life satisfaction can have negative effects on their mental health and well-being. Mental health issues, such as stress, depression, or anxiety, can impact their ability to focus, make decisions, and engage in productive agricultural activities. This can further contribute to reduced agricultural production and overall productivity. Munyoka (2020) links low life satisfaction with social instability. Many youths in Zimbabwe have turned to substance abuse and prostitution while political violence and crime are on the rise. One can conclude that with the current levels of life satisfaction in rural Zimbabwe, achieving Sustainable Development Goal 3 (good health and well-being) is a challenge and demands policy priority.

Table 5.3: Life satisfaction levels

Life satisfaction	Frequency	Percent
Low-life satisfaction (0-3)	137	68.5
Middle-life satisfaction (4)	34	17.0
High-life satisfaction (5-7)	29	14.5

n=200

Second, Table 5.4 shows that the distribution of life satisfaction differed according to the demographic and social-economic characteristics of the respondents. Concerning gender, the results show that female youth (2.95) were slightly happier with their lives compared to their male counterparts (2.71). However, there was no significant difference. The results concur with the literature which shows that gender differentials in life satisfaction are generally insignificant (Hinks and Gruen, 2007; Mahadea and Rawat, 2008). In line with Chima et al. (2020) married respondents were happier than their unmarried counterparts with an average life satisfaction score of 2.92. It is worth pointing out that respondents who were never married were happier (2.83) than those who were divorced (2.78) or widowed (2.60). This is because the grief of losing a partner has an impact on the lives of widowed people, and a failed marriage that results in a divorce negatively influences life satisfaction (Ansah et al., 2022). With many people deciding not to get married and universal marriage being abolished, it will be interesting to see how the shift will impact life satisfaction in the coming generations.

The results showed a significant difference in the level of education, alluding to the fact that there were differences in the mean happiness level within the four education categories. Of significance, respondents with tertiary education (3.32) were found to be happier than those with secondary (2.78) or primary (1.82) education. The results concur with Meyer and Dunga (2014) who found that educated individuals are highly satisfied with their lives. High formal education is associated with better labour market outcomes, better health, higher living status, and high self-esteem. Regarding employment status, there were also significant differences. Employed respondents had the highest mean level of happiness (3.23) compared to unemployed respondents (2.78). The results confirm previous research which found that unemployed individuals are more likely to have low life satisfaction levels compared to those who are formally employed (Chima et al., 2020). This may be because of the personal and social cost associated with unemployment which includes poverty, food insecurity, debt, homelessness, and family tension. The results show that respondents between the age range

of 29-35 years (2.98) were happier than respondents between the ages of 15-28 years. The differences in the satisfaction score were little, hence there was no statistical significance.

Table 5.4: Respondent's demographics and average happiness

	Variable	**Percentage**	**Average happiness**
	15-20	14	2.75
Age	21-28	44.5	2.75
	29-35	41.5	2.98
Gender	Male	45.5	2.71
	Female	54.5	2.95
	None	3	1.21
	Primary	4.5	1.82
Level of education	Secondary	73	2.78*
	Tertiary	19.5	3.38
	Married	45.5	2.92
Marital status	Single	46.0	2.83
	Divorced	6.0	2.78
	Widowed	2.5	2.60
Employment status	Unemployed	85	2.78*
	Employed	15	3.23
Land ownership	Own land	63	3.11*
	Does not own	37	2.69
Food security status	Food secure	19.5	3.62*
	Food insecure	80.5	2.66
	0-50	50.5	2.43
Household income (US$)	51-150	26.5	2.87
	151-300	19.5	2.77
	301+	3.5	2.89

n=200

In terms of food security, food-secure respondents (3.62) were happier than food-insecure respondents (2.66). The differences were significant and concur with Asfahani et al. (2019) who found that youth living in food-insecure households exhibit low life satisfaction. This is because of the impacts of food insecurity which include depression, hunger, stress, and malnutrition. Table 5.4 shows that respondents earning US$301 and more monthly were happier (with an average score of 2.89) compared to those earning below US$300 per month, possibly because higher income decreases social risks and affords a certain standard of living. Finally, the results show that youth owning land are happier (with an average score of 3.11) than those respondents who do not own any form of land. Land especially among the poor in developing is an important asset for sustainable livelihoods and food security. Akinyemi and

Mushunje (2019) linked land ownership with increased production, income, food security and social stability which all positively influence life satisfaction. The results show a statistical and significant difference in land ownership at 5 percent level.

5.4.2. Life satisfaction and type of livelihood strategy

Table 5.5 presents the life satisfaction score according to the type of livelihood strategy of the youths; agriculture, cross-border trading, self-employment, migration and remittance dependency. The results show that of the five livelihood strategies, only agriculture had a statistically significant difference. The study reveals that individuals engaging in agriculture (the main livelihood strategy in rural Zimbabwe) show levels of life satisfaction (4.43) that are statistically significant and greater than those not engaging in the strategy (2.55). This may be because of the contribution of agriculture to household food security. Machethe (2004) show that smallholder farming contributes to food security by improving farm incomes, providing nutritious food and creating employment opportunities, which all have a positive influence on life satisfaction. Yakubu and Aidoo (2015) posit that agriculture is often deeply rooted in local communities, fostering strong social connections and a sense of belonging. Farmers often collaborate with neighbours, share knowledge and resources, and participate in communal activities such as festivals or markets. This social cohesion and support network can enhance overall life satisfaction and well-being.

Concerning the migration strategy, the results show that respondents engaging in the strategy are less happy (2.82) compared to those not engaging in the strategy (4.10). This is not expected of migrants as they are more economically stable compared to non-migrants. A plausible explanation could be the challenges facing migrants in destination areas. This includes but is not limited to cultural differences, language barriers, lack of employment and harassment due to a lack of immigration documents (Chima et al., 2020). For instance, in South Africa, there has been a frequent eruption of violent attacks against foreign nationals under the regalia “Put South Africans first”. This has seen many foreign nationals in the country losing their jobs and closing their businesses. However, there was no significant difference between the migration strategy and life satisfaction.

Table 5.5: Subjective well-being versus the type of livelihood strategy

Livelihood strategy	Variable	Percentage	Average satisfaction
Agriculture	Yes	34.0	4.43*
	No	66.0	2.55
Self-employment	Yes	38.5	2.92
	No	61.5	2.80
Migration	Yes	10	4.10
	No	90	2.82
Remittance dependency	Yes	40.5	2.81
	No	59.5	2.87
Cross-border trading	Yes	27.5	2.82
	No	72.5	2.86

n= 200.

Owing to the current economic and political crisis in Zimbabwe, cross-border trading has spiralled to become a livelihood strategy for millions of people in the country. Despite being a common livelihood, the results show that respondents not engaging in the livelihood strategy are happier (2.86) than those engaging in the strategy (2.82). Similarly, respondents not engaging in the remittance dependency livelihood strategy are happier (2.87) compared to those engaging in the strategy (2.81). This suggests that the youth are engaging in these livelihoods not out of interest, but because circumstances have forced them to do so. Regarding the self-employment livelihood strategy, the results show that respondents engaging in the strategy are happier (2.92) than those not engaging in the strategy (2.80). This is because self-employment provides individuals with a higher level of autonomy and control over their work compared to formal employment. They have the freedom to make decisions, set their own goals, and determine their work schedule. This sense of control can contribute to higher satisfaction as individuals have the opportunity to align their work with their values and preferences.

5.4.3. Determinants of life satisfaction

In the study, an ordered logistic regression model determined the factors affecting life satisfaction among youth in rural parts of Mashonaland East Province, Zimbabwe. The results are presented in Table 5.6. The estimated model fits the data reasonably well as the likelihood ratio X^2 is statistically significant at the 1 percent level and the model correctly predicts 81

percent of the sample observations. The sign of the coefficient in the model shows the independent variable's direction of influence on the dependent variable. It follows that a positive value implies an increase in the likelihood that an individual would be satisfied with life, while a negative coefficient implies an increase in the likelihood that the respondent would be not satisfied with life. Out of the 19 variables, eight had a statistically significant influence on life satisfaction and most of the variables had the expected signs.

As expected, access to credit had a positive and statistically significant relationship with life satisfaction. This implies that the odds of being highly satisfied with life versus medium to low satisfaction are 2.662 times greater among youth with access to credit. The finding is in line with Becchetti and Conzo (2013) who found a positive and significant association between life satisfaction and credit. This is because agricultural credit allows farmers to purchase the necessary inputs, machinery and innovation which enhances productivity and farm incomes which all have a positive impact on life satisfaction. Chaiya et al. (2023) add that access to credit also improves household purchasing power, thereby improving access to nutritious food. However, the results are contrary to Sabri et al. (2021) who found an inverse relationship between life satisfaction and credit. This is because, in the event of debt default, stress is likely to surface, leading to negative psychological outcomes, decreased subjective well-being and increased risk of depression and anxiety. The contradiction in findings is in line with literature which shows that there is no universal consensus on the relationship between credit and life satisfaction.

Consistent with prior expectations, the coefficient dependency ratio had a negative and statistically significant effect on life satisfaction. Thus, with an increase in the dependency ratio, the odds of having high life satisfaction versus medium to low life satisfaction will be -0.752 times lower holding other variables in the model constant. This implies that youth leaving in a household with a high dependency ratio are more likely to have low life satisfaction. This finding is consistent with Toma et al. (2013) who revealed that households with a high dependency ratio are more likely to experience reduced life satisfaction. The reason could be the fact that a high dependency ratio leads to increased competition for resources such as time and money which are already limited in rural Zimbabwe. Meyer and Dunga (2014) show that households with high dependency ratios are likely to have low or poor levels of education, income, health and economic status. Also, a larger dependency ratio exerts increased food demand on the active household members, and reduces household per capita income and consumption, lowering the well-being of family members. Toma et al.

(2013) conclude that, to ensure a better quality of life it is deemed necessary to have a low dependency ratio to mitigate the burden and negative effects of a high dependency ratio.

There is a very large body of literature on the relationship between education and life satisfaction (Meyer and Dunga, 2014; Ngoo et al., 2015; Yakubu and Aidoo, 2015; Aysan and Aysan, 2017; Chima et al., 2020). A common finding is that individuals with more years of formal education are more likely to be satisfied with their life compared to individuals with low levels of education. In line with the literature, Table 5.6 show a positive and significant association between education and life satisfaction. This implies that with a unit increase in the level of education by a year, the odds of having high life satisfaction compared to having medium to low life satisfaction increases by a factor of 2.843, holding other variables constant. In other words, youth with higher levels of education demonstrated a higher satisfaction with life than those with lower levels or without education. This is expected since education affects every aspect of life. Education serves as a springboard for better, secure, high-wage, high-benefit career opportunities and reduces the risk of being unemployed. This is supported by Chima et al. (2020) who associated unemployment associated with life dissatisfaction, anger, frustration, and unhappiness. One can therefore construe that overall, well-educated individuals are likely to have adequate income which translates to better quality of life and higher life satisfaction.

Table 5.6 shows that the coefficient 'beneficiary of a government program' had a positive and statistically significant effect on life satisfaction. Thus, for beneficiaries, the odds of high subjective well-being versus the combined medium and low subjective well-being are 1.449 greater than for non-beneficiaries, given the other variables are held constant. It is widely regarded that government programmes are important in enhancing agricultural production (Meyer and Dunga, 2014). Government programs for farmers provide various forms of support, including financial assistance, subsidies, technical guidance, and access to resources such as improved seeds, fertilizers, and equipment. These programs help farmers overcome challenges, enhance productivity, and improve their livelihoods. The provision of support and resources can contribute to higher life satisfaction. Through further engagement with the participants, it was found that most of the youths are part of the Pfumvunza programme offered by the government. The programme is a sustainable method of crop production intensification that has farmers concentrate resources on a smaller piece of land leading to higher productivity with less investment.

