# EXAMINING INFORMAL FOOD TRADERS' LIVELIHOOD STATUS AND FACTORS AFFECTING THE ADOPTION OF THEIR LIVELIHOOD STRATEGIES POST-COVID-19 PANDEMIC IN SOUTH AFRICA: A CASE STUDY OF POLOKWANE LOCAL MUNICIPALITY

**BY**

**MOTSATSI MORWATSHEHLA**

**MINI-DISSERTATION**

**Submitted in partial fulfilment of the**
**Requirements for the degree of**
**MASTER OF SCIENCE**
**IN**
**AGRICULTURE**
**(AGRICULTURAL ECONOMICS)**
**In the**
**FACULTY OF SCIENCE AND AGRICULTURE**
**(School of Agriculture and Environmental Sciences)**
**at the**
**UNIVERSITY OF LIMPOPO**

**Supervisor: Dr MH Lefophane**

**Co-supervisor: Prof A Belete**

**2025**

## DECLARATION 1

I declare that the mini-dissertation hereby submitted to the University of Limpopo has not been previously submitted by me for a degree at this or any other University; that it is my work in design and in execution, and that all material contained herein has been dually acknowledged.

Morwatshehla M 18 March 2025

Surname and initials Date

## DECLARATION 2 – PUBLICATIONS

The following research papers will be extracted from this mini-dissertation for publication in journals:

**Publication 1**

Morwatshehla, M., Lefophane, M.H., and Belete, A. *Examining the livelihood status of informal food traders post-COVID-19 pandemic in Polokwane Local Municipality, South Africa*. This paper will be extracted from this mini-dissertation and submitted for review and publication in *Cogent Food & Agriculture*.

**Publication 2**

Morwatshehla, M., Lefophane, M.H., and Belete, A. *Drivers of the Adoption of Livelihood Strategies Among Informal Food Traders: A Case Study of Polokwane Local Municipality, South Africa*. This paper will be extracted from this mini-dissertation for review and publication in *Agriculture*.

**Publication 3**

Morwatshehla, M., Lefophane, M.H., and Belete, A. *Assessing the Livelihood Strategies and Outcomes by Informal Food Traders in Polokwane Local Municipality: A Post-COVID-19 Perspective Using the Livelihood Conceptual Framework*. This paper will be extracted from this mini-dissertation for review and publication in the *Journal of Development Studies*.

## DEDICATION

I dedicate this mini-dissertation to my late mother, who will forever be embedded in my heart. A special gratitude to my late father, who passed away during my Master's studies. Thank you for consistently motivating me to work hard and for believing in me. May your souls continue to rest in peace!

I additionally dedicate this study to my siblings and nieces. You are the reason I worked hard and never gave up. I am genuinely thankful for your unconditional love, encouragement, and support. Your contribution to this study has been truly remarkable.

## ACKNOWLEDGEMENTS

Above all, I acknowledge God for equipping me with the understanding and determination to accomplish this research. I extend my sincere thanks to my supervisor, Dr. MH Lefophane, for going above and beyond, working overtime, and arranging multiple meetings to ensure the success of this project. Your patience, mentorship, encouragement, and assistance have been priceless, and I would not have been able to finalise this study without you. I also wish to acknowledge my co-supervisor, Prof. A. Belete, for always being available to provide feedback. Your contribution played a crucial role in the completion of this study. My appreciation goes to the University of Limpopo for providing the necessary resources and for their continued support, encouragement, and motivation.

A special thanks to the National Research Foundation (NRF) [Grant Number: TTK2204021699] for the financial support that made this study possible. Finally, I would like to thank the informal food traders in the Polokwane Local Municipality for their cooperation during data collection, which was critical to the successful completion of this study.

## ABSTRACT

This study aimed to examine the livelihood status of informal food traders and the factors affecting their adoption of livelihood strategies post-COVID-19 in selected areas of Polokwane Local Municipality. To accomplish this, a structured questionnaire was used to conduct in person interviews with 120 informal traders selected through purposive sampling. Descriptive statistics were utilised to address the first objective, which is to describe the socio-economic characteristics of informal food traders. The Livelihood Assessment Index (LAI) tool was used to address the second objective, which is to examine the livelihood status of informal food traders post-COVID-19 pandemic. Further, the Multinomial Logistic (MNL) model was utilised to achieve the third objective of the study, which is to examine factors affecting the adoption of livelihood strategies by informal traders. The LAI reveal that informal food traders had limited access to financial, human, physical, social, and natural capitals, which are essential for recovery and resilience post-COVID-19, resulting in an overall LAI value of 0.44. Therefore, policy interventions should prioritise strengthening human capitals, improving access to financial capitals, enhancing the use of natural capitals, expanding physical capitals, and boosting social capitals.

The results for livelihood strategies indicate that most traders maintained a "food trading only" strategy, suggesting that many faced barriers or lacked incentives to diversify into other revenue-generating activities. The MNL results indicate that significant factors reducing the likelihood of adopting multiple livelihood strategies included age ($p < 0.05$), gender ($p < 0.01$), trading hours ($p < 0.05$), trading experience ($p < 0.10$), trading license ($p < 0.01$), and shelter ($p < 0.05$). Conversely, marital status ($p < 0.05$), educational level ($p < 0.01$), monthly household income ($p < 0.10$), trading area ($p < 0.05$), and access to transport ($p < 0.01$) significantly increased the likelihood of diversification..Therefore, policy interventions should focus on addressing inhibiting factors and promoting enabling ones to facilitate greater diversification and build resilience in the aftermath of COVID-19 pandemic.



**Keywords:** livelihood assessment index, livelihood capital, livelihood resilience, multinomial logistic regression model

## TABLE OF CONTENTS


**DECLARATION 1** ..... i

**DECLARATION 2 – PUBLICATIONS** ..... ii

**DEDICATION** ..... iii

**ACKNOWLEDGEMENTS** ..... iv

**ABSTRACT** ..... v

**LIST OF TABLES** ..... ix

**LIST OF FIGURES** ..... x

**LIST OF ABBREVIATIONS AND ACRONYMS** ..... xi

**CHAPTER ONE: INTRODUCTION** ..... 1

**1.1 Background** ..... 1

**1.2 Problem statement** ..... 3

**1.3 Rationale** ..... 4

**1.4 Aim of the study** ..... 5

**1.5 Objectives of the study** ..... 5

**1.6 Hypotheses of the study** ..... 6

**1.7 Outline of the study** ..... 6

**CHAPTER TWO: LITERATURE REVIEW** ..... 7

**2.1 Introduction** ..... 7

**2.2 Definition of Key Concepts** ..... 7

**2.3 Informal economy: overview, definition, characteristics, challenges, and support programmes** ..... 8

**2.4 Review of literature on the livelihood status** ..... 11

**2.5 Review of national and international literature on factors affecting the adoption of livelihood strategies** ..... 16

**2.6 Conceptual framework for livelihood analysis** ..... 24

**2.7 Chapter summary** ..... 27

**CHAPTER THREE: RESEARCH METHODOLOGY** ..... 28

**3.1 Introduction** ..... 28

**3.2 Study area** ..... 28

**3.3 Data collection** ..... 30

**3.5 Sampling and sample size** ..... 31

**3.6 Analytical techniques** ..... 32

**3.6.1 Descriptive statistics** ..... 32

**3.6.2 Livelihood Assessment Index** ..... 32
**3.6.3 Factor analysis** ..... 37
**3.6.4 Multinomial logistic regression model** ..... 38
**3.6.5 Model specification** ..... 40
**3.6.6 Marginal effects** ..... 46
**3.7 Validation and Reliability Testing** ..... 46
**3.7.1 Pre-testing of the questionnaire** ..... 46
**3.7.2 Validation of Multinomial logistic regression results** ..... 47
**3.8 Chapter summary** ..... 47
**CHAPTER FOUR: DESCRIPTIVE RESULTS AND DISCUSSION** ..... 48
**4.1 Introduction** ..... 48
**4.2 Descriptive Statistics Results** ..... 48
**4.3 Chapter summary** ..... 59
**CHAPTER FIVE: EMPIRICAL RESULTS AND DISCUSSION** ..... 60
**5.1 Introduction** ..... 60
**5.2 Livelihood status of the informal food traders** ..... 60
**5.2.1 Human Capitals Responses** ..... 60
**5.2.2 Financial Capitals Responses** ..... 62
**5.2.3 Physical Capitals Responses** ..... 63
**5.2.4 Natural Capitals Responses** ..... 65
**5.2.5 Social Capitals Responses** ..... 66
**5.2.6 Overall LAI of the Informal Food Traders** ..... 67
**5.2.7 The results from LAI analysis for the five livelihood capitals** ..... 69
**5.3 Factors affecting the adoption of livelihood strategies** ..... 71
**5.3.1 Adoption of Livelihood Strategies** ..... 71
**5.3.2 Livelihood outcomes** ..... 73
**5.4 Factors affecting the adoption of livelihood strategies: Empirical Analysis** ..... 75
**5.4.1 Multicollinearity test** ..... 75
**5.4.2 Factor analysis results** ..... 77
**5.4.3 PCA results for institutional factors** ..... 78
**5.4.4 Econometric results: Multinomial logistic regression** ..... 80
**5.4.5 Discussion of significant results** ..... 84
**5.5 Chapter summary** ..... 92

**CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS** ..... 93
**6.1 Introduction** ..... 93
**6.2 Summary** ..... 93
**6.3 Conclusion** ..... 95
**6.4 Recommendations** ..... 97
**6.5 Delimitations of the study and areas for further research** ..... 99
**REFERENCES** ..... 100
**APPENDIX A: ETHICAL CERTIFICATE LETTER** ..... 120

## LIST OF TABLES


Table 2.1: Summary of previous studies on livelihood status…. 11
Table 2.2: Summary of livelihood status per livelihood capital ..... 13
Table 3.1: Percentage of participants in each area ..... 29
Table 3.2: Number of participants and goods sold ..... 31
Table 3.3: Variables used for the Livelihood Assessment Index analysis ..... 35
Table 3.4: Variables' description in the MNL Regression Model page .....40
Table 4.1: Socio-economic characteristics of the informal food traders ..... 49
Table 4.2: Descriptive results for legal factors ..... 53
Table 4.3: Descriptive results for physical factors .....54
Table 4.4 Descriptive results for institutional factors ..... 56
Table 5.1: Human Capitals Responses ..... 60
Table 5.2: Financial Capitals Responses ..... 62
Table 5.3: Physical Capitals Responses ..... 63
Table 5.4: Natural Capitals Responses.....65
Table 5.5: Social Capitals Responses.....66
Table 5.6: Livelihood status of the informal food traders ..... 67
Table 5.7: Findings of the informal food traders' livelihood outcomes..... 73
Table 5.8: Findings of the Multicollinearity test.....76
Table 5.9: KMO and Bartlett's Test for Institutional Factors .....78
Table 5.10: Extraction of Institutional Factors ..... 79
Table 5.11: Varimax rotation results for institutional factors .....79
Table 5.12: MNL model results .....81
Table 5.13: Marginal effects findings….....83

## LIST OF FIGURES


Figure 2.1: Conceptual framework for livelihood analysis.....25

Figure 3.1: Map of Polokwane Local Municipality..... 28

Figure 5.1: Livelihood index values of informal food traders.....69

Figure 5.2: Livelihood strategies adopted by the informal food traders..... 72

## LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| COVID-19 | Coronavirus disease of 2019 |
| GDP | Gross Domestic Product |
| KMO | Kaiser-Meyer-Olkin Measure |
| LAI | Livelihood Assessment Index |
| LMI | Labour Market Intelligence |
| MNL | Multinomial Logistic |
| PCA | Principal Component Analysis |
| RDP | Reconstruction and Development programme |
| SEFA | Small Enterprise Finance Agency |
| SLF | Sustainable Livelihood Framework |
| SDF | Spatial Development Framework |
| SMME | Small, micro, and medium-sized enterprises |
| SRD | Social Relief of Distress |
| SPSS | Statistical Package for the Social Sciences |
| StatsSA | Statistics South Africa |
| VIF | Variance Inflation Factor |
| WHO | World Health Organisation |

# CHAPTER ONE: INTRODUCTION

## 1.1 Background

The informal food trade plays a key role in alleviating the problem of inadequate livelihoods, especially in developing countries (Takaza and Chitereka, 2022). Additionally, informal trade, which is a subset of the informal sector contributes considerably to the country's gross domestic product (GDP) (Ringson and Raniga, 2022), poverty reduction (Kabonga et al., 2023), provision of affordable goods and services (Mago, 2018), and the establishing a marketplace specifically for small-scale farmers (Ringson and Raniga, 2022). According to Ringson and Raniga (2022), the informal trade sector contributes 6% to South Africa's GDP, with approximately 18% of the working population employed in this sector. Informal trading, therefore, reduces the burden of unemployment on the government by generating independent wealth and offering self-emancipating opportunities not provided by the formal sector (Ringson and Raniga, 2022).

This underscores the importance of informal trade as a livelihood strategy commonly employed by most poor households (Kabonga et al., 2023; Mago, 2018). Despite its significance, the informal trading sector was overlooked when enforcing COVID-19 regulations (Rwafa-Ponela et al., 2022). Even though food was regarded as a vital service during South Africa's initial lockdown, informal traders were prohibited from operating as they were not deemed essential service providers (Wegerif, 2020). The restrictions limited informal traders' access to livelihood capitals (financial, human, natural, social, and physical) that they rely on to sustain their livelihoods (Simon and Khambule, 2022). As a result, their overall livelihood status was low. Informal traders, whose livelihoods depend on daily income, were the most affected by the imposed lockdown restrictions (Benhura and Magejo, 2020; Khambule, 2020).

Moreover, the lockdown restrictions resulted in informal traders facing difficulties, including income loss, depletion of savings, inability to meet living costs, and delays in paying employees (Khambule, 2022). Even before the pandemic, informal traders already faced issues like insufficient capitals, disputes with local authorities, entrepreneurial skills, trading spots, and availability of basic infrastructure (Uwitije, 2016). These pre-existing challenges worsened during the pandemic, making informal traders more vulnerable (Bamu and Marchiori, 2020). Informal traders are particularly

vulnerable due to their volatile income, lack of skills to pursue alternative livelihoods (Nguimkeu and Okou, 2020), and absence of formal social or legal protection (Hattar, 2023).

The informal sector also faces vulnerabilities such as theft, adverse weather, competition, hooliganism, pollution, and road extension (Parajuli, 2013). Consequently, some traders adopted both legal and illegal survival strategies for sustaining their livelihoods (Nyanga et al., 2020; Thulare and Moyo, 2021). For example, some sold illicit goods like alcohol from their homes, while others operated beyond curfews, leading to confiscation of their goods and cancellation of trading licences by the authorities (Thulare and Moyo, 2021). In response to criticism from civil society for neglecting the informal economy, the South African government permitted informal traders to resume operations in April 2020 (Skinner and Watson, 2021).

Initially, only informal traders selling fruits and vegetables were allowed to operate (Rwafa-Ponela et al., 2022). In May 2020, the permission was extended to include traders selling takeaway products, and by June 2020, on-site food consumption was also allowed. Despite the re-opening of the economy, informal traders continue to face risks of poverty and challenges in recovering their livelihoods from the long-term effects of the pandemic (Banu et al., 2023). The lack of comprehensive government support further compounds these difficulties (Khambule, 2022). Therefore, it is crucial to investigate the livelihood status of informal traders and the factors affecting their adoption of livelihood strategies post-COVID-19.

Several studies have assessed livelihood status (Arisanty et al., 2020; Haque, 2021) and livelihood strategies of informal traders (Makhetha, 2010; Mago, 2018; Ndhlovu and Mhlanga, 2023). However, most studies on livelihood status focused on small-scale farmers (Sarwer et al., 2016; Kasim, 2019; Ahmed and Mustapha, 2020), while research on informal traders has been conducted in Indonesia (Arisanty et al., 2020), Bangladesh (Haque, 2021), and Zimbabwe (Takaza and Chitereka, 2022). Additionally, studies on livelihood strategies did not examine factors affecting the adoption of livelihood strategies by informal food traders, particularly in the post-COVID-19 era (Makhetha, 2010; Mago, 2018; Ndhlovu and Mhlanga, 2023). Therefore, this study intends to shed light on the livelihood status of informal food

traders, and factors affecting their adoption of livelihood strategies. The results would assist the government and policymakers in developing policy interventions to support the sustainability and resilience of informal food traders, particularly in the post-COVID-19 context.

### 1.2 Problem statement

Informal food trading is a means of livelihood for households in developing countries and an essential element of national economies for numerous reasons, including offering goods and services at low prices and providing poor households with opportunities to earn an income (Parajuli, 2013; Etim and Daramola, 2020; Resnick et al., 2022; Rwafa-Ponela et al., 2022). Moreover, trading in the informal economy serves as a survival strategy for most underprivileged and historically oppressed individuals, such as refugees, the urban poor, and female household heads (Nyanga et al., 2020).

However, the income of informal food traders declined during the initial “harsh” lockdown periods, as they were restricted from conducting business and were not deemed "essential service providers" (Rwafa-Ponela et al., 2022). Due to the decline in income and the economic instability caused by COVID-19, informal traders struggled to survive and continue operating their enterprises in the post-COVID-19 era (Purwaningsih et al., 2022; De Villiers, 2022). Consequently, COVID-19 has significantly affected the livelihoods of informal food traders. As a result, these traders had to adjust or adopt new livelihood strategies to survive, bounce from the pandemic’s shocks, and improve their livelihoods (Zhou et al., 2021; Zhao et al., 2022). Hence, this study aims to examine the livelihood status of informal food traders and factors affecting their adoption of livelihood strategies in the post-COVID-19 pandemic era.

Numerous studies have investigated the livelihood status of various individuals in developing countries. However, most studies have focused on small-scale farmers (Sarwer et al., 2016; Kasim, 2019; Ahmed and Mustapha, 2020), while those focusing on informal traders were conducted in the context of other countries, notably Indonesia, Bangladesh, and Zimbabwe (Arisanty et al., 2020; Haque, 2021; Takaza and Chitereka, 2022). Consequently, such studies cannot provide evidence of how informal food traders in South Africa utilised their capitals assets (financial, human,

natural, social, and physical resources) to enhance their livelihoods post-COVID-19 pandemic. Hence, this study addresses this literature gap by investigating how informal food traders in South Africa used capitals assets at their disposal to recover and cope with the long-term effects of the COVID-19 pandemic and improve their livelihoods.

Additionally, numerous studies pertaining to informal trading in South Africa have focused on sustainable livelihood strategies, economic development, income generation, and the effects of COVID-19, rather than the informal traders' livelihood status and adoption of livelihood strategies (Makhetha, 2010; Mago, 2018; Majadibodu, 2016; Meso, 2017; Mathe and Ndlovu, 2021; Lefophane et al., 2022). While it is notable that some studies focused on livelihood strategies (Makhetha, 2010; Mago, 2018; Ndhlovu and Mhlanga, 2023), they did not examine factors affecting the adoption of livelihood strategies by informal food traders, particularly in the post-COVID-19 era.

Consequently, there is no empirical evidence on how informal food traders have been affected by various factors in their endeavours to adopt livelihood strategies to recover and cope with aftermath of the COVID-19 pandemic. Hence, this study addresses this literature gap by analysing how various socio-economic, legal, physical, and institutional factors supporting informal trading have affected the adoption of livelihood strategies by informal food traders. In so doing, this study identifies factors affecting the adoption of livelihood strategies, which would aid policymakers in developing policy strategies aimed at ensuring the sustainability and resilience of informal food traders in the post-COVID-19 era.

### 1.3 Rationale

Informal food trading is a key element of the broader food system, encompassing everyone from input suppliers and producers to final consumers (Wegerif, 2020). However, health precautions to combat the transmission of COVID-19 severely impacted the informal food system (Skinner and Watson, 2021). These significant disruptions have posed multiple challenges to the livelihoods of informal food traders (Mbatha and Mlambo, 2021). Additionally, many informal traders have had to adjust and modify their livelihood strategies in response to the economic disruptions caused by COVID-19 (Zhou et al., 2021). Hence, this study aims to examine the livelihood

status of informal food traders in Polokwane Local Municipality and the factors affecting their adoption of livelihood strategies in the post-COVID-19 pandemic era.

It is noted that previous studies on livelihood status did not focus on informal food traders in South Africa, particularly in the Polokwane Local Municipality, as they primarily examined small-scale farmers and informal traders in other countries (Ahmed and Mustapha, 2020; Haque, 2021; Takaza and Chitereka, 2022). Therefore, this study provides evidence of how informal food traders in Polokwane Local Municipality utilised their financial, human, natural, social, and physical capitals assets to enhance their livelihoods post-COVID-19 pandemic. In so doing, this study makes a valuable addition to the literature by exploring how these traders used available capitals assets to recover and cope with the aftermath of the pandemic and improve their livelihoods. The results would aid policymakers in formulating strategies to enhance the utilisation of livelihood capitals assets needed for recovery and resilience post-COVID-19 pandemic.

Additionally, it is noted that numerous studies on livelihood strategies did not examine the factors affecting the adoption of livelihood strategies by informal food traders (Makhetha, 2010; Mago, 2018; Ndhlovu and Mhlanga, 2023), particularly in Polokwane Local Municipality post-COVID-19. Therefore, this study provides evidence on how informal food traders in Polokwane Local Municipality have been affected by various factors in their efforts to adopt livelihood strategies to recover and cope with the pandemic's aftermath. By so doing, this study contributes to the literature by analysing how socio-economic, legal, physical, and institutional factors supporting informal trading have influenced the adoption of livelihood strategies by informal food traders. The results would assist policymakers in developing interventions to address factors inhibiting the informal food traders' adoption of livelihood strategies.

### 1.4 Aim of the study

To examine informal food traders' livelihood status and factors affecting the adoption of their livelihood strategies post-COVID-19 pandemic in selected areas of Polokwane Local Municipality.

### 1.5 Objectives of the study

i. To identify and describe the socio-economic characteristics of informal food traders in selected areas of Polokwane Local Municipality.

ii. To examine the livelihood status of informal food traders post-COVID-19 pandemic in selected areas of Polokwane Local Municipality.

iii. To determine the factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic in selected areas of Polokwane Local Municipality.

### 1.6 Hypotheses of the study

i. Access to human, financial, physical, social, and natural capitals resources does not improve the livelihood status of the informal food traders post-COVID-19 in the selected areas of Polokwane Local Municipality.

ii. Socio-economic, legal, physical, and institutional factors do not significantly affect the adoption of livelihood strategies by the informal food traders post-COVID-19 in the selected areas of Polokwane Local Municipality.

### 1.7 Outline of the study

This study is structured into five chapters, which are outlined as follows:

Chapter one introduces the study by discussing the significance of the informal economy and how COVID-19 have affected the livelihoods of informal traders. It also outlines the problem statement, rationale, objectives, and hypotheses of the study.

Chapter two reviews the literature, defining key concepts, providing an overview of the informal economy, discussing the conceptual framework for livelihood analysis, and presenting related literature on livelihood status and strategies.

Chapter three explains the research methodology, the study area and the data collection and analysis methods, and the variables used in the analysis.

Chapter four presents the results of the descriptive analysis.

Chapter five reports the findings from the Livelihood Assessment Index, the Multinomial Logit (MNL) analysis, and the marginal effects analysis.

Chapter six provides findings summary, conclusions, recommendations, and suggestions for future investigations.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

This chapter explains the key concepts underlying this study, namely, informal food traders, livelihood, livelihood status, livelihood strategies, and the post-COVID-19 pandemic. A detailed overview of the informal economy, including the definition, challenges, and characteristics of informal traders, is also provided. The chapter further discusses the support programmes introduced by the government before and during COVID-19 to assist small and informal businesses, including informal food traders. Moreover, the chapter reviews existing literature on livelihood status and the adoption of livelihood strategies, highlighting key gaps in both areas. Finally, it discusses the conceptual framework for livelihood analysis to assist in assessing the livelihood status and strategies employed by informal food traders during the post-COVID-19 period.