Out of the five livelihood strategies, only the agriculture strategy had a statistically significant effect on the youth's life satisfaction. The results show that for agriculture participants, the odds of having high subjective well-being are 4.454 times greater relative to having a medium to low subjective well-being, given the other variable are held constant. The results concur with Yakubu and Aidoo (2015) in Ghana who also found individuals engaging in agriculture to have high life satisfaction. This is expected due to the contribution of agriculture to the rural economy and food security (Akpan et al., 2015; Fawole and Ozkan, 2019). In Africa, agriculture is the main source of food, employment and income for most of the rural population. Aside from the contribution of agriculture to income, employment and food security, farmers derive job satisfaction from participating in agricultural activities which also positively influences their subjective well-being. Ebrahim et al. (2013) found that farmers derive high satisfaction from participating in agriculture as they have control of their working environment, a chance to work with the family as well as the opportunity to work outdoors in beautiful surroundings and see how their hard work produces great results.

In line with the expectancy-value theory, utility and intrinsic value had a positive and significant association with life satisfaction. Thus, with a unit increase in utility and intrinsic value by one unit, the odds of having high life satisfaction versus medium to low subjective well-being are 0.754 and 1.878 times greater, respectively, with other factors being held constant. In other words, an individual who values an activity is more likely to be satisfied with life compared to their counterparts who do not value it. Yunusa and Giroh (2017) posit that when a person finds their work or tasks aligned with their personal values, interests, and passions, it can bring a deep sense of fulfilment and purpose. The work becomes personally meaningful and fulfilling, contributing to higher life satisfaction. Also, engaging in tasks that individuals find subjectively valuable often leads to opportunities for skill development, mastery, and personal growth. When people can continuously learn, improve, and develop expertise in their chosen tasks, it fosters a sense of progress and accomplishment, leading to higher life satisfaction.

Table 5. 6: Factors affecting life satisfaction among rural youth

Variables	B	Std. Error	P-value	Odds ratio
Socio-economic characteristics				
Age	0.313	0.239	0.191	1.368
Gender	0.411	0.292	0.159	1.508
Level of education	1.045	1.3381	0.002**	2.843
Marital status	0.135	0.238	0.570	1.145
Level of income	-0.093	0.154	0.548	0.912
Own a piece of land	-0.468	0.385	0.224	0.626
Food insecurity	-0.062	0.023	0.007**	0.940
Dependency ratio	-0.285	0.0821	0.001***	0.752
Access to credit	0.979	0.557	0.079**	2.662
A beneficiary of gvt program	0.371	0.139	0.008**	1.449
Livelihood strategy				
Agriculture	1.494	0.322	0.000***	4.454
Migration	-0.173	0.451	0.701	0.841
Remittance dependent	-0.048	0.296	0.870	0.953
Cross-border trading	-0.229	0.317	0.469	0.795
Non-cognitive factors				
Intrinsic value	0.630	0.192	0.001***	1.878
Utility value	0.283	0.153	0.064**	0.754
Attainment value	-0.487	0.436	0.264	0.614
Cost	-0.165	0.153	0.280	0.848
Expectancy	-0.152	0.137	0.268	0.859
Constant cut 1	1.241	1.897		
Constant cut 2	4.156	1.939		
Constant cut 3	5.130	1.949		
Model specification				
Number of obs: 200				
LR chi2 (12): 96.512				
Pearson: 0.409				
Deviance: 0.951				
Overall % correctly classified: 78%				

p-value = *, ** and *** significant at 10%, 5% and 1%, respectively. Source: Survey data (2020).

Table 5.6 shows a negative and statistically significant relationship between food insecurity and life satisfaction. The results show that for a one-unit increase in food insecurity score, the odds of high life satisfaction versus medium to low life satisfaction are 0.940 times lower, given the other variables are held constant. In other words, food insecurity increases the probability of individuals having low life satisfaction. The results agree with Yakubu and

Aidoo (2015) who found a negative association between food insecurity and life satisfaction. A plausible explanation is that food insecurity predisposes an individual to a myriad of challenges including, poor health, stress, depression, hunger, and poor diets, which can impact overall life satisfaction. For instance, Frongille et al. (2019) found that depression levels are higher in households that are food insecure. Similarly, Yakubu and Aidoo (2015), found that food insecurity negatively influences mental health. In some instances, it can be because of a loss of dignity and autonomy. Food insecurity can erode a person's sense of dignity and autonomy. The inability to meet basic nutritional needs can undermine self-esteem and personal agency. Depending on food assistance programs or relying on others for food provision can contribute to feelings of dependency and reduced life satisfaction.

5.4.4. Conclusion

The chapter examined the factors influencing life satisfaction among rural youth in Mashonaland East province, Zimbabwe. The Satisfaction with Life Scale elicited information from 200 selected participants, followed by descriptive and inferential analysis. The descriptive statistics revealed low life satisfaction to be a general characteristic among youth in the province. This suggests that the future of agriculture and food security in rural Zimbabwe is uncertain since life satisfaction has a direct and indirect impact on agricultural production and health. In addition, the results indicate high levels of life satisfaction among youth engaging in agriculture compared to other livelihood options such as self-employment, cross-border trading and migration. This attracts the conclusion that engaging in the agriculture livelihood strategy, which is usually associated with poverty and food insecurity, does not lead to a miserable life. There are many people in the strategy who continue to experience high levels of life satisfaction as shown by the results obtained from rural youths in Mashonaland East province.

The results from the ordered logistic regression model concur with the literature on life satisfaction. In particular, the results show the level of education, food insecurity, dependency ratio, government programs, agriculture livelihood strategy and access to credit statistically and significantly influence life satisfaction. These factors independently have a significant impact on life satisfaction that is, holding other factors constant. In life satisfaction literature, marital status, gender, income, age and access to land emerge as significant predictors of life satisfaction. However, in the study, these variables did not influence life satisfaction among the rural youth. This generates the conclusion that life satisfaction determinants should be considered contextually. Observations made in one context cannot be applied universally, but

each occasion must be given individual attention to capture its unique results. Furthermore, the study found that noncognitive factors such as intrinsic and utility value statistically and significantly influence one's life outcomes. It follows that youth with intrinsic or utility value are more likely to be satisfied with their lives. For improved life satisfaction, the study recommends the following:

- Since the study concluded that education exerts a positive influence on life satisfaction, the government must improve access to quality education. This can be achieved by building new schools in rural areas and providing job security to rural teachers. Also, offering post-graduate scholarships can improve access to tertiary education. The scholarship should be flexible to include rural youth.
- Participating in agriculture positively influences life satisfaction, therefore, it is important to attract other youth to the sector. This can be achieved by providing agricultural training, and finance and improving access to resources such as machinery and tools.
- Since access to credit positively influences life satisfaction, it is deemed necessary for the government to lower the interest rates of agricultural loans or provide funding schemes. Also, agriculture government programs positively influence life satisfaction, therefore, the study recommends the government partner with the private sector and non-governmental organizations to provide more agricultural programs and training.

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CHAPTER 6: FACTORS AFFECTING LIVELIHOOD STRATEGY CHOICE AND FOOD SECURITY AMONG YOUTH IN MASHONALAND EAST PROVINCE, ZIMBABWE

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6.0. Abstract

Several governments and development practitioners view youth as an integral part of the strategy for reducing poverty and food insecurity in Africa. Despite youth being at the centre of food and nutrition security, there is a dearth of studies on the factors affecting livelihood choice and food security among youth in rural Africa. The lack of such evidence has made it difficult to inform evidence-based policymaking and design of poverty and food insecurity reduction interventions. Thus, the study examines the determinants of livelihood strategy choice and food security among youth in Mashonaland East Province, Zimbabwe. A pre-tested structured questionnaire administered through face-to-face interviews collected data from 200 youths across three districts of Mashonaland East Province in Zimbabwe. The Multinomial logistic (MNL) and Tobit regression model and descriptive statistics analysed the data. The results show that agriculture was the main livelihood strategy followed by remittance dependant, self-employment, migration, and cross-border trading. In terms of remuneration, cross-border trading was the most remunerative livelihood strategy followed by remittance dependant, self-employment, migration, and agriculture. The youth associated their choice of livelihood strategy with factors such as gender, age, land ownership, access to the Internet, social group membership, access to credit and education. The study also found food insecurity, notably severe food insecurity to be a general characteristic among the respondents. The odds of being food insecure were positively determined by marital status, number of youths in a household and access to credit and negatively by life satisfaction, land ownership and land size. The study recommends that the government implements strategies that make agriculture a sustainable livelihood option and policies to support youth in the non-farm sector should be also a priority.

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Keywords: Agriculture, food security, livelihoods, poverty, unemployment, youth.

6.1. Introduction

Africa's current food security and poverty situation pose a potential threat to national security as it is undermining people's health, productivity and often their very survival (Giller, 2020). According to the joint report released by FAO and ECA (2020), over 250 million Africans were undernourished in 2020. Of these, 239 million were in sub-Saharan Africa (SSA). The food security condition in most African countries has continued to worsen despite an abundance of water and arable land resources. According to the Food Security Information Network (2020), factors such as unemployment, conflicts, climatic events and rapid population growth are among the main causes of food insecurity in Africa. The food security situation in Africa is the same in Zimbabwe. The availability and access to quality food remains a challenge in the country affecting millions of people. According to ZIMVAC (2020), nearly 7.7 million Zimbabweans were food insecure as of July 2020. This situation is worse in rural areas where over 5 million people are food insecure. This is not surprising due to the poor development and investment in rural areas by the government. According to Mapfumo et al. (2016), rural infrastructure such as roads, schools, clinics, markets and irrigation in Zimbabwe is limited or in bad condition, and access to clean and quality water is a challenge in the country.

To this end, there has been a growing commitment by several governments, non-profit organisations, and researchers to assuage food insecurity and poverty in rural Africa. A central and recurring theme in the literature is the critical role of youth in food security and sustainable livelihoods (Akpan et al., 2015; Akinyemi and Mushunje, 2017; Cheteni, 2017; Abubakar et al., 2019; Fawole and Ozkan, 2019; Twumasi et al., 2019). According to Cheteni, (2017), Magagula and Tsvakirai (2020) and Sumberg et al. (2021), youth possess knowledge, attitudes, capacities and skills that, if properly harnessed, can lift communities and nations out of the persisting challenges of poverty, unemployment, food insecurity and low agriculture productivity. Already, youth are embracing innovative solutions and technologies to address local challenges such as climate change (Sumberg et al., 2021). Yami et al. (2019) reveal that African youth are actively advocating for better governance, human rights, gender equality, and environmental sustainability. Connected, youth want to and already contribute to the resilience of their communities, providing innovative solutions, promoting social progress, economic expansion, and inspiring political change (United Nations, 2020).

Although there is growing research interest in food security in Africa, few gaps exist in the literature. As highlighted in the previous chapters, studies that direct research attention exclusively to rural youth in Africa are limited or rare. This is also the case for food security and livelihood literature. There is a paucity of literature that solely focuses on rural youth in Africa in general, Zimbabwe in particular. Focus is more on the general population or specific groups such as women, children and the elderly (Sinyolo et al., 2014; De Cock et al., 2013; Giller, 2020; Harrisfry et al., 2015; Jambo et al., 2021; Ngema et al., 2018; Nkomoki et al., 2019; Sadiddin et al., 2019). Ghimire (2017) argues that the evidence provided on youth and food security so far does not give grounds for adequate policy suggestions, hence it's a cause of concern to policymakers, development practitioners and researchers.

Also, the literature shows that the influence of socioeconomic and demographic factors on food security and livelihood choice is inconclusive. For instance, Abegaz, (2017) found a positive and significant association between food insecurity and marital status, while Ngema et al. (2018) found an inverse relationship between food insecurity and marital status. Also, Maziya et al. (2017) found that credit positively influences food insecurity, while Aidoo et al. (2013) reveal a negative and statistically significant association between credit and food insecurity. This is the case for several factors such as gender, education, land ownership and household size. The inconclusive influence of socioeconomic and demographic factors necessitates the need for more studies using different data sets and methods in different contexts. This will help to generalise the factors affecting food security and livelihood choice among youth in rural Africa (Ngema et al., 2018). This chapter, therefore, aims to contribute to food security literature by examining the factors influencing livelihood choice and food security among rural youth in Zimbabwe. This knowledge may better inform and guide actions that help ensure immediate access to food in an emergency context, rebuild and enhance resilience to withstand shocks and support long-term development interventions for food insecurity and poverty reduction.