## 2.2 Definition of Key Concepts

The key concepts are defined as follows:

a) **Informal food traders:** Individuals who run unregistered businesses (Nyanga et al., 2020); they sell a wide range of food commodities, including grains, prepared meals, beverages, fruits, and vegetables, among others (Makaye and Munhande, 2008). In this study, informal food traders are defined as street vendors who are involved in trading snacks, fruits, vegetables, and cooked/prepared food.

b) **Livelihood:** Livelihood refers to access (facilitated by institutions and social relationships), abilities, assets (human, financial, natural, physical, and social), and activities required collectively to enhance the household's well-being. A livelihood is perceived to be sustainable if it can recover and withstand shocks and stresses and maintain or advance its assets and capacities in the present and future, without compromising natural resources (Chambers and Conway, 1992).

c) **Livelihood status:** The degree to which people can sustainably obtain resources and money to achieve their necessities (Ahmed and Mustapha, 2020). Multiple scholars described livelihood status as the individuals' ability to access livelihood capitals (Ali et al., 2008; Kabir et al., 2012; Rahman et al., 2021; Tikadar et al.,

2022). Therefore, within the context of this study, the livelihood status is defined as the ability of informal food traders to access the five livelihood capitals, namely, financial, human, physical, social, and natural capitals.

d) **Livelihood strategies:** The combination of sources of income that households or individuals engage in to maintain or enhance their livelihood (Nielsen et al., 2013). According to Astuti et al. (2021), households or individuals use and combine various available resources, or livelihood assets, to develop their livelihood strategies. Within the context of this study, livelihood strategies are defined as the diversification of income sources that informal food traders have adopted to enhance their livelihoods post-COVID-19 pandemic. This includes food trading only, food trading and non-food trading, food trading and non-trading, and a combination of food trading, non-food trading, and non-trading.

e) **Post-COVID-19:** COVID-19, triggered by the SARS-CoV-2 virus, was first reported on December 31, 2019, in Wuhan, China (Akriti et al., 2021; WHO, 2023). South Africa reported its initial case on March 5, 2020 (Stiegler and Bouchard, 2020). Owing to its rapid spread, on March 15, 2020, the South African government proclaimed a National State of Disaster, to protect citizens and manage the crisis (South African Government, 2020). The government also implemented lockdowns with five alert levels, adjusting them from March 2020 to April 2022 on the basis of social and economic factors (South African Government, 2024). A vaccine rollout began in 2021 (South African Government, 2021), and the National State of Disaster was lifted on April 5, 2022 (South African Government, 2022). Therefore, within the context of this study, "post-COVID-19" refers to the period after the lockdown restrictions were lifted, vaccines were administered, and no new cases were reported.

## 2.3 Informal economy: overview, definition, characteristics, challenges, and support programmes

According to the dual labour market theory, there are two distinct sectors of the labour market: the informal and formal sectors (Uys and Blaauw, 2006). The informal economy is broadly described as a component of the economy that are not governed

by regulatory frameworks (Khambule, 2020). According to Nieman and Nieuwenhuizen (2009), the informal sector is defined by minimal entry barriers, reliance on locally available raw materials, labour-intensive processes, small-scale production, employment of skills often absent from formal education systems, and functioning within unregulated, competitive markets. Indecent occupations, unfavourable working conditions, and poor wages are more common in the informal sector than in the formal sector (Benhura and Magejo, 2020).

Informal workers face several challenges, including lack of funding, inadequate infrastructure, and exploitation by local government officials (Kabonga et al., 2021). Additionally, informal businesses often suffer from insufficient government and municipal support, difficulty obtaining finance, and limited access to electricity (Legodi and Kanjere, 2015). Zogli et al. (2021) also highlight difficulties such as restricted water access, sanitary resources, and business space for trading and storage. Despite these challenges, the informal economy significantly contributes to job creation, income generation, and the reduction of poverty and inequality (StatsSA, 2019).

The informal sector is a vital income source for the poor (Ringson and Raniga, 2022). However, not all informal workers come from low-income families, and not all formal workers are from wealthy families (Chen, 2023). Still, a higher proportion of informal workers tend to come from low-income families across both developed and developing countries. This study defines the informal economy in line with Statistics South Africa (2019) as economic activities falling outside the scope of formal regulations, either legally or practically. This includes home-based enterprises, casual and contract labourers, domestic workers, street vendors without licences, and farm labourers (Khumalo et al., 2019).

In 2014, the Department of Small Business Development was launched to establish an environment of laws and policies facilitating the growth and sustainability of cooperatives, small, micro, and medium-sized enterprises (SMMEs), and entrepreneurship. The department created various programmes, including the Township and Rural Entrepreneurship Programme and the Informal and Micro Enterprises Development Programme, to support informal and small businesses. These programmes aimed to formalise informal businesses and provide infrastructural

and financial support, either through grants, loans, or a combination of both (Department of Small Business Development, 2024).

During the COVID-19 pandemic, lockdown measures included the shutdown of enterprises that were not essential, leaving households to shop only for essential groceries or medical needs (Kruger et al., 2021). Although both formal and informal businesses suffered during the pandemic, the informal sector was hit harder due to lack of access to savings, medical care, and government financial support (Labour Market Intelligence, 2022). Informal workers struggled the most during the strictest lockdown measures (March-April 2020) when they were unable to conduct their businesses (Khambule, 2022). As a result, most informal workers were left without income sources (Thulare and Moyo, 2021).

The government adjusted pre-existing support programmes to tackle the issues arising from the pandemic. However, these programmes initially targeted formal businesses, leaving informal workers unsupported (Department of Small Business Development, 2021). Later, informal traders were included in these government programmes, which provided financial support delivered through grants, loans, food bundles, and vouchers (Khambule, 2020; Thulare and Moyo, 2021).

Among the pandemic support programmes was the R500 billion stimulus package, part of which was allocated to loans for informal and small businesses. Various support packages were created, such as the Debt Relief Finance Scheme and the Business Growth/Resilience Facility, offering financial relief to SMMEs involved in local food production (Lefophane et al., 2022). Despite these efforts, most informal traders did not receive financial assistance due to specific requirements for accessing benefits (Khambule, 2022). The R350 COVID-19 relief grant was the only assistance received by most informal workers (Khambule, 2022).

The review of the informal economy, challenges faced by informal traders, and the implementation of support programmes before and during the pandemic highlight the significant impact on informal traders' livelihood status and strategies. This underscores the need for more accommodating intervention plans (Ndhlovu and Mhlanga, 2023). Consequently, this study focuses on examining the livelihood status of informal traders and factors affecting the livelihood strategies they adopted post-

COVID-19. The next section reviews previous studies on livelihood status, highlighting key findings and identifying gaps in the literature.

### 2.4 Review of literature on the livelihood status

Several studies have measured the livelihood status of individuals in developing countries. This review focuses primarily on small-scale farmers due to a dearth of studies on the livelihood status of informal traders. Therefore, a review was conducted to highlight key findings from these studies and to identify existing gaps in the literature. Table 2.1 presents a summary of previous studies on livelihood status.

**Table 2.1 Summary of previous studies on livelihood status**

| Author(s) | Methods (sample, study area, sampling, assessment tool) | Findings |
|---|---|---|
| Datta et al. (2014) | 140 tribal farmers; Gomati district of Tripura state, India; Purposive sampling; Livelihood Assessment (Likert scale) | Most of the tribal farmers had a low livelihood status (39.3%), with 36.4% falling into the medium category and 24.3% having a high livelihood status. |
| Sarwer et al. (2016) | 50 fish farmers, Noakhali district, Bangladesh; Stratified sampling; Livelihood Assessment (descriptive analysis) | The fish farmer's livelihood status was determined to be favourable, with 94% of rural fish farmers demonstrating that fish farming has enhanced their livelihood. |
| Ahmed and Mustapha (2020) | 387 smallholder cowpea farmers; Kano State, Nigeria; multistage sampling; Livelihood Security Index | The majority (50.9%) of cowpea smallholder farmers in local government areas exhibited low livelihood status. |
| Arisanty et al. (2020) | 50 women traders; Lok Baintan Floating Market, Indonesia; Purposive sampling; Livelihood Assessment Index | The livelihood status of women traders was found to be moderate. |

| | | |
|---|---|---|
| Ahmed et al. (2021) | Floating fishermen; Chandpur and Laxmipur district, Bangladesh; Two-stage sampling procedure; Livelihood Assessment Index | Floating fishermen's livelihood status was low, with an overall LAI value of 0.337. |
| Haque (2021) | 122 street vendors; Dhaka city, Bangladesh; Simple random sampling; Livelihood Assessment Index | The overall LAI value was 0.37 before COVID-19, and 0.35 during and post-COVID-19. |
| Rahman et al. (2021) | 250 shrimp farmers; Two coastal districts of Bangladesh (namely, Khulna and Satkhira areas); Random sampling, Livelihood Assessment Index | The overall livelihood index for shrimp farmers declined from 0.53 before COVID-19 to 0.43 during COVID-19. |
| Tikadar et al. (2022) | 120 fishermen; North-eastern floodplains of Bangladesh; Proportional random sampling (Hakaluki Haor and Tanguar Haor); Livelihood Assessment Index | Fishermen in the study areas exhibited low livelihood status, with an overall LAI value of 0.426. |

Source: Compiled by author (2024)

The key findings from previous studies on overall livelihood status can be abstracted in two points, as follows. First, the LAI is the general tool used to measure the livelihood status of individuals. This is due to its ability to measure the extent to which vulnerable individuals can sustainably access and use five capitals assets, namely, financial, human, physical, social, and natural capitals, to cope with shocks and meet their needs (Ahmed and Mustapha, 2020; Rahman et al., 2021; Tikadar et al., 2022). Hence, it has been used in the literature to evaluate the livelihood status of small-scale farmers (Ahmed and Mustapha, 2020; Rahman et al., 2021; Tikadar et al., 2022) and street vendors, including women traders (Arisanty et al., 2020; Haque, 2021).

Second, studies conducted both outside and within COVID-19 settings have reveal low livelihood statuses among small-scale farmers (Rahman et al., 2021; Tikadar et

al., 2022) and street vendors, including women traders (Arisanty et al., 2020; Haque, 2021). Exceptions include studies by Sarwer et al. (2016) and Ahmed and Mustapha (2020). Specifically, Sarwer et al. (2016) reported that 94% of rural fish farmers in Bangladesh reported improved livelihood status due to fish farming. Additionally, Ahmed and Mustapha (2020) reported that the majority (50.9%) of cowpea smallholder farmers in Nigeria exhibited medium livelihood status. Studies conducted outside the COVID-19 setting have linked low livelihood status to the socioeconomic conditions of the target population. In contrast, studies within the COVID-19 setting attributed low livelihood status to lockdown restrictions that limited movement, disrupted economic activities, and negatively impacted livelihoods (Haque, 2021; Rahman et al., 2021).

A review of previous studies on livelihood status per livelihood capitals was also conducted to highlight the main findings and literature gaps. Table 2.2 provides a summary of previous findings on livelihood status per livelihood capitals.

**Table 2.2: Summary of livelihood status per livelihood capitals**

| Research methods | Human capitals | Physical capitals | Financial capitals | Social capitals | Natural capitals |
|---|---|---|---|---|---|
| **Arisanty et al. (2020)** | | | | | |
| 50 women traders; Lok Baintan Floating Market, Indonesia; Purposive sampling; Sustainable Livelihood Approach (SLA) | Human capitals assets were moderate, with an SLA value of 62%. | Physical capitals assets were the highest, with an SLA value of 73.33%. | Financial capitals assets were the lowest, with an SLA value of 50.00%. | Social capitals assets were low, with an SLA value of 50%. | Natural capitals assets were medium, with an SLA value of 52%. |
| **Ahmed et al. (2021)** | | | | | |
| Floating fishermen; Chandpur and Laxmipur district, Bangladesh; Two-stage sampling; Livelihood Assessment Index | Human capitals was the low, but second highest, with an LAI value of 0.419 | Physical capitals was the second lowest, with an LAI value of 0.268 | Financial capitals was the lowest, with an LAI value of 0.075. | Social capitals was the highest, with an LAI value of 0.624. | Natural capitals was low, but third highest, with an LAI value of 0.311. |

| | | | | | |
|---|---|---|---|---|---|
| **Haque (2021)** | | | | | |
| 122 street vendors; Dhaka city, Bangladesh; simple random sampling; Livelihood Assessment Index | Human capitals index declined from 0.84 (before COVID-19) to 0.67 (during COVID-19), but rose back to 0.84 (post-COVID-19). | Physical capitals was the highest; however, it decreased from 0.53 (before COVID-19) to 0.52 (during COVID-19), but slightly rose back to 0.53 (post-COVID-19) | The financial capitals index was the lowest. It declined from 0.11 (before COVID-19) to 0.08 (during COVID-19), and further declined to 0.04 (post-COVID-19). | The social capitals index rose from 0.09 before the COVID-19 crisis to 0.11 during the pandemic and declined back to 0.09 post the pandemic | The natural capitals index remained constant at 0.91 before, during and post-COVID-19 pandemic. |
| **Rahman et al. (2021)** | | | | | |
| 250 shrimp farmers; Two coastal districts of Bangladesh (namely, Khulna and Satkhira areas); Random sampling, Livelihood Assessment Index | The human capitals index declined from 0.70 before COVID-19 to 0.62 during COVID-19. | Physical capitals was the highest; however, it decreased slightly from 0.61 before COVID-19 to 0.60 during COVID-19. | The financial capitals index decreased from 0.39 before COVID-19 to 0.22 during COVID-19. | Social capitals was the lowest. It declined from 0.36 before COVID-19 to 0.18 during COVID-19. | The natural capitals index declined from 0.57 before COVID-19 to 0.53 during COVID-19. |
| **Tikadar et al. (2022)** | | | | | |
| 120 fishermen; North-eastern floodplains of Bangladesh; Proportional random sampling (Hakaluki Haor and Tanguar Haor); Livelihood | Human capitals was the second lowest, after financial capitals, with an LAI value of 0.311. | Physical capitals ranked the highest, with an LAI value of 0.580. | Financial capitals ranked the lowest, with an LAI value of 0.154. | Social capitals was moderate, with an LAI value of 0.523. | Natural was moderate, with an LAI of 0.559. |

| | | | | | |
|---|---|---|---|---|---|
| Assessment Index | | | | | |

Source: Compiled by author (2024)

The key findings from previous studies on livelihood status per livelihood capitals can be summarised in three points, as follows. The first point is that across all studies, physical capitals consistently ranked the highest among the five livelihood capitals assets (Arisanty et al., 2020; Haque, 2021; Rahman et al., 2021; Tikadar et al., 2022). This implies that despite their low livelihood status, the small-scale farmers and street vendors in these studies had access to the basic infrastructure and physical goods needed to support their livelihoods. In other words, although COVID-19 has led to a decline in the livelihood status of street vendors (Haque, 2021) and shrimp farmers (Rahman et al., 2021) in Bangladesh, they accessed and used basic infrastructure and physical goods to support their livelihoods during the pandemic. However, in a study by Ahmed et al. (2021), physical capitals was the second lowest due to limited access to and use of fishing gear, nets, and other equipment (dry racks, space, and scissors).