6.2. Conceptual framework

The Sustainable Livelihood Framework (SLF) is the empirical tool in the study to examine the determinants of livelihood choice and food security. The SLF conceptualises livelihoods holistically, considering the multiple intricacies of livelihoods and the constraints and opportunities that they are subject to (Tedla, 2019). A livelihood comprises capabilities, assets and activities necessary to make a living (Krantz, 2001) (Figure 6.1). A livelihood is sustainable when it can withstand stress and shocks, recover from them, and retain or

improve its capabilities and assets both now and in the future without compromising the natural resource base (Chambers and Conway (1991). The interdependence of livelihoods is a key characteristic. Very few livelihoods exist in isolation hence dependent on other means of subsistence for accessing and exchanging properties.

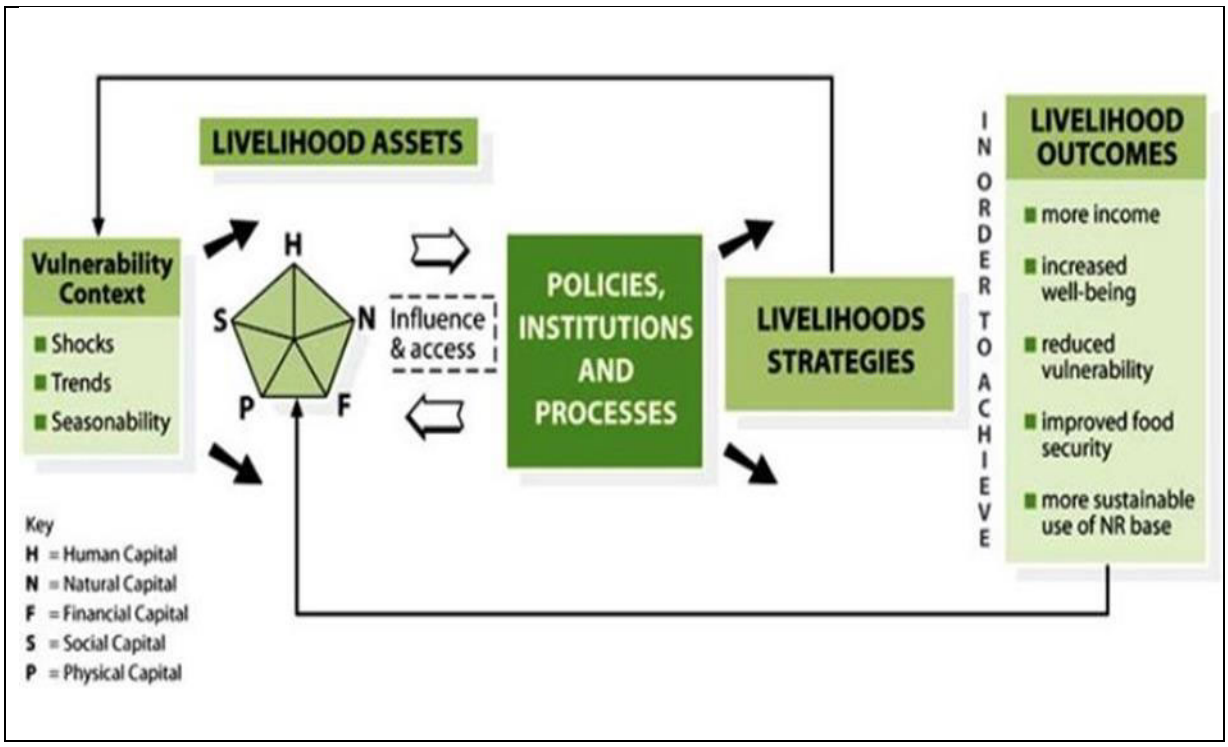

Figure 6.1: The sustainable livelihood framework (Scoones, 1998).

As shown in Figure 6.1 a livelihood of a given individual, or household is dependent upon asset endowments mainly social, physical, natural, financial, and human capital which together enable households to pursue a sustainable livelihood (DFIS, 1999; Scoones, 2005). In the meantime, studies disclose that the determinants of livelihood diversification and choice in rural Africa (e.g., age, level of education, marital status, and access to land) emerge from these capitals (Jan and Hayat, 2014; Rahman and Akter, 2014; Yuya and Daba, 2018; Tedla, 2019; Yobe et al., 2019; Mao et al., 2020). The concept of food security is important in the SLF as it determines an individual's ability to develop other aspects of their livelihood. If food security does not exist, other livelihood outcomes will most likely fail to be reached. Access to food by individuals in a household is pervasively linked to the control they have over household resources and the access they have to household income (Maxwell, 1996). Food security stands as a fundamental need, basic to all human needs and the organization of social life. Food security is not only necessary for individuals but also for society to function and progress. As a result, food security is an essential element of the sustainable livelihood approach.

6.3. Research methodology

6.3.1. Data

The source of data for this chapter is a sample of 200 rural youth selected across three districts of Mashonaland East. The questionnaire contained several variables, some briefly described in previous chapters. The relevant questionnaire variables for this chapter include information on youth's demographics and social characteristics such as marital status, gender, household size and level of education. Also relevant were measures of one's capital (physical, natural, financial, social and human capital). Further, the questionnaire captured data on the type of livelihood choices engaged by the youth and food insecurity prevalence among the respondents.

6.3.2. Analytical model

The Multinomial Logistic (MNL) regression determined the factors influencing the choice of livelihood strategy among the youth. The explanatory variables in the model included livelihood assets (e.g., financial, natural, and physical assets) and socio-demographic factors (e.g., age, gender, and marital status). The goal of using this model was to predict the likelihood of youth with given characteristics, choosing an identifiable livelihood activity. The probability associated with a youth choosing a livelihood strategy is Pnj (j = 1, 2, 3,4 and 5), where n represents the youth; j = 1 represents a youth choosing the agriculture livelihood strategy; j = 2 represents a youth choosing the migration livelihood strategy; j=3 represents youth choosing remittance dependency livelihood strategy; j=4 represents youth choosing cross-border trading livelihood strategy, and j=5 represents youth choosing the self-employment livelihood strategy. If the unobserved portion of the utility (εn) is identically and independently distributed (iid) across alternatives, then the MNL model is specified according to (Train, 2009), as follows:

$$P_{nj} = \frac{e^{(\beta^i Xnj + Y^i H_{nj})}}{\sum_{j=}^{b} 1 e^{(\beta^i Xnj + Y^i H_{nj})}} \qquad (6.1$$

1)If the βs and the γs are set to zero for one of the activities (for instance, agriculture), the MNL model for each activity (j ≠ 1) can be expressed as:

$$P_{nj} = \frac{e^{(\beta^i Xnj + Y^i H_{nj})}}{1 + \sum_{j=2}^{b} e^{(\beta^i Xnj + Y^i H_{nj})}} \qquad (6.2) \text{ (j=2,3,4 and 5) and}$$

$$P_{n1} = \frac{1}{1 + \sum_{j=2}^{b} e^{(\beta^i Xnj + Y^i H_{nj})}} \qquad (6.3)$$

where Hn is a random disturbance and Xnj is the explanatory variable. Table 6.1 shows the description of the variables included in the model.

Table 6.8: Description of variables included in the livelihood choice model

Variables	Variable description
Gender of youth	Sex of the youth (1 if male, and 0 if female).
Age of youth	Age of the youth in years.
Marital status	Whether the youth is married or not (1 if yes and 0 if otherwise)
Level of education	Years of formal education (0 if no; 1 if primary; 2 if secondary and 3 if tertiary
Household size	Number of people who live in the same house
Employment status	Employed formally in any sector (1 if yes and 0 if otherwise)
Number of migrants	Number of people in the household who have migrated
Land ownership	Ownership of any form and size of land (1 if yes and 0 if otherwise)
Access to internet	Access to information and networks (1 if yes and 0 if otherwise)
Social group membership	Belonging to any social group in the area (1 if yes and 0 if otherwise)
Food insecurity	Household food insecurity measured as an HFIAS score
Access to credit	Access to formal or informal loans (1 if yes and 0 if otherwise)
Rural infrastructure	Perceptions towards development in the area (1 if poorly developed and 0 if otherwise)
Performance of agriculture	Satisfied with the performance of agriculture in the area (1 if satisfied and 0 if otherwise)
A beneficiary of a government programme	Respondent benefits from any government programme (1 if yes and 0 if otherwise)

6.3.3. Food Security

The Household Food Insecurity Access Scale (HFIAS) developed by Coates et al. (2007) explored the food insecurity prevalence in the study areas. The HFIAS is a questionnaire that identifies the behavioural and psychological signs of food access insecurity in households. Measuring the responses to the questionnaire shows food insecurity intensity. The HFIAS module consists of two types of questions: nine "occurrence" questions and nine "frequency-of-occurrence" questions. The first part of the questionnaire asks the responder if they experienced a given condition (yes or no) and if yes, then a follow-up question asks about the frequency (rarely, sometimes, or often). All the questions are a recall of the past 30 days or four weeks. The responses from the questionnaire can be a categorical or continuous indicator of food security.

For a continuous indicator, each question has a maximum score of three. When tallying the scores from the nine questions, the minimum score is zero and the maximum is 27. Adding the scores from the nine questions gives the HFIAS. According to Coates et al. (2007), a high score translates to more food insecurity experienced and a lower score reveals less food insecurity experienced. For categorical indicators, four categories' classify respondents: severely food insecure (SFI), moderately food insecure (MFI), mildly food insecure (Mildly FI), and food secure (FS) (Coates et al., 2007). This study uses a continuous indicator of food security. Therefore, a Tobit regression model examines the factors influencing food security in Mashonaland East Province. The HFAIS score is the dependent variable and a proxy for household food security. The model is expressed by Maziya et al. (2017):

$$Y_i = \beta_0 + \beta X_i e_i \qquad (6.4)$$

where Yi = HFIAS score (a measure of household food insecurity) for an individual, βo = the constant term in the model; β = a vector of the variable coefficients; and e_i = error term. The Tobit regression model considers the continuous but truncated nature of the dependent variable (minimum = 0; maximum = 27), thus, suitable for the study. Breusch-Pagan/ Cook-Weisberg test checked for heteroscedasticity and was not a problem with a chi-square of 0.45 (Prob>chi-square = 0.13). Also, the Variance Inflation Factor (VIF) tested for multicollinearity. The highest VIF was 6.15 while the mean VIF was 1.91 and none of the variables had a VIF value of 10 and above. This implies that the multicollinearity of the variables in the model was not a problem. Table 6.2 presents the variables included in the model and their description.

Table 6.2: Description of the variables used in the food security model

Variables	Variable description
Agriculture	Engage in agriculture strategy (1 if yes and 0 if otherwise).
Self-employment	Engage in self-employment strategy (1 if yes and 0 if otherwise).
Cross-border trading	Engage in cross-border trading strategy (1 if yes and 0 if otherwise).
Migration	Engage in migration strategy (1 if yes and 0 if otherwise).
Remittance dependency	Engage in remittance dependency strategy (1 if yes and 0 if otherwise).
Marital status	Whether the youth is married or not (1 if yes and 0 if otherwise).
Life satisfaction	Satisfaction with life (1 if satisfied and 0 if otherwise).
Gender	Sex of the respondent (1 if male and 0 if otherwise).
Level of education	Years of formal education (0 if no; 1 if primary; 2 if secondary and 3 if tertiary).
Household size	The number of people who live in the same house.
Number of youth	The number of youth living in the same household.
Access to credit	Access to formal or informal credits (1 if yes and 0 if otherwise).
Land ownership	Ownership of any form and size of land (1 if yes and 0 if otherwise).
Cultivated land size	Cultivated land size in hectares.
Rural infrastructure	Perceptions towards development in the area (1 if poorly developed and 0 if otherwise).
Access to Internet	Access to information and networks (1 if yes and 0 if otherwise).

6.4. Results and Discussion

6.4.1. Livelihood strategies

Table 6.3 reveals the livelihood strategies engaged by the youth in the study area. The results show that agriculture is the dominant livelihood strategy (41.5%) which is in line with Tedla and Mekonen (2019) who found agriculture to be the main livelihood strategy for most rural youth in Africa. A possible explanation is that rural youth have limited access to non-farm livelihoods due to entry barriers such as level of education, access to capital, technical skills and networks (Zollet and Maharjan, 2021). Therefore, they engage in agriculture to meet their food security needs and wants. Also, tradition and family background influence youth participation in agriculture. Tedla and Mekonen (2019) posit that in many rural areas, agriculture has been the main source of livelihood for generations. Youth often follow in the footsteps of their parents and ancestors, continuing the agricultural traditions and inheriting agricultural land or skills. The cultural and social significance attached to agriculture can influence youth to engage in farming as their primary livelihood. Last, rural youth often have

greater access to agricultural land compared to other economic resources. In many cases, land is owned by families or passed down through generations. This availability of land provides an opportunity for youth to engage in agricultural activities and establish their livelihoods within their communities. The results show a significant difference between male and female youth in terms of participation in agriculture livelihood with more males than females engaging in the strategy ($p<0.012$).

Owing to the recurrent crisis of the Zimbabwean economy for the past 20 years, the informal economy sometimes called the "kukiya kiya" economy has become an important alternative to farming-based livelihoods for youth in the country. Table 6.3 shows that 25.5 percent of the youth considered self-employment as their dominant livelihood strategy. From the focus group discussions, vending was the main self-employment activity followed by backyard industries, overall hustling and dealing, grinding mill and welding (See appendix G1). Individuals involved in this type of livelihood focus on supplementing the goods and services necessary for meeting household food security needs. Thus, the nature of self-employment in Mashonaland East Province is described as a survival strategy. Because of the uncertainty of the economic environment in Zimbabwe, self-employment activities have become more of a short-term coping strategy that depends on available opportunities at a certain time ((Mutami, 2015). However, there was no statistical difference between the gender of the youth and the self-employment livelihood strategy. Carreras et al. (2020) consider agriculture as self-employment, however, the study separated it to highlight the continued importance of farming.

Remittance flows play a significant role in ensuring food security for millions of Zimbabweans. According to the neoclassical model of labour-leisure choice, remittances are a source of non-labour income that can lift budget constraints, raise wages, and improve purchasing power (Mark and Killings, 1983). Remittance dependency was a livelihood strategy for 15. 5 percent of the respondents. According to Munyoka (2020), South Africa is the main source of remittances for Zimbabweans. Further discussions with the respondents show that the limited supply and availability of basic commodities in the country has resulted in most of the remittances being in the form of clothes, food, medication and other household items. This makes the remittance flow in Zimbabwe peculiar from other countries where remittances are mostly in the form of money. This remittance flow is worrisome to a country once called the breadbasket of Africa. Zimbabweans now depend on other countries to meet their food security demands. There was a significant difference between male and female

youth in terms of taking part in the livelihood strategy with more females than males engaging in the 'Remittance' strategy ($p<0.10$).

Table 6.3: Livelihood strategies

Livelihood strategy	Gender	Percent	Overall percent	P-value
Agriculture	Male	56	40.5	.012
	Female	44		
Cross-border trading	Male	41.8	8	.520
	Female	58.2		
Remittances	Male	34.6	15.5	.010
	Female	65.4		
Migration	Male	65	10.5	.065
	Female	35		
Self-employment	Male	49.4	25.5	.387
	Female	50.6		

n=200

Table 6.3 shows that migration (rural-rural, rural-urban and rural-international) is a livelihood strategy for 10.5 percent of the respondents. Lee's push and pull migration theory posits that a complex set of factors which include push factors (e.g., drought and conflict, unemployment), pull factors (e.g., high wages and religion), intervening obstacles (e.g., distance and cost of migration) and personal factors (e.g., gender and social class) motivate people to migrate. The low rate of participation in this strategy is because of the cost associated with migration. With most of the rural population already struggling to make ends meet, paying for the migration costs is an uphill struggle. Another plausible explanation is the impact of the COVID-19 containment measures which included travel restrictions, closure of international borders, and curfew. All this negatively impacted migration intentions and patterns as people could not move from one place to another. The results show that males engaged more in the strategy compared to their female counterparts and the difference was significant at the 5 percent level.

Cross-border trading was also another non-agricultural livelihood strategy engaged by the youth in the study area. According to Mapfumo et al. (2013), cross-border trading is a type of trade where the flow of products and services across borders is, for the most part, not formally documented and occasionally may even be illegal. Cross-border trading has become a popular livelihood strategy in Zimbabwe because of the economic crisis including shortage of currency, hyperinflation, prolonged power shortages, low agricultural output, and emerging political fragilities (Mapfumo et al., 2013). The coverage of cross-border traders is

broad including South Africa, Tanzania, Dubai and China (Nyatanga et al., 2010). However, the percentage of respondents pursuing this strategy was found to be relatively low (8%) compared to those engaging in other non-farm livelihoods. This is mainly because of the high capital input required to start trading internationally. Also, the COVID-19 travel regulations negatively impacted this livelihood since it depends on moving from one place to another. There was no significant difference between gender and cross-border trading strategy ($p< 0.52$).

For comparison purposes, the five livelihood strategies were grouped into two groups: agriculture livelihoods and non-agriculture livelihoods. The non-agriculture livelihood group consists of migration, self-employment, cross-border trading and migration strategies. Contrary to a widely held view that agriculture is the main livelihood strategy in rural Africa (Pienaar and Traub, 2015; Kuivanen et al., 2016; Isgren et al., 2020), the study reveals that the rural non-agricultural sector has a substantial share of the rural population. The results show that most of the youth (59,5%) engaged in non-agricultural livelihoods while 40.5 percent engaged in agriculture. This may be because of the evolving youth aspirations and lifestyle (Nyatanga et al., 2010). Many youths desire a modern and urban lifestyle, which they perceive as more dynamic, socially connected, and economically rewarding. Non-agricultural livelihoods often offer a wider range of experiences, career progression, and exposure to urban amenities and trends. In some cases, youth may perceive non-agricultural sectors as offering more consistent and profitable income opportunities compared to agriculture. According to Gwatirisa and Manderson (2012), the profitability of agriculture may be constrained by various factors, including fluctuating market prices, production challenges, limited access to inputs and resources, and climate-related risks.

6.4.2. Most remunerative livelihood strategy

Income is important to provide physical access to food because very few smallholder farmers produce enough food to satisfy their dietary needs throughout the year (Ngema et al., 2018). For this reason, income plays a significant role in food security. Table 6.4 provides a summary of the average incomes for each livelihood per month measured in United States dollars. According to Table 6.4, cross-border trading was the most remunerative strategy with an average total income of US$ 95.48 per month, which was higher than the other four livelihood strategies. This indicates that cross-border trading is not just a survival enterprise, but a business operation where sizeable profits can be made. Through further discussions with the respondents, it was found that the profits from cross-border trading are used to

support families by buying food, paying rent and education expenses. Interestingly, none of the profits are channelled towards agriculture. The remittance dependency strategy was the second most remunerative strategy with an average total income of US$ 80.29 per month. The remittances included both cash and groceries received by the respondents. Self-employment (US$77.73) and migration (US$ 76.74) followed.

The results show that the agriculture livelihood strategy was the least remunerative strategy with an average total income of US$54.19 per month which was significantly lower than the other four livelihood strategies. In the context of Zimbabwe, most farmers operate in a vulnerable context characterised by shocks and the seasonality of the agriculture sector, all of which affect agricultural production and incomes (Gwatirisa and Manderson, 2012). It is important to note that, regardless of the type of livelihood strategy, all the respondents in the study lived below the poverty line pegged at US$150 per month. This is alarming and consistent with the ZIMSTAT (2022) report which reveals that 74 percent of Zimbabweans live in poverty (less than US$5.50 per day). Factors driving Zimbabwe's high poverty rate include but are not limited to unemployment, inflation, political instability and adverse climatic conditions (FEWSNET, 2017).

Table 6.4: Income received per month according to livelihood strategy

Livelihood strategy	US$ Mean	N	Std. Deviation	US$ Minimum	US$ Maximum
Agriculture	54.19	81	38.17	10.00	200.00
Migration	76.74	23	44.56	20.00	200.00
Remittances	80.29	21	41.42	15.00	150.00
Cross-border trading	95.48	31	57.38	20.00	200.00
Self-employment	77.73	44	36.53	10.00	2800.00

n=200

6.4.3. Livelihood determinants

Table 6.5 presents how distinct factors ranging from youth's characteristics, livelihood capital (human, natural, financial, physical, and social) and infrastructure influence the choice of livelihood strategies in the study. The Multinominal logistic regression (MNL) determined the factors influencing rural youths' choice of livelihood strategy. The livelihood strategy 'Agriculture' was the base strategy in the MNL regression and accounted for 40.5 percent of the respondents. Out of the fifteen explanatory variables, thirteen were statistically significant

and influenced rural youth's choice of livelihood strategies. The variables are gender, level of education, household size, age, employment status, land ownership, access to the Internet, social group membership, number of migrants in a household, access to credit, satisfaction with the level of infrastructure, food security status and performance of agriculture.

As expected, the coefficient of education, measured as years of formal education, had a statistically significant and positive effect on the migration livelihood strategy. Thus, as the years of education increase by one year, the odds ratio in favour of the probability of the youth choosing the migration strategy increases by a factor of 4.729, holding other variables in the model constant. More generally, rural youth with more years of formal education are less likely to choose "Agriculture" as their dominant strategy, while those with fewer years of formal education adopt this as their main livelihood strategy. The results are in line with Twumasi et al. (2019) who observe that youth with more years of formal education are more likely to diversify their livelihood options by opting for non-agricultural livelihoods such as migration. This may be because of the mismatch between skills acquired through education and the demands of the agricultural sector. Cheteni (2017) posit that youth find it difficult to utilize their skills in agriculture without additional training or support. This mismatch between their education and the requirements of agricultural work can make them less likely to choose farming as a career path and opt to migrate.

The coefficient of social group membership had a statistically significant and negative effect on migration and self-employment livelihood strategy. For social group members relative to non-members, the odds ratio of preferring the migration or self-employment livelihood strategy relative to the agriculture strategy decreases by a factor of 0.104 and 0.282, respectively, with other factors being held constant. In other words, social group members are less likely than non-members to prefer the migration or self-employment strategy over agriculture. This is because resources such as financial and material support, knowledge, and skills available to the youth through the social group enhance their propensity to participate and be productive in agriculture. The findings are in line with Dube (2016) who found that farmers belonging to a social group have more productivity compared to those who are not members, hence engaging more in the sector.

Also, the result of the regression depicts that being formally employed statistically and negatively influences the choice of livelihood strategy. The probability of choosing the migration or self-employment strategy over agriculture decreases by factors of 0.003 and

0.033, respectively, for formally employed individuals. Thus, youth who are formally employed are more likely to participate in agriculture over non-agricultural livelihoods. This is because income from salaried jobs acts as an important determinant in agriculture production. According to Mutami (2015), employed youth have better access to inputs such as seeds, fertilizer, machinery, and labour, which all improve agriculture production.