The second point is that financial capitals consistently ranked the lowest among the five livelihood capitals assets across the studies (Arisanty et al., 2020; Ahmed et al., 2021; Haque, 2021; Rahman et al., 2021; Tikadar et al., 2022). This implies that small-scale farmers and street vendors in previous studies had limited access to the financial resources required to deal with shocks. Additionally, the low ranking of financial capitals is associated with COVID-19 lockdown restrictions, which restricted movements and street vending activities, resulting in reduced foot traffic and consumer spending and, subsequently, a decline in sales and income. Additionally, loss of savings and limited access to formal loans were some of the drivers of low financial capitals status during the COVID-19 pandemic (Haque, 2021; Khambule, 2022).

The third point is that there was a decline in most of the livelihood capitals indices, resulting in low overall livelihood status for small-scale farmers and street vendors. For example, Rahman et al. (2021) report that there is a decline in the human, physical, financial, social and natural capitals status of shrimp farmers due to lockdown restrictions, which restricted movement and disrupted economic activities, resulting in overall low livelihood status. Haque (2021) also reports that COVID-19 led to a decline in the human, physical and capitals status of street vendors in Bangladesh. However,

there was an increase in social capitals due to an increase in support from relatives, the use of loans from relatives, connections with community leaders, and engagement with societal organisations. Moreover, natural capitals status has remained the same because of the constant distance to safe drinking water, continuous safe drinking water access and constant land ownership.

Two literature gaps have been identified from the review of previous studies on livelihood status. Firstly, most of the studies on livelihood status have focused on small-scale farmers (Kabir et al., 2012; Datta et al., 2014; Sarwer et al., 2016; Ahmed and Mustapha, 2020; Arisanty et al., 2020; Rahman et al., 2021; Tikadar et al., 2022), with only two studies focusing on informal traders (Arisanty et al., 2020; Haque, 2021). Secondly, studies that focused on informal traders were conducted outside of South Africa (Arisanty et al., 2020; Haque, 2021). As a result, the reviewed studies on livelihood status do not provide evidence of the livelihood status of informal food traders in South Africa, particularly in the Polokwane Local Municipality. This study, therefore, contributes to the existing body of literature by examining the livelihood status of informal food traders post-COVID-19 pandemic. The findings aim to assist the government in better-allocating resources to improve informal food traders' access to the capitals assets needed for recovery and sustainability post-COVID-19. The next section presents a review of national and international literature on factors affecting the adoption of livelihood strategies to highlight areas of commonality.

## 2.5 Review of national and international literature on factors affecting the adoption of livelihood strategies

This section reviews national and international literature on factors affecting the adoption of livelihood strategies. The review covers both national and international studies, with a particular focus on African studies, to provide insights into the South African and broader African perspectives on the complexities involved in the adoption of livelihood strategies. Moreover, the review includes livelihood strategies in the context of farming due to the limited studies on the adoption of livelihood strategies by informal traders. This inclusion is essential as farming and informal trading share common characteristics in resource-constrained environments, particularly in rural and peri-urban settings. Additionally, both sectors require diversification of income sources and face similar socio-economic challenges, making the findings from farming-related studies relevant to understanding informal traders' livelihood

strategies. This approach helps fill the gap in the literature and strengthens the analysis of factors affecting the livelihood strategies of informal traders, which is a key focus of this study.

Various socio-economic, legal, physical, and institutional factors have been shown to influence the livelihood strategies adopted by individuals. The literature explores how these factors shape the decisions of individuals in diversifying their income sources, especially in the context of the post-COVID-19 era, where individuals are seeking strategies to sustain their livelihoods amidst challenges. Thus, the review outlines previous findings on how each factor under study has impacted the choice to adopt different livelihood strategies, as detailed in the next section.

### 2.5.1 Gender

The adoption of livelihood strategies can be significantly influenced by gender, particularly for women. Cultural norms often require women to care for their families, manage household duties, and fulfil other social obligations, which can limit their ability to pursue certain livelihood strategies (Emeru et al., 2022). For instance, Gecho et al. (2014) found that gender had a significant and negative impact on the likelihood of rural households in Ethiopia diversifying into non-farm activities. This was attributed to traditional cultural practices that reinforce gender inequality, limiting opportunities for female-headed households to engage in non-farm activities. Additionally, the migration of women to cities to pursue non-agricultural livelihoods is often culturally discouraged and viewed negatively. Similar studies have also found that being female negatively affects livelihood diversification (Eneyew and Bekele, 2012; Bekele and Rajan, 2017; Doyo et al., 2018; Emeru et al., 2022).

Conversely, being male positively and significantly influences the diversification of livelihood, suggesting that men are more inclined to engage in a range of economic activities. In Africa, men are traditionally viewed as family heads, which pressures them to participate in non-farm revenue-generating activities. This is supported by Workie (2023), who found that male farmers in Ethiopia were more likely to diversify into on-farm and off-farm activities, and a combination of on-farm, off-farm, and non-farm revenue-generating activities.

### 2.5.2 Age

The adoption of livelihood strategies can be influenced by age. Younger individuals are often more willing to explore new livelihood strategies, whereas older people may hesitate to engage in new economic activities. Bekele and Rajan (2017) found that the age of the household head negatively impacted farmers' decisions in Ethiopia to diversify into non-farm, off-farm, and a combination of non-farm, off-farm, and on-farm economic activities. This suggests that all else being equal, younger rural farmers may be more inclined to pursue non-farm activities alongside farming.

Similarly, Yuya and Daba (2018) argued that older farmers in Ethiopia, being more experienced and established in agricultural production, tend to resist innovative concepts and information, making them less likely to engage in novel diversification activities. In contrast, younger individuals are better at diversifying their livelihood strategies, incorporating both off-farm and on-farm activities (Workie, 2023). This is attributed to their energy, enthusiasm, and involvement in various revenue-generating activities on the farm.

### 2.5.3 Marital status

The adoption of livelihood strategies by household heads is significantly influenced by their marital status (Michael et al., 2021). They argue that, compared to single household heads, married individuals are more inclined to adopt a diverse range of livelihood strategies. This is likely because married people typically have larger households, which may compel them to diversify their income sources to support their families. Similarly, Amevenku et al. (2019) found that married individuals in Ghana often face multiple responsibilities, such as bill-paying and childcare, leading household heads to adopt various strategies for sustaining livelihoods.

### 2.5.4 Educational level

The adoption of livelihood strategies can be significantly affected by an individual's level of education. Higher education equips people with a variety of skills and knowledge, enabling them to pursue more diverse income sources (Kuuwill et al., 2022). Abiodun et al. (2019) found that education level positively and significantly influences the adoption of livelihood strategies, suggesting that the likelihood of a

household head adopting multiple income sources increases with their education level. A more educated household head is generally more capable of managing diverse income streams to improve their household's livelihood.

Hoq et al. (2022) further support this, showing that education positively influences the adoption of livelihood strategies. In their study, they found that education enabled households in Bangladesh to diversify their livelihoods in response to natural hazards. As a result, households with higher education levels were more inclined to diversify into crop farming and off-farm initiatives compared to those with lower education levels.

### 2.5.5 Income and other sources of income

Individuals' decisions to adopt certain livelihood strategies can be influenced by their income and its sources. Duressa (2021) found that Ethiopian households' choices to adopt "on-farm and non-farm" or "combinations of on-farm, non-farm, and off-farm" livelihood strategies are positively and significantly influenced by total income. This is because households with higher incomes have more resources and opportunities to pursue diverse livelihood strategies compared to those with lower incomes (Bekele and Rajan, 2017). Gebissa and Geremew (2022) also noted that households with higher monthly incomes can easily meet consumption needs while supporting their livelihoods through additional strategies.

Similarly, Bekele and Rajan (2017) discovered that rural Ethiopian households with higher incomes are more inclined to diversify into non-farm and off-farm strategies. This is attributed to the ability of higher-income households to address financial barriers and engage in a range of economic activities. Hoq et al. (2022) also found a positive correlation between income and the adoption of livelihood strategies, indicating that an increase in annual income leads to a higher likelihood of adopting "crop and poultry farming" and "crop and off-farm" strategies.

### 2.5.6 Breadwinners

Research on the influence of the "breadwinners" variable on the adoption of livelihood strategies is limited. However, informal traders who are breadwinners are expected to adopt multiple livelihood strategies to sustain their livelihoods in the post-COVID-19

era. This is due to financial constraints while supporting their families (Chesley, 2017; Fenner and Banwell, 2019). Consequently, they may be motivated to engage in various economic activities to generate additional income and meet their families' needs (Nene et al., 2021).

### 2.5.7 Nationality

The citizenship status of informal food traders can negatively impact their adoption of livelihood strategies. Sasiprapha (2010) found that non-citizens in Thailand were denied access to various opportunities, including eligibility for certain government programmes, and lacked access to essential assets and necessities, such as housing, vehicles, land ownership, and formal employment. These restrictions limited their ability to engage in economic activities beyond informal trading.

### 2.5.8 Mode of transport

According to Balense and Debebe (2019), a significant correlation exists between the adoption of livelihood strategies and access to transportation. They contend that transportation enhances the marketing of goods and services, making it more probable for households with transport access to diversify into farming, small-scale trading, and off-farm activities. Likewise, Yuya and Daba (2018) discovered that access to transportation has a positive and substantial effect on the integration of on-farm and off-farm activities as a livelihood strategy. They emphasised that various transportation methods, including pack animals and vehicles, contribute to increased crop yields and production, enabling Ethiopian farmers to enhance food production and generate extra income. This additional income, in turn, facilitates farmers' diversification into both on-farm and off-farm livelihood strategies.

### 2.5.9 Marketplace for goods and trading area

Marketplaces and their trading areas can positively influence the adoption of informal food traders' livelihood strategies. Informal traders operating closer to marketplaces are more likely to adopt multiple livelihood strategies than those farther away. Emeru et al. (2022) support this, finding a positive correlation between market access and livelihood strategy diversification. Their research indicated that Ethiopian households situated nearer to markets were more inclined to diversify into combined on-farm and non-farm activities, off-farm and non-farm activities, and on-farm, off-farm, and non-

farm activities. This is because proximity to marketplaces provides quicker and easier access, facilitating the transportation of inputs and outputs.

### 2.5.10 Experience

Trading experience can negatively influence informal food traders' choice to adopt multiple livelihood strategies. Duguma et al. (2023) support this, finding a negative correlation between livelihood strategy adoption and farming experience. Their analysis showed that at the 10% probability level, the likelihood of selecting multiple livelihood strategies is negatively and significantly correlated with farming experience. This suggests that in Ethiopia, farmers with more experience, who are typically older, tend to make fewer efforts to diversify their income sources.