A counter-initiative result is that land ownership had a positive and statistically significant effect on migration, cross-border trading, remittances, and self-employment strategy. One would expect to see youth with access to land choosing the agriculture strategy over all the other strategies. The odds result of the model revealed, holding other factors in the model constant, the likelihood of youth's choice of migration, cross-border trading, remittances, and self-employment over agriculture increases by factors of 5.847, 7.562, 7.608 and 8.437 respectively among youth with access to land. This indicates that youth who own land regardless of the size are less likely to choose the agriculture strategy over the other livelihood strategies. This is because most of the poor in developing nations live in regions characterised by highly weathered soils, steep slopes, insufficient or excessive rainfall, and high temperatures, which make it difficult to practise agriculture (FAO, 2019). Another plausible explanation is that the youth may have access to land but lack access to other important inputs such as capital, labour, machinery, and knowledge required for agricultural production. This is the case in Zimbabwe, after the fast-track land reform, people have access to land but lack other inputs and government support hence ending up engaging in non-agricultural activities.

Table 6.5 shows that the coefficient of gender has a positive and statistically significant effect on the "Cross-border trading" livelihood strategy. Thus, for males relative to females, the odds ratio of preferring cross-border trading strategy over agriculture increases by a factor of 4.471, holding other variables constant. In other words, male youth are more likely to engage in the "Cross-border trading" strategy compared to their female counterparts. The findings are in line with Chikanda and Tawodzera (2017). Traditionally, in Africa, males are perceived to be the heads and breadwinners of their families, hence there is pressure on them to engage in non-farm income-generating activities such as cross-border trading to take care of their family members (Nagler and Naude, 2017). The finding could also reflect the household maintenance responsibilities that do not allow women to be away from families for long periods, as it is necessary for cross-border traders. However, the finding is contrary to the literature which shows that women account for a high percentage of informal cross-border

traders (Muzvidziwa, 2015; Mbo'o-Tchouawou, 2016). Muzvidziwa (2015) describes the sector as a female-intensive sector that has broad poverty and development ramifications. Cross-border trading reveals that African women are not content with being dutiful housewives.

Table 6.5: Multinomial logistic regression of youth livelihood strategies

	Migration		**Remittance dependency**		**Cross border trading**		**Self-employment**	
Variables	**B**	**Odds ratio**	**B**	**Odds ratio**	**B**	**Odds ratio**	**B**	**Odds ratio**
Gender of youth	-.294	.396	-.233	.329	2.586**	4.471	.845	1.806
Household size	-.164	.740	-.135**	.577	-.143	.869	.143	1.007
Age of youth	.116	1.080	.098	1.087	-.065	.907	.076**	1.121
Land ownership	4.796**	5.847	5.764**	7.608	4.693**	7.562	4.549***	8.437
Access to internet	-.180*	.230	5.561**	7.449	3.797**	6.273	-.247	.478
Social group	-.130**	.104	-.001	1.450	1.133	1.348	-.205**	.282
Number of migrants	.049	1.061	.0595**	1.143	.044	1.042	-.038	.965
Access to credit	1.407	1.022	-.030**	.022	5.798	6.667	-.416	.417
Level of education	4.452*	4.729	2.366	3.130	.924	1.391	-.246	.435
Employment status	-.004***	.003	-.465	.277	1.676	1.180	-.034***	.033
Infrastructure	-.285	.859	-.135**	.207	-.186*	.544	-.168*	.562
Marital status	-.476	.823	-.465	.718	-.397	.852	-.264	.638
Food security	.068**	1.150	.058	1.004	.065**	1.136	.045**	1.105
Performance of agriculture	.985	1.763	1.501**	3.204	.597	1.614	.712*	2.044
Government assistance	.981	2.009	-.212	.588	-.236	.722	-.181	.623

Notes: *, ** and *** significant at 10, 5 and 1%, respectively.
Overall % households correctly classified = 70.1%. n=200
Source: Survey data (2020).

Table 6.4 show a statistically significant and positive relationship between age and self-employment livelihood strategy. Thus, with an increase in age by one year, the odds of preferring the self-employment strategy to agriculture increase by a factor of 1.121, holding other variables in the model constant. In other words, older youth are less likely to make a livelihood choice that depends on agriculture, instead would rather choose to engage in self-employment activities such as vending, building, etc. The results agree with Mohammed (2014) who observed that older youth are less likely to participate in farm-related livelihood strategies. The probable reason behind this is that older youth are more likely to have large families which can be translated to more social-economic and food security needs. This demands the youth to engage in more lucrative non-farm income-generating activities. Another more plausible reason is that older youth have the acquired resources to venture into self-employment activities compared to younger youth.

The results show that the coefficient number of household migrants had a positive and statistically significant effect on the remittance dependency livelihood strategy. Thus, with a unit increase in the number of migrants in a household, the odds of choosing the remittance dependency strategy would be 1.143 times more when the other variables in the model are held constant. This implies that a youth leaving in a household where a member has migrated is less likely to make a livelihood choice that depends on agriculture, and instead would rather choose the 'Remittance dependency' strategy. Remittances are a sizeable source of income in rural Africa and help raise and improve household access to sufficient, safe and nutritious food (Deotti and Estruch, 2016). Remittance-receiving households have greater purchasing power and are equipped to counterbalance food-related stocks such as an increase in food prices reducing the need to engage in agriculture.

In line with Tedla (2019), access to credit had a statistically significant and negative effect on the decision to select the "Remittance dependency" livelihood strategy. Thus, the odds of preferring remittance dependency over agriculture for youth with access to credit decreases by a factor of 0.022, holding other variables in the model constant. In other words, youth with access to credit, formal or informal, are less likely to prefer the remittance dependency strategy. This is because access to credit reduces capital and liquidity constraints and propels investments in farm enterprises (Woreda et al., 2019). This leads to productivity and agricultural output growth, and subsequent stimulation of market engagement by the young farmers.

The household food security status had a statistically significant and positive effect on the choice of livelihood strategy. The results show that, if other factors are held constant, as the food insecurity score increases by one unit, the odds ratio in favour of the probability of the youth to choose migration, cross-border trading and self-employment livelihood strategies increases by a factor of 1.150, 1.136, and 1.105, respectively. In other words, food-insecure youth are less likely to make a livelihood choice that depends on "Agriculture", instead would rather choose the "Migration, self-employment and cross-border trading" strategy. This is expected because the variability in climate, credit market constraints and riskiness in farm labour affect agricultural productivity and farm incomes increasing the vulnerability to food insecurity. This exerts pressure on the youth to engage in non-farm income-generating activities such as migration, self-employment, and cross-border trading to improve their welfare.

The results show that the existing physical infrastructural facilities such as roads, schools and markets influence livelihood choice among the respondents. The interpretation of the odds ratio for the level of satisfaction with the infrastructure in the area indicates that other things being constant, the probability of the respondents to choose remittances, cross-border trading and self-employment strategy decreases by a factor of 0.207, 0.544, and 0.562, respectively, as the level of satisfaction increases by one unit. This means that the odds of choosing an agricultural livelihood are higher in villages or areas where infrastructure is developed. Similarly, Rahman and Akter (2014) found rural infrastructure to significantly influence the choice of livelihood strategy. This is because rural infrastructure is critical for the realization of farm profits, as easy access to transportation and communication could facilitate extension provision, marketing products and the purchasing of inputs. Rahman and Akter (2014) add that rural infrastructure significantly reduces the marketing cost of agricultural products, thereby improving farm incomes and household food security.

The coefficient of access to the Internet had a statistically significant and positive effect on remittance dependency and cross-border trading livelihood strategy. Thus, the probability of choosing remittance dependency or cross-border trading strategy over agriculture increases by factors of 7.449 and 6.273, respectively for youth with access to the Internet. More generally, individuals with access to the internet are less likely to choose the agriculture strategy and instead choose the remittances dependency or cross-border trading strategy. Also, the coefficient of access to the Internet had a statistically significant and negative effect on migration livelihood strategy. Thus, the probability of choosing the migration livelihood

strategy over agriculture decreases by a factor of 0.230 for youth with access to the Internet. This may be because the Internet provides information such as the cost of migration, crime and security of the destination area which may negatively affect the perceptions of the youth towards the new area (Timmerman et al., 2014).

The coefficient of agriculture performance had a statistically significant and positive effect on remittance dependency and self-employment livelihood strategy. Thus, the odds of choosing remittance dependency or self-employment strategy are 3.204 and 2.044, times higher for youths who are not happy about the performance of agriculture in their area. This is expected because agriculture performance is closely linked with income hence low satisfaction means low incomes forcing people to participate in non-agricultural income-generating activities.

6.4.4. Household Food Insecurity Access Prevalence (HFIAP)

The Household Food Insecurity Access Scale (HFIAS) explored the prevalence of food insecurity in the study areas. The respondents were grouped into four groups according to their food insecurity status: food secure, mildly food insecure, moderately food insecure and severely food insecure (Coates et al., 2006). Table 6.6 shows that only 18 percent of the youth were food secure, whereas 11.5 percent were mildly food insecure while 33 percent were moderately food insecure, and 37.5 percent were severely food insecure. Thus, a high prevalence of food insecurity was a general characteristic among the youth. The study findings are in line with Redding et al. (2011). According to Gwatirisa and Manderson (2012), the interplay of poverty, economic slowdowns and downturns, weak infrastructural development (electricity, roads) and poor investment in the agricultural sector have made millions of Zimbabweans food insecure. These were also the findings from the study shared by the participants. In the focus group discussions, poverty was the main cause of food insecurity followed by climate change, poor investments in agriculture, poor access to markets, poor infrastructural development, food prices and unemployment (Appendix F3).

The food insecurity prevalence was further examined according to the type of livelihood strategy. The results show that youths engaging in agriculture livelihood strategy are more food secure (52.8%) compared to their counterparts engaging in migration, remittance dependant and self-employment. Despite agriculture being the least remunerative livelihood, the results show that the strategy is important in ensuring food security in rural Zimbabwe. This is because of the contribution of agriculture to food availability, access and utilization. Redding et al. (2011) found agriculture to be the main source of food among the rural

population. Thus, agriculture contributes to food security by making food available for consumption. Furthermore, agriculture not only provides food but also serves as an essential source of income. French et al. (2019) found that high-income earners can purchase foods of higher nutritional quality compared to lower-income households.

The results show that the least number of food-secure youth engaged in cross-border trading (27.8%) and migration (19.4%) strategies. A common feature of the two strategies is the high dependency on travelling. Due to the outbreak of the COVID-19 pandemic, the government prohibited travelling to curb the spread of the disease. Travel restrictions and the closure of international borders were done. This disrupted cross-border trading and migration livelihoods which depend heavily on travelling. It is important to note that cross-border trading was the most remunerative livelihood option, however, Table 6.6 shows that the strategy is among the livelihoods with the lowest number of food-secure respondents. A possible explanation is that income earned may not be enough to meet the household food security demands. Owing to the economic collapse in Zimbabwe, the cost of living and food is increasing every month. According to FEWSENT (2022), the cost of food in the country increased by 104 percent in April of 2022 over the same month in the previous year. This has resulted in poor access to food among millions of Zimbabweans.

Table 6.6: Food insecurity prevalence

Livelihood strategy	Food security level (%)			
	Food secure	**Mildly food secure**	**Moderately food insecure**	**Severely food insecure**
Agriculture	52.8	17.4	25.8	37.3
Self-employment	38.9	26.1	47.0	34.7
Migration	19.4	0.0	6.1	12.0
Remittance dependant	41.7	39.1	39.4	41.3
Cross-border trading	27.8	21.7	33.3	24.0
Overall percent	**18**	**11.5**	**33**	**37.5**

n=200.

6.4.5. Food security determinants

The Tobit regression model examined the determinants of food security among the respondents. In the Tobit model, the sign of the coefficient indicates the direction of influence of the independent variable on the dependent variable. As a result, a positive value shows an

increase in the HFIAS score, implying a higher risk of an individual being food insecure, whereas a negative coefficient suggests a lower likelihood of an individual being food insecure. Table 6.7 presents the estimate of the regression model.

The agriculture livelihood strategy was one of the variables of interest as it outlines the importance of youth participation in the sector. The results show that the variable "Agriculture livelihood" had a statistically significant ($p<0.05$) and negative effect on household food insecurity. Thus, youth engaging in the agriculture livelihood strategy are more likely to be food secure compared to their counterparts engaging in non-agriculture strategies. Agriculture is one of the most significant ways to promote food security in rural Africa. This is because agriculture produces nutritious food and makes food available for consumption. Agriculture does not only represent a source of nutritious food, but equally important, it is a source of income for most of the rural population in Africa (Isgren et al., 2020). In Africa, most of the farmers hardly produce enough food to satisfy their dietary needs. Therefore, households can meet a possible production deficit by purchasing food. Lastly, agriculture contributes to food security in rural Africa by creating job opportunities. Fasakin et al. (2022) state that agriculture is the largest employer in rural Africa and the wages, therefore, improve access to nutritious and healthy food.

As expected, the livelihood strategy of self-employment was statistically significant and negative, implying that youths engaging in self-employment activities are less likely to be food insecure. This is because income from self-employment activities increases individual or household purchasing power. Self-employment can offer stable sources of livelihood because they provide goods and services constantly in demand in their local communities. In the long term, self-employment activities enable households to invest in better nutrition, health, and education (Ngema et al., 2018).

Table 6.7 shows that the coefficient of marital status was statistically significant ($p= 0.03$) and positively related to food insecurity, implying that married youth have a higher chance of becoming food insecure compared to unmarried youth. The results concur with Abegaz, (2017) who found that the chances of being food insecure are 3 times higher among married individuals. Married households have higher living expenses compared to unmarried households due to the larger size of the household. This includes the cost of feeding more individuals, as well as other expenses like housing, transportation, healthcare, and education. These increased expenses can leave less disposable income available for purchasing food.

However, this finding seems to contradict Ngema et al. (2018) who found a negative and significant relationship between food security and marital status. The argument in this study is that married households typically have higher household incomes and greater access to social support networks, which can help to buffer against food insecurity. This contradiction in results reveals that the direction of influence of marital status is indefinite.

In line with Maziya et al. (2017), access to credit had a positive and significant influence on food insecurity. This implies that the chances of being food insecure are high among youth with access to credit. This finding is not expected since credit enables recipients to improve the scale of their enterprises and food access (Aidoo et al., 2013). A possible explanation is that youth who have access to credit may accumulate debt through loans or other forms of borrowing. If the debt becomes unmanageable or if the youth's income is insufficient to cover their financial obligations, it can significantly impact their ability to afford an adequate and consistent food supply. They may need to allocate a significant portion of their income to debt repayment, leaving limited funds for food expenses (Ngema et al., 2018). However, the results contradict Aidoo et al. (2013) who found that credit negatively influences household food insecurity.

Table 6.7 shows a negative association between land ownership and food insecurity, implying that the chances of being food insecure were lower among youth with access to land. This is because land is an important variable in agricultural production, without land there is no production (Ngema et al., 2018). Farmers rely on the land to produce crops and livestock for their consumption thus improving food availability. Further, land ownership has a significant impact on food access. When farmers own their land, they have greater control over their production decisions and can invest in their farms to improve productivity and increase yields. This can lead to increased income as farmers can sell more crops and livestock or obtain higher prices for their products. Also, land ownership affects the ability of farmers to access credit and other financial services (Abegaz, 2017). Land can serve as collateral for loans, and farmers who own their land may be more likely to be approved for loans and other forms of credit. Ngema et al. (2018) conclude that the impact of land ownership on food security is significant, and policies that support land ownership for smallholder farmers can be critical for improving their livelihoods and reducing poverty among youth and in rural areas.

Table 6.7: Food insecurity determinants

Variables	Estimated Coefficient	Standard Error	P significance level	VIF
Livelihood strategy				
Agriculture	-2.326	1.280	0.071*	1.95
Self-employment	-2.763	1.346	0.042**	1.30
Cross-border trading	0.192	1.054	0.856	1.13
Migration	-1.748	1.532	0.255	1.07
Remittance dependency	-0.490	1.012	0.629	
Socio-economic characteristics				
Marital status	1.453	.671	0.032*	1.15
Life satisfaction	-1.594	.3612	0.000***	1.14
Gender	0.980	.959	0.308	1.17
Level of education	-0.943	1.081	0.384	1.38
Household size	-0383	.324	0.238	1.64
Number of youths	1.049	.577	0.070**	1.69
Access to credit	3.214	1.606	0.047**	1.19
Land ownership	-5.395	2.252	0.018**	6.04
Cultivated land size	-1.375	.578	0.018**	6.15
Rural infrastructure	0.190	.494	0.701	1.10
Access to Internet	-0.025	.917	0.979	1.18
_cons	10.819	7.506	0.151	
Number of observations	200			
Significance of LR χ 2	0.000			

Notes: *, ** and *** are significant at 10, 5 and 1%, respectively.
Overall % households correctly classified = 70.1%. N=200
Source: Survey data (2020).

The results show that the number of youths in a household had a statistically significant and positive effect on food insecurity. This implies that the chances of being food insecure increase as the number of youths in the household increases. This is because first, high dependency ratios can place a burden on working-age adults, reducing their capacity to produce or purchase food for themselves and their dependents. This can result in food insecurity for both working-age adults and their dependents. Second, high dependency ratios can affect household spending patterns, including expenditures on food. Families with a high dependency ratio may have to prioritize spending on non-food items such as healthcare and education, which can lead to reduced spending on food and increased vulnerability to food insecurity.

Table 6.7 shows that the coefficient 'life satisfaction' had a statistically significant and negative effect on food insecurity. In other words, youth who are happy about their lives are less likely to be food insecure. The result is consistent with Yakubu and Aidoo (2015). A plausible explanation is that farmers satisfied with their lives are more likely to invest in their farms, adopt sustainable farming practices, and produce crops and livestock that meet the nutritional needs of their families and communities. Furthermore, when farmers are satisfied with their lives, they are more likely to stay in their communities and continue farming, rather than migrate to urban areas or other regions in search of better opportunities. This can contribute to the instability of local food systems and food insecurity in rural areas.

6.4.6. Conclusion and recommendations

Using a sample of 200 rural youth, the study examined the factors influencing livelihood strategy choice and food security in Mashonaland East Province, Zimbabwe. A key finding from the study is that the rural non-agricultural sector is experiencing a substantial increase in the share of rural employment. Thus, the dependency on agriculture by the rural population is decreasing. This is a new trend in Africa since agriculture has been the main source of food, income and employment for the rural population throughout history. This, however, raises the question about the future of agriculture and food insecurity in rural Zimbabwe. The study also finds food insecurity, notably severe food insecurity to be a general characteristic among the respondents. The factors influencing food security in the study include agriculture and self-employment livelihood, marital status, life satisfaction, number of youths in a household, access to credit, land ownership and cultivated land size. While the trend of youth opting for non-agricultural livelihoods is increasing, the study reveals that agriculture remains critical to food security. The results show that youth engaging in agriculture are more food secure compared to youth engaging in non-agricultural livelihoods. Based on the findings, the following recommendations were made:

- Agriculture being the main livelihood strategy, policymakers should invest in making agriculture a sustainable livelihood option. This can be achieved by providing short-term and long-term loans, infrastructural development (e.g., irrigation), provision of extension services and capacitating youth with agricultural training and knowledge.
- A balanced and diversified approach to rural development, with support for both agricultural and non-agricultural sectors, can contribute to inclusive and sustainable growth.

- The factors associated with youth livelihood choice and food security range from the social-economic to livelihood capitals. With such heterogeneity, the study suggests that the use of a one-size-fits-all approach in policy decisions should be avoided.

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CHAPTER 7: CONCLUSIONS AND IMPLICATIONS FOR POLICY AND FUTURE RESEARCH DIRECTIONS

7.1. Recap of the purpose of the study

The Zimbabwean government, like several other African countries, recognises that the youth-agriculture nexus is critical to employment, food security and livelihoods. For this reason, there has been a growing policy priority towards the youth. However, the policies and interventions have not been successful in attracting or stimulating youth interest in agriculture. Many youths today remain unemployed, food insecure, dissatisfied with their lives and engaged in social ills and criminal activities. The information gaps characterising Africa's policy environment are limiting effective policy decisions. While several studies have analysed the youth-agriculture nexus, gaps exist in the literature. These include geographical clustering of studies, exclusion of noncognitive factors in the analysis, inconclusive impact of demographics and socio-economic factors and a dearth of studies that solely focus on rural youth. It is against this background that the study aimed to explore the youth-agriculture nexus and its impact on food security and livelihoods. The specific objectives of the study include determining the factors affecting rural youth participation in agriculture, examining the factors influencing migration willingness and choice of destination, determining the factors affecting life satisfaction and examining the factors influencing livelihood choice and food security among youth.

The study adopts an interdisciplinary approach that examines the intersection of youth and agriculture from various perspectives, considering noncognitive, demographic, social and economic factors. This is due to the complex and multi-dimensional nature of the youth-agriculture nexus. A pre-tested structured questionnaire collected data from 200 youths across three districts of Mashonaland East Province in Zimbabwe. Several econometric techniques of discrete choice and descriptive statistics analysed the data. The rights to anonymity, informed consent, and confidentiality were upheld to make the study ethical.

7.2 Conclusions and Implications for Policy

This study aimed at examining the youth-agriculture nexus and its impact on household food security and livelihoods. The descriptive statistics show that most of the youth were males, household heads, unemployed, married, looking for a job and had a secondary level of education. Also, the results show that most of the youth in the study were food insecure, dissatisfied with their lives and willing to migrate. In line with the literature, the future of the agriculture sector and food security in rural Zimbabwe is uncertain. The results show that the

youth consistently found in the literature to be critical to food and nutrition security, livelihoods and agricultural production are leaving and losing interest in agriculture. The study found that over 70 percent of the youth in the study will not be participating in agriculture in the next coming five years. The factors associated with youth participation in agriculture included expectancies, utility and intrinsic value, age, marital status, household size, and employment status. Another reason contributing to an uncertain future in agriculture and food security in the study is the high migration willingness among the youth. It follows that 69 percent of the youth in the study were willing to engage in migration. Rural migration is a phenomenon associated with a loss of human capital and agricultural labour force prolonging the cycle of poverty, food insecurity and underdevelopment in rural communities. The most cited reasons for wanting to migrate in the study included the need to seek employment opportunities, food insecurity, better infrastructure and further education studies. Also, the study revealed low levels of life satisfaction among the youth. The study found that 68.5 percent of the youth were dissatisfied with their lives. Life satisfaction positively influences productivity, mental health and well-being hence is critical to food and nutrition security and agricultural production. The results show that life satisfaction was influenced by factors such as the level of education, dependency ratio, government programmes, access to credit, type of livelihood strategy, food security status, utility, and intrinsic value.

The study also revealed the importance of noncognitive factors in understanding rural youth career decisions and life outcomes. It follows that youth with expectancy, intrinsic and utility value are more likely to engage and spend more hours in agriculture. Further, youth with intrinsic and utility value have high life satisfaction compared to their counterparts without value and expectancy. Also in the study, traditional factors such as age, education, marital status and gender significantly influenced youth career choices and life outcomes. The study concludes that both noncognitive and traditional factors are important and integrating the two can provide a better understanding of youth career decisions and life outcomes.

In line with the literature, the study found that the impact of the noncognitive and traditional factors on youth career decisions and life outcomes is inconclusive. For instance, marital status in the literature positively influences youth participation in agriculture. However, in the study, this variable had negatively impacted youth participation in agriculture. This contradiction of findings was the case for several variables such as age, gender, income, food insecurity and education in the study. This generates the conclusion that determinants of youth career decisions and life outcomes should be considered contextually and

generalisation of results must be avoided. Also, the study reveals that the factors influencing youth career decisions and life outcomes are diverse involving different disciplines such as education, economics, technology, psychology and development. This reflects the multidimensional and complex relationship between youth and agriculture.