### 2.5.11 Source of capitals

There are limited studies that have specifically investigated the influence of the source of capitals on the adoption of livelihood strategies. Nevertheless, this study expects the source of capitals to have a negative effect on the livelihood strategies employed by informal food traders in the aftermath of COVID-19. This aligns with Mohammed (2014), who argued that traders in Nigeria who used their savings to start businesses, due to limited access to external funds, did not significantly improve their businesses. This could be due to a lack of the necessary capitals to diversify their income sources and increase their chances of escaping poverty (Mago, 2018).

### 2.5.12 Trading hours and trading status

The livelihood strategies that informal food traders may adopt to recover from the aftermath of COVID-19 can be significantly influenced by their trading hours and trading status. As Khumalo (2015) noted, informal traders in South Africa worked long hours, limiting their ability to diversify their trading activities beyond selling food and non-food items. Full-time informal traders, in particular, lacked the time to engage in other economic activities outside of informal trading, restricting their opportunities for livelihood diversification.

### 2.5.13 Government support and type of government support

Government support, and the type of support provided to informal food traders, can positively influence their decision to adopt livelihood strategies. Zhong et al. (2022)

found that farmers and herders in China that benefited from government aid, such as employment assistance, medical care, and social security, were more likely to expand their livelihood strategies by participating in non-farm economic activities. This suggests that government support can create a stable foundation, encouraging traders to explore additional revenue-generating opportunities.

### 2.5.14 Social grant and type of social grant

Social grants and the types of social grants received by informal food traders can positively influence the adoption of their livelihood strategies. Patel et al. (2023) highlight that social grant recipients in South Africa are motivated to engage in various livelihood strategies because grant funds are insufficient to meet their needs. Consequently, these recipients often pursue multiple strategies, such as informal jobs and income-generating entrepreneurial activities, to improve their livelihoods. Similarly, Makondo (2022) found that social grants increased the total household income of poor South African households, enhancing their potential for involvement in alternative revenue-generating activities.

### 2.5.15 Shelter and storage facilities

Access to shelter and storage facilities can positively influence informal food traders' decisions to pursue a variety of livelihood strategies. Mukwedeya and Mudhara (2023) found that access to physical infrastructure enabled young farmers in Zimbabwe to pursue diverse economic strategies, such as remittances, entrepreneurial initiatives and cross-border operations. Access to shelter and storage substantially lowers marketing expenses of agricultural products, thereby increasing farm revenues and supporting diversification into other income-generating activities.

### 2.5.16 Trading contracts and type of contracts

Contracts with suppliers and the type of contract can positively influence informal traders' adoption of livelihood strategies. This assumption is supported by Ruml et al. (2022), who found that farmers in Ghana with marketing contracts not only allocated their households' labour to farming activities but also participated in off-farm activities to increase their overall income. This suggests that having a contract provides stability, allowing traders to diversify their livelihood strategies.

### 2.5.17 Municipal policy, trading licence, impoundment of goods, reasons for impoundment

Mago (2018) found that informal trade as a livelihood strategy (selling food and non-food goods) in Mount Frere, South Africa, was primarily constrained by changing structures and processes, such as municipal bylaws. The study reveal that many informal traders struggled to pay their monthly trading licence fees, leading to municipal authorities confiscating their goods, which hindered their ability to diversify income sources. Lefophane et al. (2022) further noted that owning a trading stall can enhance income potential by providing a stable location and helping traders build a regular customer base. This suggests that owning a stall enables informal food traders to engage in multiple livelihood strategies.

Having trading licences or permits is critical for security, economic stability, and overall well-being, as traders without these licences are more vulnerable to harassment and eviction by municipal authorities (Lefophane et al., 2022). Traders with licences are more likely to adopt multiple livelihood strategies since they operate in a more secure and stable economic environment. However, some traders operate in privately owned trading areas, outside municipal jurisdiction, and are also more likely to diversify their strategies due to the security and stability provided by lease agreements with private property owners (Lefophane et al., 2022).

### 2.5.18 Supply shortage

Although research on the influence of the 'supply shortage of goods' on the adoption of livelihood strategies is limited, this variable was expected to positively affect informal food traders' decisions to adopt multiple livelihood strategies. This prediction is consistent with Duma and Utete (2023), who observed that a halt in the supply of goods not only reduces the availability of scarce commodities in the market but also negatively impacts the income of informal traders. Consequently, traders are likely to seek additional income sources to sustain their livelihoods.

Overall, the review of national and international literature reveals several commonalities and gaps in understanding the factors affecting the adoption of livelihood strategies, particularly in the context of informal food traders. A key similarity across studies is the recognition of various socio-economic, legal, physical, and

institutional factors, such as gender, age, income, education, access to transportation, and government support, as significant determinants of livelihood strategy adoption. Additionally, factors like market access, trading contracts, and storage facilities play critical roles in facilitating or constraining traders' ability to diversify their income sources. This is evident from research emphasising the importance of infrastructure and resource access in improving livelihood outcomes.

However, notable gaps exist in the literature concerning informal food traders, particularly in South Africa. While several studies have explored livelihood diversification in farming and other sectors, research specific to the informal food trade remains limited. Most of the insights about informal traders are drawn from studies on broader themes like farming or informal trade in different contexts, highlighting the need for more targeted research in this area. For example, while much has been studied about the effects of gender and education on livelihood strategies, there is less focus on variables like trading hours, source of capitals, breadwinners, and supply shortages, which are particularly relevant to the post-COVID-19 recovery phase for informal food traders.

The current study on the livelihood strategies adopted by informal food traders in Polokwane Local Municipality, South Africa, aims to fill these gaps by examining factors that are underexplored in existing literature, such as the influence of trading licences, municipal policies, and supply shortages. By filling these gaps, the study enhances a broader understanding of the complexities involved in livelihood diversification among informal food traders and provides valuable insights for policy interventions aimed at addressing factors that inhibit the adoption of livelihood strategies.

### 2.6 Conceptual framework for livelihood analysis

The COVID-19 pandemic has greatly affected the informal food traders, particularly in their ability to sustain and diversify their livelihood strategies. To understand the dynamics influencing their recovery and adaptation, this study adopts a livelihood conceptual framework developed by Babulo et al. (2008), which was originally adapted from Carney (1998). This framework presents a systematic approach to examine the livelihood status and strategies employed by informal food traders in response to the

issues arising from the pandemic. The framework comprises five key components: vulnerability context, processes and structures, livelihood assets, livelihood strategies, and livelihood outcomes. These components are interrelated, with each element influencing the others, as exemplified by the shock of COVID-19 and the resulting government policies that shaped traders' access to assets and their choice of strategies. Figure 2.1 illustrates a schematic representation of the framework.

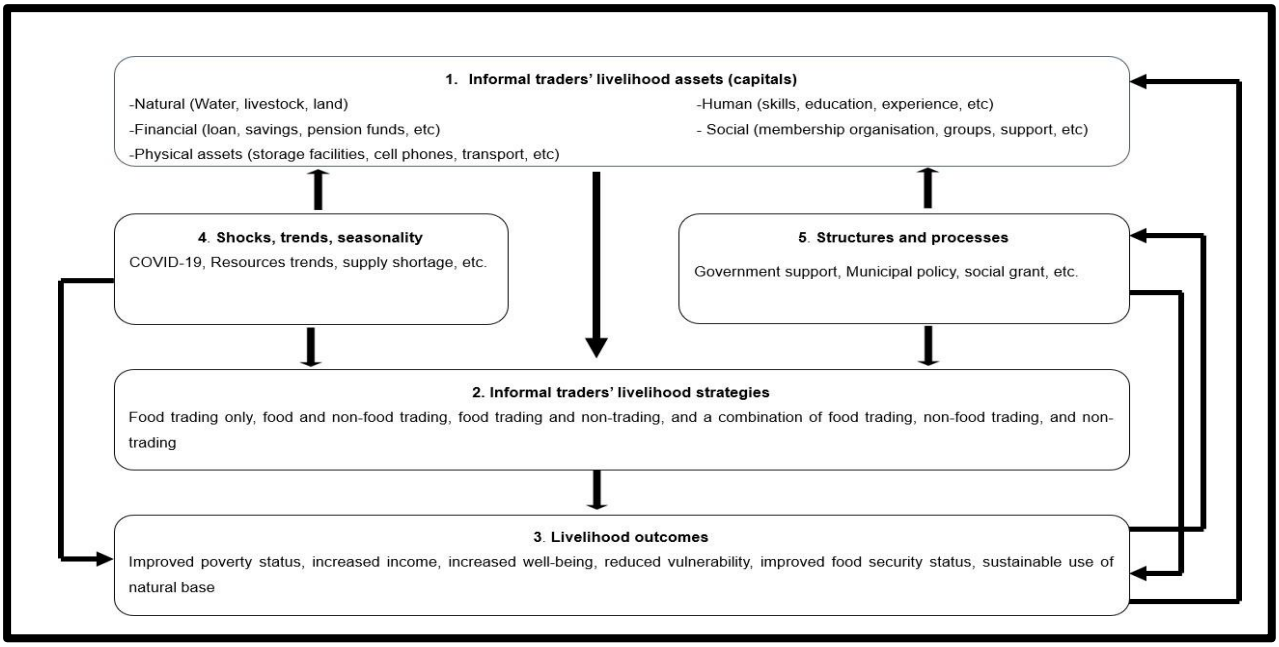


**Figure 2.1: Conceptual framework for livelihood analysis**

Source: Adapted from Babulo et al. (2008)

This section explores three critical components of the framework, livelihood assets, livelihood strategies, and livelihood outcomes, highlighting how they were affected by COVID-19 and the structures and processes that emerged in its wake.

### a) Livelihood assets

Livelihood assets, also known as livelihood capitals, include the natural, human, physical, social, and financial resources that people can access and utilise to enhance their livelihoods (Babulo et al., 2008). These assets form the foundation of the livelihood framework, enabling informal traders to combine and use them to adopt various strategies to cope with the aftermath of COVID-19. For instance, a study by Hendratmi et al. (2022) reveal that households in China with greater access to natural, physical, and social assets tended to engage in agriculture-dependent livelihoods, while those with better access to human and financial assets opted for non-agricultural

activities. In the context of informal traders, these assets are essential in shaping their capacity to recover and diversify income sources post-COVID-19.

**b) Livelihood strategies**

Livelihood strategies denote a diverse combination of income-generating activities that informal food traders engage in to maintain or improve their livelihoods (Nielsen et al., 2013). In this study, the livelihood strategies adopted by informal traders include food trading only, food and non-food trading, food trading and non-trading activities, and a combination of all three. The adoption of these strategies is influenced by the vulnerability context of COVID-19, and structures and processes such as regulations on trading areas, licensing, and government financial support. Government financial support through the Social Relief of Distress (SRD) Grant and Debt Relief Financial Scheme plays a crucial role in enabling traders to sustain their livelihoods in a post-pandemic environment.

**c) Livelihood outcomes**

The various livelihood strategies adopted by informal food traders lead to specific livelihood outcomes, including reduced vulnerability, improved poverty status, improved income, improved well-being, enhanced food security, and sustainable use of natural resources. These outcomes are also shaped by the traders' vulnerability context and the structures and processes that govern their economic environment. For example, COVID-19 lockdown initiatives undertaken by the South African government led to a decline in income for informal traders (Banu et al., 2023). In turn, positive livelihood outcomes can influence future government support and the allocation of resources to the informal sector, as improved outcomes may prompt increased investment in the sector.

In conclusion, this study adopts the livelihood conceptual framework to assess the status and strategies employed by informal food traders in response to the aftermath of COVID-19. The literature highlights the significant role of livelihood assets in determining informal traders' ability to engage in various livelihood strategies and their overall livelihood status. For instance, Ali et al. (2008) discovered that fish farmers in Bangladesh who struggled to access livelihood capitals experienced a lower livelihood status. This reinforces the idea that the endowment of livelihood assets plays a crucial

role in not only shaping the livelihood strategies of informal traders but also in determining their livelihood status, especially in a post-COVID-19 context.

Furthermore, the link between livelihood strategies and livelihood outcomes underscores the importance of supportive structures and processes, such as the SRD Grant have proven instrumental in enabling traders to sustain their livelihoods in a post-pandemic environment. While the framework provides a robust foundation for understanding the livelihood dynamics of informal traders, there remains a gap in the literature concerning the specific challenges faced by this sector, particularly in South Africa. By applying this framework to the case of informal food traders in Polokwane Local Municipality, South Africa, this study helps to fill this gap by offering insights into how livelihood assets, strategies, and outcomes are shaped by the processes and structures, particularly those implemented before and during the pandemic. The study's findings provide valuable policy recommendations aimed at enhancing the livelihood status of informal traders and supporting their resilience in the face of future economic shocks.