The study found a shift in some youth narratives in agriculture. First, the study found that the narrative of agriculture being the main livelihood in rural Africa is changing. Throughout history, agriculture has been the main source of income, food and employment in rural areas, however, owing to the socio-economic changes and challenges, the study shows that many youths are now opting for non-agriculture livelihoods such as migration, cross-border trading and self-employment. Thus, there is a shift from agricultural livelihoods to non-agricultural livelihoods. Second, international migration has accelerated in rural Zimbabwe. Contrary to the widely held view, migration in rural areas is no longer limited to internal migration as many youths are opting to engage in international migration. The study concludes that discussions on migration should not focus exclusively on rural-to-rural or rural-urban migration but should also consider international migration.

The study reveals a mismatch between policy and youth needs. In the National Youth Policy of Zimbabwe, access to land is among the main interventions to improve youth participation in agriculture. However, in the study, land was found to negatively influence youth participation in agriculture. Implying that youth with land are less likely to engage in agriculture. Thus, providing access to land will not yield the expected outcomes of improved youth participation in agriculture. This exemplifies the lack of robust and comparable evidence in the policy environment which supports the argument that policy decisions in Africa have been made based on common knowledge, misconceptions, and wrong assumptions about youth. The study reveals the need to engage with youth to understand their concerns, needs, challenges, socio-economic and demographic characteristics, expectations, and values.

Despite a significant number of youths opting for non-agriculture livelihoods, the results show that smallholder farming is the most resilient livelihood option and remains central to youths' well-being as well as access to and availability of food. The results show low levels of migration willingness among youth engaging in agriculture compared to their counterparts engaging in non-agricultural livelihoods. Also, the study shows high levels of food security and life satisfaction among youth engaging in agriculture. This is because of the contribution

of agriculture to household income, food and employment. Agriculture is a source of nutritious food for consumption. Further, agriculture is a source of income for most of the rural population in Africa. In Africa, most of the farmers hardly produce enough food to satisfy their dietary needs. Therefore, households can meet a possible production deficit by purchasing food. Lastly, agriculture contributes to food security in rural Africa by creating job opportunities which provide wages used to access food on the market.

7.3 Policy recommendations

To harness the potential of the youth-agriculture nexus, this study recommends a more holistic and systematic approach which supports and promotes the development of the agricultural sector in Zimbabwe. To achieve this, the study makes the following specific recommendations:

a) Making agriculture more attractive and viable

The study recommends the development of financial programs and incentives specifically tailored to young farmers, such as low-interest loans, grants, subsidies, and insurance schemes. These initiatives can help alleviate the financial burden associated with starting and sustaining an agricultural enterprise, making it more economically viable for youth. Also, there is a need to encourage youth to view agriculture not only as a means of subsistence but also as a viable business opportunity. This can be achieved by providing training and support in entrepreneurship, business planning, and marketing skills and encouraging value addition, and agro-processing.

b) Avoid the one size fit all approach in policy decisions

The study shows that the factors influencing the youth-agriculture nexus range from noncognitive and demographic to socioeconomic factors. With such heterogeneity, the study recommends that policymakers avoid treating youth as a homogeneous group. Thus, the one-size-fits-all approach is not relevant when devising and implementing youth policies and interventions in agriculture. Any intervention or policy for the rural youth must start with a full understanding of their circumstances, challenges, endowments, expectancies and values. Also, youth interventions in agriculture need to be tailored to the specific context of the country and the target youth segments.

c) Integrate noncognitive factors into policy

The results show that noncognitive factors specifically expectancy and value play a significant role in youth career decisions and life outcomes. Thus, the study recommends the

integration of noncognitive factors in youth policy decisions. Incorporating both cognitive and traditional provides a holistic and better understanding of the youth-agriculture nexus leading to evidence-based policies and interventions that effectively support youth.

d) Make use of an interdisciplinary approach in policy decisions.

The results revealed that the youth-agriculture nexus is complex and multi-dimensional involving multiple disciplines such as development, health, economics, psychology and education. For this reason, the study recommends a paradigm shift from the traditional silo mindset towards interdisciplinary planning, investment and decision-making. One way can be through establishing multi-stakeholder platforms.

e) Revision and update current policy

The results show that youth narratives in agriculture are changing. Therefore, there is a need to revise or update current youth policy to make it compatible with the needs, concerns, values and expectancies of rural youth. Youth policies in agriculture should be inclusive and address the diverse needs, aspirations, values, expectancies and challenges faced by the youths.

7.4 Areas of further research

While this study is an improvement on the available literature on the linkages between youth and agriculture in Zimbabwe, its major limitation is that the data analysed in this study was from only one province. Even though it has been indicated that the data is relatively comparable to that in other rural areas across the country, the data is not nationally representative. Therefore, it is suggested that a more nationally representative study be conducted to provide further evidence. The other limitation of the study is that it focused only on rural youth and did not consider urban youth who are engaging in agriculture. Since many youths are migrating out of the rural areas it is recommended that future studies examine youth participation in agriculture from an urban area perspective. Last, while the use of digital technologies has the potential to attract and engage youth in agriculture, there is a need for more research to examine how digital tools, such as mobile applications, remote sensing, blockchain, and data analytics, can enhance youth participation.

APPENDICES

APPENDIX A: STUDY QUESTIONNAIRE

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The information to be captured in the questionnaire is strictly confidential and will be used for research purposes by the student working on a project **"Exploring the youth-agriculture nexus: Implications on household food security and livelihoods".** There is no right or wrong answer to these questions. You are free to be part or not part of this survey and you can withdraw from the survey at any time you feel like doing so.

Name of respondent	Province	District	Date
	Mashonaland East		

A: DEMOGRAPHICS (Tick appropriate)

Let's begin by recording a few facts about you	
A1. Are you the household head? 1= Yes 2= NO	**A2.** Gender 1= Male 2=Female
A3. How old are you?	**A4**. What is your marital status? 1 = single 2= Married 3=Divorced 4= Widowed
A5. What is your highest level of education? 1= No formal 2=Primary 3=High school 4= Tertiary 5= Tertiary	
A6. What is your main occupation? 1= Student 2=Farmer 3= Formal job 4= Self–employed 5= Unemployed 6=other (Specify)……	
A7. What is your household head's main occupation? 1= Farming 2=Business 3=Agricultural labor 4= Formal job 5= Unemployed	

Respond to the following in numerical value.	
A12. How many members stay in your or within your household?	
A13. How many youths stay in or within your household?	

A14. How many of the youths work on the farm?	
A15. How many of the none-youth members participate in farming?	
A 16. How many of your household member receives a government grant?	
A17. How hours do you spend in agriculture per day?	

Now let's discuss your economic conditions.

A17. Are you presently looking for a job?

1 =Yes 2= No

A18. Are you formally employed? **If no jump to A20.**
1= Yes 2= No

A19. If **YES**, is the job full time or part-time?

1=Part time 2 = Full time

A20. If **you are NOT formally employed,** respond to the following statements. **(TICK)**

Reason	*Strongly Agree*	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
a. There are not enough job opportunities available					
b. Most of the jobs are seasonal					
c. My qualifications are not enough					
d. There is a lack of information about job opportunities					
e. Farming is meeting my needs and wants					
f. Lack of networks in the job market					
g. Am still in school					

A21. In general, how would you describe: (Readout options)

	Very good	*Good*	*Neutral*	*Bad*	*Very bad*
a. The present economic condition in your area?					
b. Your own present living conditions?					
c. How do you rate your living conditions compared to other South African youth?					
d. Looking ahead, how do you see the economic conditions of your area?					

Now let's look at your life satisfaction

A.22. "Using a scale of 1 to 7, How satisfied are you with your life right now?**(Tick in the below)**						
Extremely satisfied	***Satisfied***	***Slightly satisfied***	***Neutral***	***Slightly dissatisfied***	***Dissatisfied***	***Extremely dissatisfied***

Now let's talk about your willingness to migrate					
A23a. In the next one or two years are you planning to move away from your area to another?	***No***	***More likely***	***Likely***	***Unlikely***	***More unlikely***
A23b. If you are moving, where will you be going? 1= to another rural area 2= to urban area 3= to another country					
A23c. What will be your main reasons to migrate or move?					

Reason	***Strongly Disagree***	***Disagree***	***Neutral***	***Agree***	***Strongly Agree***
a. Poor development in the area of origin					
b. Search for employment					
c. A search for better infrastructure (education, health)					
d. Join family members in the city					
e. To improve welfare					
f. Social status on one's parent					
g. Lack of interest in agriculture					

A.23 d. "Using a scale of 1 to 7, How satisfied do you think you will be with life if you migrate? **(Tick in the below)**

Extremely dissatisfied	***Dissatisfied***	***Slightly dissatisfied***	***Neutral***	***Slightly satisfied***	***Satisfied***	***Extremely satisfied***
A.23 e. How many of your family members stay in another area?						

Now let's look at your food security status				
*0=**Never** 1 = **Rarely** (once or twice in the past four weeks) 2 = **Sometimes** (three to ten times in the past four weeks) 3 = **Often** (more than ten times in the past four weeks)*				
A24. In the past four weeks: (Readout options), If Yes, how often did this happen?				
	No	**Rarely**	**Sometimes**	**Often**
a. Did you worry that you would not have enough food?				
b. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? (money, food)				
c. Did you or any household member have to eat a limited variety of foods due to a lack of resources? (money, food)				

d. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?				
e. Did you or any household members have to eat a smaller meal than you felt you needed because there was not enough food?				
f. Did you or any other household member have to eat fewer meals in a day because there was not enough food?				
g. Was there ever no food to eat of any kind in your household because of a lack of resources to get food?				
h. Did you or any household member go to sleep at night hungry because there was not enough food?				
i. Did you or any household member go a whole day and night without eating anything because there was not enough food?				

Vulnerability analysis attributes		
Respond to the following statements	**Yes**	**No**
a. Are you chronically ill		
b. Are you physically/mentally challenged		
c. Are you an orphan		
d. Do you have land		
e. Did not receive any form of formal education		
f. Are you formally employed		
g. Do you own any form of livestock		

B: NATURAL CAPITAL

B1. Do you own some piece of land?

1= Yes 2= NO

B1a. If **Yes**, what is the land type? **If No jump to C (Physical Capital)**

1= Homestead garden 2= Community garden 3= Dry-land fields 4=Irrigation plots

B1b. What is the ownership?

1= Traditional allocation 2= Rented 3= inherited 4= Given by relative 5=State owned 6 = Parent owned

B2. How far is the land from your homestead? 1= Very far 2= Far Neutral 3= Close 4= Very close					
B3. Now let's discuss how you feel about access to land					
	Strongly Disagree	***Disagree***	***Neutral***	***Agree***	***Strongly Agree***
a. Land is important to the youth in					

your area?					
b. I am satisfied with the present security of ownership of the land am using?					
c. I am satisfied with the allocation of land by the traditional council					
d. I am satisfied with government programs for improving access to land					
e. I am you satisfied with the distance to the land					
f. Access to land is a problem					
g. The rules regarding land ownership are fair					

C: PHYSICAL CAPITAL

C1. Do you have access to the internet (phone)?

1= Yes 2= No

C1b. If **Yes**, how often

1 = Rarely (**once or twice in the past four weeks**) 2 = Sometimes (**three to ten times in the past four weeks**) 3 = Often (**more than ten times in the past four weeks**).

C2. Please answer the following questions regarding the infrastructure					
	Strongly Disagree	***Disagree***	***Neutral***	***Agree***	***Strongly Agree***
a. Roads are in poor condition					
b. Schools are in poor condition					
c. Access to agricultural productive resources (land) is a problem					

D: INCOME AND CREDIT (FINANCIAL CAPITAL)

D2. Are you a recipient of any government grant?

1= Yes 2= No

D2b. If **Yes**, what type?

1= Child grant 2 = Disability grant 3= other (specify)……

D3. In the past 12 months have you ever taken or used any loan or credit facility? ***If you no jump to*** **E**

1= Yes 2= No

D4b. If **Yes**, what was the main source of the loan or credit?

1=Relative/ Friends 2= Money lender 3= Bank 4= Micro-finance 5=Parents
6= Savings club (e.g. stokvel)

D5. What was the purpose of the loan or credit? *Multiple responses*

1=-Buy food 2= Agricultural purposes 3= Family emergency

D6. Please answer the following questions regarding access to credit					
	Strongly Disagree	***Disagree***	***Neutral***	***Agree***	***Strongly Agree***
a. The requirements by the banks to get a loan or credit are too much					
b. I don't have the requirements required to access a long or credit					
c. Cannot meet the terms and conditions of the loan or credit					

E. SOCIAL CAPITAL

E1. Number of relatives in the same village

E.2. What are your main sources of information? (Rank in order of importance)	**Rank**
a. School	
b. Extension officer	
c. Parents	
d. Friends	
e. Internet	
f. Television	
g. Radio	

E3. Are you a member of the following groups?	Yes	No
a. Cooperative		
b. Social group (church, stokvel)		
Other (specify)		

E4. Please indicate the extent to which you agree to the following statements					
	Very dissatisfied	***Dissatisfied***	***Neutral***	***Satisfied***	***Very satisfied***
a. Are you satisfied with the status of the area you live in?					
b. Are you satisfied with participating in social groups?					
c. Are you satisfied with the level of communication with relatives in the area?					
d. Are you satisfied with the level of communication with other youths in the area?					

E5. How competence are you with using the mentioned channels to interact with fellow farmers? (Please Tick)					
Channels	**Poor**	**Basic**	**Good**	**Very good**	**Excellent**
a. Cell-phone call/SMS					
b. WhatsApp					
c. Internet					
d. Community meetings					
e. Television/ Radio					

F. PSYCHOLOGICAL CAPITAL

Please tell me whether you agree or disagree with the following statements:	
Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5 = Strongly Agree	
a. Do you consider farming as a business and can be managed as such?	
b. Do you consider having a career in farming?	
1= Very dissatisfied; 2= Dissatisfied; 3= Neutral; 4= Satisfied; 5 Very satisfied	
c. Are you satisfied with the performance of agriculture in your area?	
d. Are you satisfied with government assistance in agriculture?	
1= Very low ;2= Low; 3= Neutral; 4= High; 5= Very High	
e. How is your confidence in farming as a sustainable livelihood?	
f. How high is your confidence in yourself as a farmer	
g. How is your confidence that farming will meet the lifestyle you desire	
h. How confident are you with the future of agriculture in your area	

G.10 Now let's look at your motivations to participate in agriculture		
Items (Please Tick)	**YES**	**NO**
Are you participating or not participating in agriculture because? ***Attainment (3 items)***		
AT_1: My friends were participating		
AT_2: My parents/ guardians wanted me to participate		
AT_3: My friends encouraged to participate		
Cost and Utility value (8 Items)		
C_1: I was willing to work alone		
C_2: I am willing to work as a team		
C_3: I am willing to work on weekends		
UT_1: Want to be competitive		
UT_2: Want to learn more about agriculture		
UT_3: Want to learn something new		
UT_4: Enjoy competition		
UT_5: Want to develop career skills		
Intrinsic value (5 Items)		

IN_1: I am interested in working in agriculture		
IN_2: I am interested in learning about agriculture		
IN_3: I like farming		
IN_4: I am interested in farming as a lifetime career		
IN_5: I am interested in a career in agriculture		
Self-Efficacy (7 items)		
SE_1: I am confident in my ability to participate in agriculture		
SE_2: I am confident that am a better farmer than my parents		
SE_3: I am confident in my ability to adopt new farming technologies		
SE_4: I am confident in my ability to make the best farming decisions		
SE_5: I am confident in my ability to identify the best markets		
SE_6: I am confident in my ability to identify the best production methods		
SE_7: I am confident in my ability to improve production		

G. PARTICIPATION IN AGRICULTURE

G1.Do you participate in agriculture?

1= Yes 2= NO

***All activities along the agricultural value chain such as ploughing, planting, weeding, harvesting, marketing, and transporting.**

G.2. If No, respond to the following statements					
	Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***
a. Agriculture is not attractive (Disinterest)					
b. Agriculture won't be able to meet my needs and wants (Doubt)					
c. Agriculture is something you do after failing in school and it's for the old (negative perceptions)					
d. The infrastructure in the area is limited					
e. Lack of information on agribusiness information					
f. Poor access to agriculture productive resources (e.g. land, inputs)					
g. Poor career guidance					
h. Poor government assistance or support					

THE FOLLOWING QUESTIONS ARE FOR YOUTH PARTICIPATING IN AGRICULTURE.

G.2 How often did you participate in farming in the past 4 weeks?
1 = rarely (**once or twice in the past four weeks**) 2 = sometimes (**three to ten times in the past four weeks**) 3 = often (**more than ten times in the past four weeks**).

G3. How many hours do you spend on farming per day?	
G4. The number of years you have been involved in farming?	
G5. Do you have agricultural-related tertiary education? 1 Yes 2 =No	

G6. Please indicate the farming activities you engage in agriculture		
(Please Tick)	**Yes**	**No**
a. Ploughing		
b. Seeding		
c. Weeding		
d. Harvesting		
e. Marketing of produce		
f. Packaging		
g. Retailing		

G7. Rank which of the following activities in agriculture interests you the most					
	1= Most interested	2= Interested	3=Neutral	4 =Not Interested	5 =Least interested
a. Crop production					
b. Livestock production					
c. Garden farming					
d. Marketing					
e. Value addition					
f. Others (Specify)					

G8. Now let's discuss the challenges you face in agriculture					
Show your level of agreement to the following statements					
	Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***
a. Access to land is a main issue in the area					
b. There is a lack of market access for farm produce					
c. Water is scarce					
d. Infrastructure is in poor condition					

	(e.g. roads, irrigation schemes)					
e.	There are not enough credit facilities					
f.	Adverse climatic conditions affect farming (e.g. drought, floods)					
g.	Lack of extension services					
h.	Poor storage facilities					
i.	Limited involvement in decision making					
j.	Inadequate government commitment					
k.	Lack of skills					

G9. What are your main reasons for farming? ***(Multiple answers possible)***

1=Have sufficient food to feed my family 2=Earn an income
3= Create employment for myself 4= Create employment for people in the community
5= Leisure 6= Other (specify) ……

APPENDIX B: CHILD CONSENT FORM

CHILD CONSENT FOR PARTICIPATION

I volunteer to be part of the respondents of the research conducted by a student from KwaZulu-Natal University (PMB campus). I devote my time to responding to the questions asked and understand that the information collected is for academic purposes only.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty.

2. I understand that the discussion may be interesting or thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. I acknowledge that my parents/ guardian has permitted me to be part of the survey.

4. The interview will last approximately 20-30 minutes. Notes will be written during the interview.

5. I acknowledge that the research is not disturbing my school time and studies.

6. I understand that the researcher will not identify me by name in any reports using information obtained from this interview and that my confidentiality as a participant in this study will remain secure.

7. I have read and understood the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

8. I have been given a copy of this consent form.

Signature: _____

Date: _____

APPENDIX C: PARENT CONSENT FORM

PARENT CONSENT FOR PARTICIPATION

I have allowed my child to volunteer to be part of the research conducted by a student from KwaZulu-Natal University (PMB campus). He/she will devote their time to respond to the questions asked and I understand that the information collected is for academic purposes only.

1. I acknowledge that participation in this project is voluntary. I understand that my child won't be paid for their participation.

2. I understand that if my child feels uncomfortable in any way during the interview session, he/she has the right to decline to answer any question or to end the interview.

3. I acknowledge that I have given my child permission to be part of the survey.

4. The interview will last approximately 20-30 minutes. Notes will be written during the interview.

5. I acknowledge that the research is not disturbing my child's school time and studies.

6. I understand that the researcher will not identify my child's name in any reports using information obtained from this interview and that confidentiality as a participant in this study will remain secure.

7. I have read and understood the explanation provided to me. I have had all my questions answered to my satisfaction, and I agree my child participate in this study.

8. I have been given a copy of this consent form.

Signature: _____

Date: _____

APPENDIX D: BEHAVIOURAL QUESTIONS

Table D. 1: Behavioural questions

Expectancy	**Mean**	**Std.Dev**
I expect to do well in agriculture	1.42	0.495
I am confident in my ability to adopt new farm technologies	1.43	0.496
I am confident that am a better farmer than my parents	1.40	0.492
Attainment value		
Compared to other livelihoods, agriculture is important to me	1.37	0.485
Agriculture is important to me	1.56	0.489
Cost		
Am willing to work on weekends	1.56	0.497
Am willing to work alone	1.63	0.491
Farming is labour intensive	1.52	0.487
Utility value		
Agriculture can meet my goals and dreams	3.01	1.132
Compared to other livelihood strategies, agriculture is useful to me	3.08	1.004
Participating in agriculture will bring positive change to my life	2.93	1.128
Agriculture is useful to me	2.96	1.164
Intrinsic value		
I am interested in a career in agriculture	1.45	0.499
I am interested in farming as a lifetime career	1.14	0.494
I like farming	1.44	0.478
I am interested in learning more about agriculture	1.14	0.481

n=200

Table D.2: Reliability Statistics

Cronbach's Alpha	**N of Items**
.876	16

APPENDIX E: FOCUS GROUP CHECKLIST

Focus group discussion checklist of guiding questions

1. What are the main challenges you face as a youth? How do you cope with the challenges?
2. What are the main agricultural activities engaged by the youth?
3. What are the main self-employment activities practised by youth in the area?
4. What are the main causes of food insecurity? And how do you cope?
5. What would you recommend should be done to improve youth engagement in agriculture?

APPENDIX F 1: FOCUS GROUP DISCUSSIONS RESPONSES

Table F1: Self-employment activities

Activity	Rank
Vending	1
Building	2
Overall hustling and dealing	3
Backyard industries	5
Welding	6
Grinding mill	4

Table F2: Activities of youth in the smallholder farming

Role	Rank
Weeding	1
Harvesting crops	2
Planting crops	3
Animal or poultry rearing	4
Watering crops or plants	5
Processing	6
Marketing	7
Transporting (seeds, fertiliser, products etc.)	8
Agribusiness	9
Retailing	10

Table F3: Causes of food security

Cause	Rank
Poverty	1
Climate change	2
Poor investments in agriculture	3
Poor access to markets	4
Poor infrastructural development	5
Food prices	6
Lack of employment opportunities	7

APPENDIX G: TURNITIN REPORT

Final Thesis_9/6/2022

ORIGINALITY REPORT

16%	13%	10%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.tandfonline.com Internet Source	2%
2	hdl.handle.net Internet Source	2%
3	doaj.org Internet Source	1%
4	vital.seals.ac.za:8080 Internet Source	1%
5	tind-customer-agecon.s3.amazonaws.com Internet Source	<1%
6	www.mdpi.com Internet Source	<1%
7	web.usm.my Internet Source	<1%
8	"Sustainable Agriculture and Food Security", Springer Science and Business Media LLC, 2022 Publication	<1%
	repository.nwu.ac.za	

APPENDIX H: ETHICAL CLEARANCE

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

20 February 2020

Mr Bright Takudzwa Mukwedeya (217076146)
School Of Agri Earth & Env Sc
Pietermaritzburg Campus

Dear Mr Mukwedeya,

Protocol reference number: HSSREC/00000943/2020
Project title: Exploring motivations and intentions to participate in smallholder farming among rural youth in KwaZulu-Natal Province, South Africa: Insights from the expectancy-value theory
Degree: PhD

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 10 January 2020 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 20 February 2021.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,

[redacted]

Dr Shamila Naidoo (Deputy Chair)

/dd

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Tel: +27 31 260 8350 / 4557 / 3587
Website: http://research.ukzn.ac.za/Research-Ethics/

Founding Campuses: Edgewood | Howard College | Medical School | Pietermaritzburg | Westville

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