## 2.7 Chapter summary

This chapter outlined the key concepts central to this study, including informal food traders, livelihood, livelihood status, livelihood strategies, and the post-COVID-19 pandemic context. It provided a comprehensive overview of the informal economy, covering its definition, challenges, and the characteristics of informal traders. Additionally, the chapter examined the government support and programmes launched before and during COVID-19 to assist small and informal businesses, including informal food traders. A review of previous studies on livelihood status and factors affecting the adoption of livelihood strategies was conducted, alongside a discussion of existing literature gaps in these areas. Lastly, the livelihood conceptual framework for assessing the livelihood status and strategies of informal food traders post-COVID-19 was explored. The next chapter outlines the research methodology, outlining the study area, sampling methods, and analytical techniques utilised for the analysis of the data.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter elaborates on the study area and the justification for its selection. It also explains the methodologies and tools utilised for data collection. The analytical techniques that were employed for data analyses are also described in this section (namely, descriptive statistics, LAI, Factor analysis, MNL, and Marginal effects. This also includes the methods employed to validate and increase the reliability of the information gathered (namely, pre-testing of the questionnaire, and Goodness-of-fit analysis). Additionally, this chapter presents comprehensive details regarding the ethical considerations taken into account during data collection.

## 3.2 Study area

This study was carried out in the Polokwane Local Municipality, located in the Capricorn District of Limpopo Province, South Africa. The Polokwane Local Municipality's primary economic industries are social services, finance, retail and wholesale trading, transportation, manufacturing, and mining industries (Municipalities of South Africa, 2023). The municipality was selected due to its status as the location of Polokwane City, the Limpopo Province's capitals and economic centre, with a central business district (CBD) (Lefophane et al., 2022). Furthermore, the informal trade economy is vitally important to Polokwane, Limpopo, and the entire South African economy since it provides income to thousands of individuals (IDP, 2023). This study was limited to Polokwane Local Municipality because it is part of the National Research Foundation (NRF) project [Grant Number: TTK2204021699], titled "Profitability and sustainability of informal food trading post-COVID-19 pandemic in Polokwane Local Municipality". As such, the study area was confined to Polokwane Local Municipality to ensure alignment with the scope of the project. Figure 3.1 displays the map of the Polokwane Local Municipality.

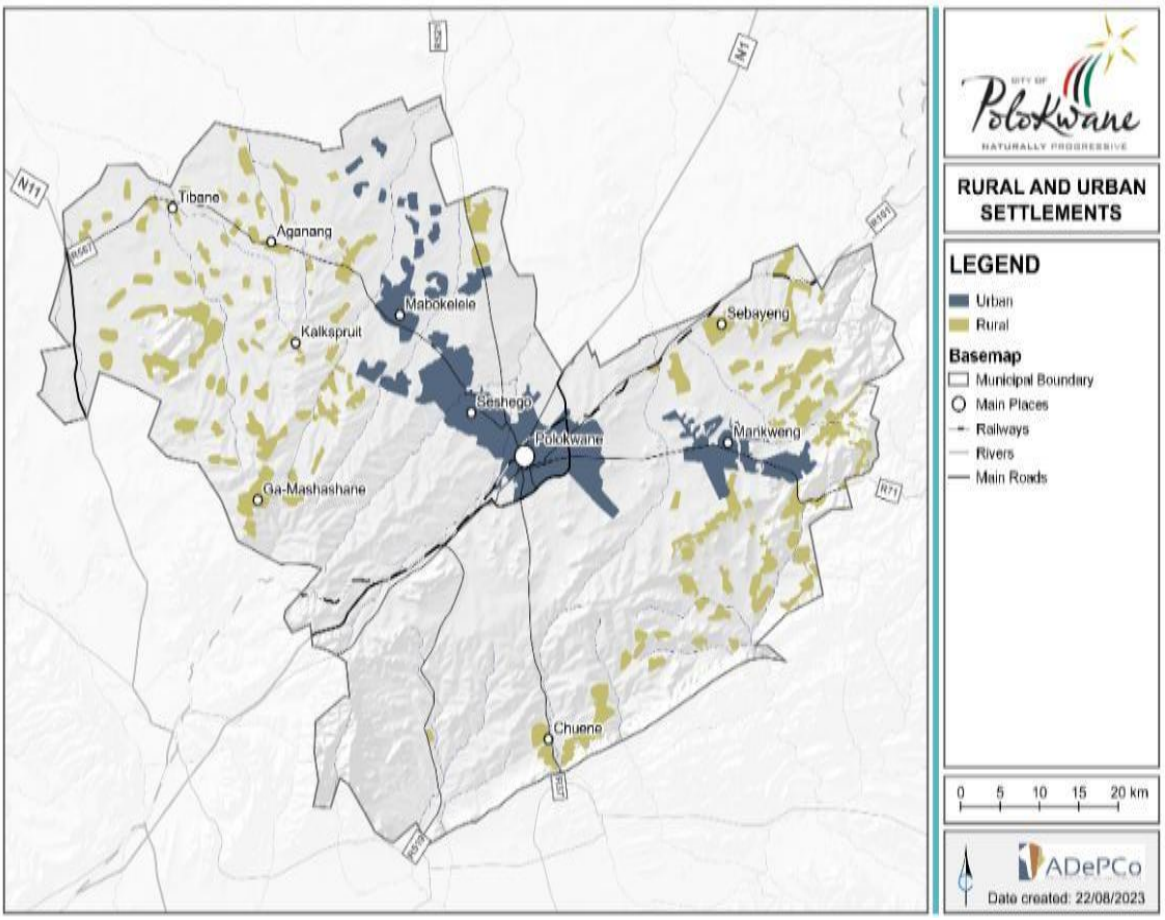


**Figure 3.1: Map of Polokwane Local Municipality**

Source: Polokwane Local Municipality SDF (2024)

Data were collected in eight selected areas, which are highly concentrated in informal food trading activities. These areas are, namely, Mankweng (Unit A), Paledi, Polokwane taxi rank, Church Street, Kruger Street, Market Street, Bok Street, and Landros Mare Street. Table 3.1 presents the distribution of participant percentages across various trading areas. These percentages of participants have been calculated based on the availability of the informal food traders in each respecting trading area.

**Table 3.1: Percentage of participants in each area**

| Area | Percentage of participants |
|---|---|
| Mankweng Unit A | 35.0% |
| Paledi | 16.7% |
| Polokwane taxi rank | 11.7% |
| Church Street | 10.8% |
| Kruger Street | 7.5% |

| | |
|---|---|
| Market Street | 6.7% |
| Bok Street | 5.8% |
| Landros Mare Street | 5.8% |

Source: Survey data (2024)

The findings show that among the selected study areas, 35.0% of the participants were from Mankweng (Unit A), 16.7% from Paledi, and 48.3% from Polokwane. Within Polokwane, 11.7% were trading at the Polokwane taxi rank, 10.8% on Church Street, 7.5% on Kruger Street, 6.7% on Market Street, 5.8% on Bok Street, and 5.8% on Landros Mare Street. The results imply that Polokwane is the predominant location for informal food traders, likely due to its role as the city's commercial and business hub (Lefophane et al., 2022).

### 3.3 Data collection

This study utilised primary data, which were gathered through a structured questionnaire. By collecting primary data, researchers can ensure that the data is specifically tailored to their research objectives. Additionally, primary research enables researchers to obtain in-depth information about their topic, discover new things, and add novel understanding to their field (Burgess et al., 2017). The study employed a structured questionnaire to obtain information from informal food traders operating within the selected study area. Structured questionnaires were chosen for their ease of use, ability to accommodate a large number of participants, and capacity to generate results that can be generalized to produce empirical statements useful for decision-making (Satter, 2023). Additionally, face-to-face- interviews were performed by the researcher to ensure accurate screening and to enhance the accuracy of the collected data (DeFranzo, 2014). The interview was conducted where the informal food traders were operating their businesses. The questionnaire was translated from English to Sepedi, allowing interviews to be conducted in the participants' local language at their trading locations. This translation reduced language barriers, enhanced understanding, and increased participant comfort, ultimately encouraging higher participation in the survey

Since this study focuses on the adoption of livelihood strategies by informal food traders and their livelihood status post-COVID-19, the comprehensive interviews took place post-COVID-19 pandemic specifically from the 20$^{th}$ of January 2024 to the 20$^{th}$

of March 2024. Thus, this study was conducted when the informal street vending sector was fully operational after the lockdown restrictions were terminated, vaccines were administered, and when there were no reported COVID-19 cases.

### 3.4 Ethical considerations

This study received an ethical clearance certificate [TREC/1606/2023: PG] from the Turfloop Research Ethics Committee (TREC) that holds registration with the National Health Research Ethics Council (Registration Number: REC-0310111-031), prior to data collection. All participants provided informed consent, and the study complied with the ethical guidelines of confidentiality, anonymity, and voluntary participation.

### 3.5 Sampling and sample size

Purposive sampling was used to collect data in selected areas of Polokwane Local Municipality. Rai and Thapa (2015) state that the primary objective of purposive sampling is to concentrate on the traits of a population that are relevant and willing to engage in the research. Hence, purposive sampling was employed in this study to specifically target only informal street vendors who are involved in the trading of food such as snacks, fruits, vegetables, and cooked/prepared food. Additionally, purposive sampling was employed because the exact population of informal food traders in Polokwane Local Municipality is unknown. Further, the purposive sampling technique was selected because it had been commonly used in previous studies on informal traders (Mabitsela, 2017; Kabonga et al., 2021; Lefophane et al., 2022; Matomola, 2023).

For data to be considered valid from an econometric perspective, at least 30 participants are needed (Ganti, 2023). As such, a group of 120 informal food traders was chosen for the interview. This sample size excluded the participants who were involved in the pre-testing of the questionnaire. In line with Lefophane et al. (2022), the traders were identified through observation, specifically by conducting a walkthrough of vending sites. Table 3.2 displays the number of participants interviewed and the types of goods they were selling.

**Table 3.2: Number of participants and goods sold**

| Type of goods | Number of participants | Percentage |
|---|---|---|
| Fruits | 16 | 13.33% |
| Vegetables | 22 | 18.33% |

| | | |
|---|---|---|
| Fruits and vegetables | 33 | 27.5% |
| Cooked/prepared food | 29 | 24.17% |
| Snacks | 20 | 16.67% |
| **Total** | **120** | **100%** |

Source: Survey data (2024)

Out of 120 participants, 16 were selling fruits, 22 were selling vegetables, 33 were selling both fruits and vegetables, 29 were selling cooked/prepared food, and 20 were selling snacks. This indicates that most informal food traders in the study area were selling fruits and vegetables, while those selling only fruits were relatively few.

## 3.6 Analytical techniques

### 3.6.1 Descriptive statistics

Descriptive statistics were applied in this study to fulfil the first objective, which is to identify and describe the socio-economic characteristics of informal food traders in selected areas of Polokwane Local Municipality. According to Kaliyadan and Kulkarni (2019), descriptive statistics utilise tools like frequency distribution tables, to offer an overview of the sample being examined. Therefore, descriptive tools such as mean, minimum, frequency, maximum, and percentages were generated using Statistical Packages of Social Sciences (SPSS) version 29, to describe the socio-economic characteristics of informal food traders in selected areas of Polokwane Local Municipality.

### 3.6.2 Livelihood Assessment Index

To achieve the second objective, the Livelihood Asset Index (LAI) was adopted to investigate the livelihood status of informal food traders, following the work of Tikadar et al. (2022), which was originally adapted from the Sustainable Livelihoods Framework developed by the Department for International Development (2000).The LAI consists of five categories of livelihood capitals, namely, human, financial, natural, physical, and social capitals, which informal traders can utilise to recover from and cope with the aftermath of COVID-19 while sustaining their livelihoods. As such, the LAI tool examines informal food traders' ability to access and use their livelihood capitals, which requires recovery and sustainability post-COVID-19. The informal food traders' livelihood may be specified as outlined below (Tikadar et al., 2022):

Livelihood of informal food traders = f(human, financial, physical, natural, and social capitals)

(Equation 1)

Table 3.3 provides the indicators along with a description of how each indicator was quantified under the five capitals. These indicators measure the livelihood status of informal food traders and were selected on the basis of previously published studies. On the other hand, equal weighting was used to estimate the five capitals indicators. Because each of the indicators was quantified using a different unit and scale, standardisation was needed. This was done via equation (2):

$$\text{Index}_{\text{S}} = \frac{\text{S}-\text{S}_{\text{min}}}{\text{S}_{\text{max}}-\text{S}_{\text{min}}} \quad \text{(Equation 2)}$$

Where S stands for the indicator's initial value; $S_{max}$ denotes the maximum value; and $S_{min}$ denotes the minimum values, which are 0 and 100 for percentage-based indicators. Equation (3) was used to estimate the average value of each capitals after standardisation:

$$\text{M}_{\text{cj}} = \frac{\sum_{\text{i=1}}^{\text{n}} \text{Index}_{\text{si}}}{\text{n}} \quad \text{(Equation 3)}$$

Where $M_{cj}$ denotes the value of a single significant capitals $j$, $Index_{si}$ is the single indicator's index, and $n$ denotes the overall capitals' number of indicators. Equation (4) was applied to compute the weighted mean of LAI:

$$\text{LAI} = \frac{\sum_{\text{i=1}}^{5} \text{W}_{\text{mj}}\text{M}_{\boldsymbol{w}\text{j}}}{\sum_{\text{i=1}}^{5} \text{W}_{\text{mj}}} \quad \text{(Equation 4)}$$

Equation (4) can be written as Equation (5) below:

$$\text{LAI} = \frac{\text{W}_{\text{H}}\text{H}_{\boldsymbol{w}}+\text{W}_{\text{F}}\text{F}_{\boldsymbol{w}}+\text{W}_{\text{P}}\text{P}_{\boldsymbol{w}}+\text{W}_{\text{N}}\text{N}_{\boldsymbol{w}}+\text{W}_{\text{S}}\text{S}_{\boldsymbol{w}}}{\text{W}_{\text{H}}+\text{W}_{\text{F}}+\text{W}_{\text{P}}+\text{W}_{\text{N}}+\text{W}_{\text{S}}} \quad \text{(Equation 5)}$$

Where LAI denotes the livelihood assessment index; $W_{mj}$ is the weightage of component j; $W_H$, $W_F$, $W_P$, $W_N$, and $W_S$ denote the five capitals' weight values; and $H_C$, $F_C$, $P_C$, $N_C$, and $S_C$ are the index values of human, financial, physical, natural, and social capitals, respectively (Tikadar et al., 2022). Human capitals includes health ($H_{He}$), experience ($H_{Ex}$), labour ($H_{La}$), training ($H_{Tr}$), formal education ($H_{Fa}$), and informal education ($H_{In}$), and it is calculated as follows:

$$\text{Human capitals index} = \frac{\text{W}_{\text{He}}\text{H}_{\text{He}}+\text{W}_{\text{Ex}}\text{H}_{\text{Ex}}+\text{W}_{\text{La}}\text{H}_{\text{La}}+\text{W}_{\text{Tr}}\text{H}_{\text{Tr}}+\text{W}_{\text{Fa}}\text{H}_{\text{Fa}}+\text{W}_{\text{In}}\text{H}_{\text{In}}}{\text{W}_{\text{He}}+\text{W}_{\text{Ex}}+\text{W}_{\text{La}}+\text{W}_{\text{Tr}}+\text{W}_{\text{Fa}}+\text{W}_{\text{In}}} \quad \text{(Equation 6)}$$

Where $W_{He}$, $W_{Ex}$, $W_{La}$, $W_{Tr}$, $W_{Fa}$ and where $W_{In}$ represents the weight for health ($H_{He}$), experience ($H_{Ex}$), labour ($H_{La}$), training ($H_{Tr}$), formal education ($H_{Fa}$) and informal education ($H_{In}$).

Financial capitals includes savings ($F_{Sa}$), income ($F_{In}$), formal loans ($F_{Fo}$), informal loans ($F_{Io}$), pensions ($F_{Pe}$), social grants ($F_{So}$), and insurance ($F_{Is}$), and it was calculated as follows:

$$\text{Financial capitals index} = \frac{W_{Sa}F_{Sa}+W_{In}F_{In}+W_{Fo}F_{Fo}+W_{Io}F_{Io}+W_{Pe}F_{Pe}+W_{So}F_{So}+W_{Is}F_{Is}}{W_{Sa}+W_{In}+W_{Fo}+W_{Io}+W_{Tr}+W_{Pe}+W_{So}+W_{Is}}$$

(Equation 7)

Where $W_{Sa}$, $W_{In}$, $W_{Fo}$, $W_{Io}$, $W_{Pe}$, $W_{So}$, and $W_{Is}$ represent the weights for savings ($F_{Sa}$), income ($F_{In}$), formal loan ($F_{Fo}$), informal loan ($F_{Io}$), pension ($F_{Pe}$), social grant ($F_{So}$) and insurance ($F_{Is}$). Physical capitals includes storage facilities ($P_{St}$), transport ($P_{Tr}$), trading stalls ($P_{Ta}$), public spaces ($P_{Pb}$), trading licences ($P_{Td}$), trading contracts ($P_{Tc}$), cellphones ($P_{Ce}$), housing status ($P_{Hs}$), and electricity ($P_{El}$), and it was calculated as follows:

$$Physical\ \text{capitals index} = \frac{W_{St}P_{St} + W_{Tr}P_{Tr} + W_{Ta}P_{Ta} + W_{Pb}P_{Pb} + W_{Td}P_{Td} + W_{Tc}P_{Tc} + W_{Ce}P_{Ce} + W_{Hs}P_{Hs} + W_{El}P_{El}}{W_{St} + W_{Tr} + W_{Ta} + W_{Pb} + W_{Td} + W_{Tc} + W_{Ce} + W_{Td} + W_{Hs} + W_{El}}$$

(Equation 8)

Where $W_{St}$, $W_{Tr}$, $W_{Ta}$, $W_{Pb}$, $W_{Td}$, $W_{Tc}$, $W_{Ce}$, $W_{Hs}$, and $W_{El}$ represent the weights of storage facilities ($P_{St}$), transports ($P_{Tr}$), trading stalls ($P_{Ta}$), public space ($P_{Pb}$), trading licences ($P_{Td}$), trading contracts ($P_{Tc}$), cellphones ($P_{Ce}$), housing status ($P_{Hs}$), and electricity ($P_{El}$). Natural capitals includes land ($N_{La}$), livestock ($N_{Li}$), and water ($N_{Wa}$), and it was calculated as follows:

$$\text{Natural capitals index} = \frac{W_{La}N_{La}+W_{Li}N_{Li}+W_{Wa}N_{Wa}}{W_{La}+W_{Li}+W_{Wa}}$$

(Equation 9)

Where $W_{La}$, $W_{Li}$, $W_{Wa}$ represents the weight for access to land ($N_{La}$). Ownership of livestock ($N_{Li}$) and access to safe drinking water ($N_{Wa}$). Social capitals includes membership in informal and formal organisations ($S_{Me}$), trust in the organisation ($S_{Tr}$),

information sharing ($S_{In}$), trust in institutions ($S_{Tu}$), group savings clubs ($S_{Gs}$), and opportunities to obtain assistance ($S_{Op}$) and is calculated as follows:

$$\text{Social capitals index} = \frac{W_{Me}S_{Me}+W_{Tr}S_{Tr}+W_{In}S_{In}+W_{Tu}S_{Tu}+W_{Gs}S_{Gs}+W_{Op}S_{Op}}{W_{Me}+W_{Tr}+W_{In}+W_{Tu}+W_{Gs}+W_{Op}} \quad \text{(Equation 10)}$$

Where $W_{Me}$, $W_{Tr}$, $W_{In}$, $W_{Tu}$, $W_{Gs}$, and $W_{Op}$ represent the weights of membership in informal and formal organisations ($S_{Me}$)), trust in the organisation ($S_{Tr}$), information sharing ($S_{In}$), trust in institutions ($S_{Tu}$), group saving clubs ($S_{Gs}$) and opportunities to obtain assistance ($S_{Op}$). Table 3.3 provides indicators embedded in each form of livelihood capitals, a description of how each indicator was quantified, and the source(s) of reference for each indicator.

**Table 3.3: Variables used for the LAI analysis**

| Livelihood capitals | Indicators | Description | References |
|---|---|---|---|
| **Human capitals** | Health | Percentage of participants without chronic diseases | Makhetha (2010); Aluoch (2014); Hua et al. (2017); Sagaya (2019); Chazovachii (2020); Munishi et al. (2021); Harith et al. (2022) |
| | Experience | Number of years of informal trading | Mbatha and Mlambo (2021) |
| | Labour | The number of people that the participant is working with | Hua et al. (2017); Pour et al. (2018); Habib et al. (2022) |
| | Training | Percentage of participants trained | Lawal et al. (2011) |
| | Formal education | Percentage of participants with formal education | Popescu and Diaconu (2009); Hua et al. (2017); Ding et al. (2018) |
| | Informal education | Percentage of participants with informal education | Popescu and Diaconu (2009) |
| **Financial capitals** | Savings | Percentage of participants who are saving | Makhetha (2010); Mago (2018); Mhlanga and Ndhlovu (2020) |
| | Income | Amount per month (in rand) | Makhetha (2010) |
| | Formal loan | Percentage of participants with access to formal loans | Pour et al. (2018) |
| | Informal loan | Percentage of participants with access to informal loans from sources such as friends, relatives, and loan sharks | Pour et al. (2018) |

| | | | |
|---|---|---|---|
| | Pension | Percentage of participants who receive pension funds | Mhlanga and Ndhlovu (2020) |
| | Social grant | Percentage of participants who are receiving a social grant | Neves et al. (2009) |
| | Insurance | Percentage of participants who have insured their businesses | Babulo et al. (2008) |
| **Physical capitals** | Storage facilities | Percentage of participants with access to storage facilities | Makhetha (2010) |
| | Transports | Percentage of participants with access to public transport | Makhetha (2010); Mbatha and Mlambo (2021); Munishi et al. (2021); Habib et al. (2022) |
| | Trading stall | Percentage of participants who own trading stalls | Makhetha (2010); Mbatha and Mlambo (2021); Munishi et al. (2021); Lefophane et al. (2022) |
| | Public space | Percentage of participants renting the public space they operate their business on | Mago (2018) |
| | Trading licences | Percentage of participants with trading licences/permits | Muchuweni-Chiumira (2019) |
| | Trading contract | Percentage of participants with contracts with the suppliers | Lefophane et al. (2022) |
| | Cellphones | Percentage of participants who use cellphones for their informal economic activities | Mago (2018) |
| | Housing status | Percentage of participants who own a concrete house | Tikadar et al. (2022) |
| | Electricity | Percentage of participants with access to electricity | Tikadar et al. (2022) |
| **Natural Capitals** | Land | Percentage of participants who own and use the land for agricultural activities | Mago (2018) |
| | Livestock | Percentage of participants who raise livestock for trading | Habib et al. (2022) |
| | Water | Percentage of participants with access to safe drinking water | Tikadar et al. (2022) |
| **Social Capitals** | Membership in informal and formal organisations | Percentage of participants who belong to a certain membership organisation | Aluoch (2014); Sagaya (2019); Chazovachii (2020); Mbatha and Mlambo (2021) |

| | | | |
|---|---|---|---|
| | including self-help groups | | |
| | Trust in organisation | Percentage of participants with trust in the organisation they belong to | Ahmed et al. (2021); Haque (2021); Illangasingha et al. (2024) |
| | Information Sharing | Percentage of participants who share information within their organisation | Ahmed et al. (2021); Illangasingha et al. (2024) |
| | Trust in institutions | Percentage of participants with trust in institutions | Ahmed et al. (2021); Haque (2021); Illangasingha et al. (2024) |
| | The group saving club such as stokvel | Percentage of participants who participate in group saving clubs (stokvels) | Makhetha (2010) |
| | Opportunities to obtain assistance | Percentage of participants who can receive assistance from family or friends, including financial support during crises or labour during busy periods | Hua et al. (2017) |

Source: Adapted from Tikadar et al. (2022)

### 3.6.3 Factor analysis

Prior to conducting the MNL analysis, factor analysis was performed in this study to mitigate the likelihood of multicollinearity affecting the explanatory variables. This analysis also helped to decrease the variables' number incorporated in the MNL model following the multicollinearity assessment. According to Shrestha (2021), factor analysis is a procedure that condenses many variables into a few, making research data more manageable (Shrestha, 2021). Data reduction achieved through the combination of correlated variables, or the removal of redundant ones can effectively minimise multicollinearity among predictors, thereby enhancing the stability and interpretability of the subsequent model (MNL model).

Before the factor analysis was conducted, the Kaiser-Meyer-Olkin Measure (KMO) and Bartlett's test were conducted using SPSS version 29 to assess the suitability of running factor analysis (Rauf et al., 2020). Although the multicollinearity results indicated that certain legal factors (the trading contract and period of contract) and the "other sources of income" variable for socio-economic factors exhibited moderate

multicollinearity, factor analysis was not performed on these factors because they did not meet the criteria of the KMO and Bartlett's tests. Furthermore, physical factors were excluded from this analysis, as they presented no concerns. Factor analysis was thus conducted solely with principal component extraction for institutional factors, as they met the necessary criteria. The variables extracted from the factor analysis were subsequently used in the MNL analysis. Based on Shrestha (2021), the mathematical description for factor analysis is specified as follows:

$Let\ x = (X_1, X_2, \ldots\ldots, X_p)$ be a stochastic vector matrix of covariance Σ, and mean vector (μ). The model for factor analysis posits: $X = \mu + \lambda\ R + \varepsilon$, where $\lambda = (\lambda_{j_K})_{PXM}$ signifies the factor loadings matrix; $\lambda_{j_V}$ is the j$^{th}$ loading on the V$^{th}$ mutual factor, $F = (R1,\ R2,\ldots.\ Fm)$' denotes the latent factor scores; $F_R$ is the R$^{th}$ common factor score and $\varepsilon = (\ \varepsilon_1,\ \varepsilon_2,\ \ldots\ \ldots\ ,\ \varepsilon_p)$' denotes the latent error terms' vector; $\varepsilon_j$ is the jth-specific factor.

### 3.6.4 Multinomial logistic regression model

The MNL regression model was utilised to achieve the third objective, which was to determine the factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic in selected areas of Polokwane Local Municipality. Bayaga (2010) argue that, in cases where the dependent variable consists of more than two nominal or unordered categories, the MNL regression model is employed. Several scholars, such as Pour et al. (2018), Ding et al. (2018), and Amevenku et al. (2019), categorised the livelihood strategies according to the economic activities that the farmers engage in to deal with a shock ("on farm", "off-farm", "non-farm", "off-farm + non-farm", and "on-farm + non-farm, on-farm" livelihood strategies).

Therefore, following previous studies (Pour et al., 2018, Ding et al., 2018; Amevenku et al., 2019), this study has identified four categories of livelihood strategies that informal food traders could adopt to cope with the aftermath of COVID-19. The first livelihood strategy that the informal food traders could adopt involves "food trading", for those who are selling food only. The second livelihood strategy involves "food trading and non-food trading" for those who are selling food and non-food items such as household appliances, hair and make-up accessories, cigarettes, and cellphone accessories.

The third livelihood strategy is “food trading and non-trading” for those who are selling food and are engaged in other economic activities such as working part-time. The fourth identified livelihood strategy is the combination of “food trading”, “non-food trading”, and “non-trading”. Thus, the dependent variable in this study, which is the adoption of livelihood strategies, has four unordered categories. Hence, this study employed the MNL regression model to determine factors affecting livelihood strategies adopted by informal food traders post-COVID-19. The dependent variable is represented by: Y= (“food trading”, “food trading + non-food trading”, “food trading + non-trading”, “food trading + non-food trading + non-trading”). Following the work of Yizengaw et al. (2015), assume that for the $ith$ participants dealing with v options, the value of option v can be denoted as:

$$U_{ir} = Z_{iv}\,\beta + \varepsilon_{ir} \qquad \text{(Equation 11)}$$

If a participant selects v, then $U_{ir}$ is the highest of the $r$ values. As such, the empirical model is obtained from the likelihood that the option selected is v, that is:

$$\text{Prob}\,(U_{ir} > U_{ik}) \text{ for all others } K \neq r \qquad \text{(Equation 12)}$$

The value of the $ith$ participant is denoted by $U_{ir}$, whereas the value of the $ith$ participants from K's livelihood strategy denoted by $U_{ik}$. As a result, the $rth$ of V discrete livelihood strategies, which is the one chosen by the $ith$ informal food trader and is used to model their selection as one that maximises expected utility:

$$\text{Max}_r = E(U_{ir}) = f_v\ (X_i) + \varepsilon_{ir}),\ r = 0,\ V \qquad \text{(Equation 13)}$$

Overall, the $jth$ livelihood strategy that the $ith$ informal food trader adopts to maximise his/her utility for an outcome variable with r categories could be assigned a value of 1, if the $ith$ participant adopts the $rth$ livelihood strategy and 0, otherwise. The likelihood that an informal food trader with the attributes x selects livelihood strategy r, $P_{ir}$, is modelled as:

$$P_{ir} = \frac{\exp(X'\beta r)}{\sum_{v=0}^{V} \exp(X'\beta r)},\ r=0; \qquad \text{(Equation14)}$$

Provided that $\Sigma_{v=0}^{V} P_{ij} = 1$ for any i; $P_{ir}$ is the likelihood that the $ith$ participant would fall into category r; $Xi$ is a predictor of answer probabilities; and βr is a covariate effect that is exclusive to the $rth$ response category, with the first category serving as the base.

Assuming 1 = 0 is a convenient normalisation that eliminates uncertainty in the model, inferring that the generalised equation (14) is the same as:

$\Pr(y_i = j/Xi) = P_{iv=} \frac{\exp(X'\beta r)}{1+\sum_{v=1}^{V} \exp(X'\beta r)}$, for $r = 0, 1 \ldots R$ and

$\Pr(y_i = 1/Xi) = P_{i1=} \frac{1}{1+\sum_{j=1}^{J} \exp(X'\beta r)}$ (Equation 15)

In this case, $y$ is a multiple outcome variable whose categories are coded starting at 0…… V. Note: The requirement that the J probabilities add to 1 lead to the probability of $P_{i1}$. This means that $P_{iv=}$ 1-$\sum$ Pir. Like with the Binary logit model, we calculate V log-odds ratios, denoted as:

$\text{In } [\frac{P_{ir}}{P_{ir}}] = X'(\beta j - \beta V) = X'\beta r$, if $V = 0$" (Equation 16)

### 3.6.5 Model specification

The MNL regression model's general specification is as follows (Daniel, 2014):

$$Logit\ (Pk) = ln\ (Pk\ /\ 1 - Pk) = \alpha + \beta 1X1 + \ldots + \beta n\ Xn + Wt \quad \text{(Equation 17)}$$

Where: $ln\ (Pk\ /\ 1 - Pk) = logit$ for the decision of informal food traders' livelihood diversification; $1 - Pk$ denotes the varied informal food traders' livelihood strategy; Pk = no diversification; β is the coefficient; X is the covariates; $W_t$ is the error term. Therefore, when the variables are fitted into the model, the model is presented as:

$$\ln (Pk / 1 - Pk) = \alpha + \beta_1 GEN + \beta_2 AGE + \beta_3 MRS + \beta_4 NTY + \beta_5 EDL + \beta_6 MIH + \beta_7 OSI + \beta_8 BDW + \beta_9 SCB + \beta_{10} TRE + \beta_{11} TRH + \beta_{12} TDS + \beta_{13} TLS + \beta_{14} CWS + \beta_{15} TPC + \beta_{16} TRA + \beta_{17} MPG + \beta_{18} SUT + \beta_{19} SFM + \beta_{20} MOT + \beta_{21} GOS + \beta_{22} KOS + \beta_{23} SGN + \beta_{24} GOS + \beta_{25} MPC + \beta_{26} KMP + \beta_{27} IOG + \beta_{28} RFI + \beta_{29} SUS + Ut$$

(Equation 18)

Where: $ln\ (Pk\ /\ 1 - Pk) = logit$ for informal food traders' livelihood strategy diversification choices; $\alpha$ represents the constant, β represents coefficients attached to independent variables as described in Table 3.4, and $Ut$ represents the error term. Table 3.4 describes variables in the MNL regression model.

**Table 3.4: Variables' description in the MNL Regression model**

| Variables | Variable name | Variables' description | Type of variable | Expected signs |
|---|---|---|---|---|
| **Dependent variable** | | | | |
| ALS | Adoption of livelihood strategies | 0 If the participant engages in food trading only, 1 If the participant engages in food trading and non-food trading, 2 If the participant engages in food trading and non-trading, 3 If the participant engages in food trading, non-food trading and non-trading | Categorical | |
| **Independent variables** | | | | |
| **Socio-economic factors** | | | | |
| GEN | Gender | 1 if the participant is female, 0 otherwise | Dummy | +/- |
| AGE | Age | 0 if the participant is below 21 years, 1 if the participant is between 21 and 25 years, 2 if the participant is between 26 and 35 years, 3 if the participant is between 36 and 40 years, 4 if the participant is above 40 years | Categorical | - |
| MRS | Marital status | 0 if the participant is married, 1 if the participant is single, 2 if the participant is divorced, 3 if the participant is widowed | Categorical | + |
| NTY | Nationality | 1 if the participant is South African, 0 otherwise | Dummy | + |
| EDL | Educational level | 0 if the participant has informal education, 1 if the participant has a primary education, 2 if the participant has a secondary education, 3 if the participant has tertiary education | Categorical | + |
| MIH | Monthly income of the | 0 if income is <R5000, 1 if income is between | Categorical | + |

| | | | | |
|---|---|---|---|---|
| | household head | R5000-R10000, 2 if income is between R10000-R15000, 3 if income is >R15000 | | |
| OSI | Other sources of income | 0 if the participant receives a social grant, 1 if the participant receives SRD Grant, 2 if the participant receives remittance, 3 if the participant receives pension payment, 4 if the participant receives other sources of income, 5 if the participant does not receive other sources of income | Categorical | + |
| BDW | Breadwinner | 1 if the participant is the sole breadwinner, 0 otherwise | Dummy | + |
| SOC | Source of capitals | 0 if the participant used their savings, 1 if the participant used retrenchment payment, 2 if the participant took a loan, 3 if the participant got assistance from family or friends, 4 if the participant used remittance | Categorical | - |
| TRE | Trading experience | 0 if the participant has been trading for 0-3 years, 1 if the participant has been trading for 4-6 years, 2 if the participant has been trading for 7-10, 3 if the participant has been trading for more than 10 years | Categorical | - |
| TRH | Trading hours | The number of hours in trading/day | Hours | - |
| | | | | |
| TDS | Trading status | 0 if the participant is a full-time trader, 1 if the participant is a part-time trader, 2 if the | Categorical | - |

| | | | | |
|---|---|---|---|---|
| | | participant is a casual trader | | |
| **Legal factors** | | | | |
| TLS | Trading licence status | 0 if the participant has acquired a trading licence, 1 if the participant did not acquire a trading licence, 2 if the participant's trading licence has expired | Categorical | + |
| CWS | Contract with the supplier of goods | 1 if the participant has a contract with the supplier, 0 otherwise | Dummy | + |
| TPC | The period of the contract | 1 if it is a full-time contract, 0 otherwise | Dummy | + |
| **Physical factors** | | | | |
| TRA | Trading area | 0 if the participant trades at Mankweng Unit A, 1 if the participant trades at Paledi, 2 if the participant trades at Kruger Street, 3 if the participant trades at Polokwane taxi rank, 4 if the participant trades at Bok Street, 5 if the participant trade at Church Street, 6 if the participant trade at Landros Mare Street, 7 if the participant trade at Market Street | Categorical | + |
| MPG | Marketplace for goods | 0 if the participant gets his goods from formal retailers/shops, 1 if the participant gets his goods from other informal traders, 2 if the participant grows the fruits/vegetables for trading, 3 if the participant gets his goods from other places | Categorical | + |
| SUT | Shelters used by traders | 0 if the participant does not use shelter, 1 if the participant uses an umbrella, 2 if the | Categorical | + |

| | | | | |
|---|---|---|---|---|
| | | participant uses a cart, 3 if the participant uses a container, 4 if the participant uses other forms of shelter | | |
| SFM | Storage facilities used for merchandise | 0 if the participant stores merchandise in lock-up storage facilities, 1 if the participant stores merchandise on-site with security, 2 if the participant stores merchandise on-site without security, 3 if the participant takes merchandise home | Categorical | + |
| MOT | Mode of transport | 0 if the participant walks to work, 1 if the participant uses public transport, 2 if the participant uses his/her car | Categorical | + |
| **Institutional factors** | | | | |
| GOS | Government support | 1 if the participant received government support post-COVID-19 pandemic, 0 otherwise | Dummy | + |
| KOS | Kind of government support received | 0 if the participant received the once-off grant, 1 if the participant received information support, 2 if the participant received infrastructural support, 3 if the participant received the skills development support | Categorical | + |
| SGN | Social grant | 1 if the participant receives a social grant, 0 otherwise | Dummy | + |
| TOG | Type of social grant | 0 if the participant receives an old age grant, 1 if the participant receives a child support grant, 2 if the participant | Categorical | + |

| | | | | |
|---|---|---|---|---|
| | | receives a care dependency grant, 3 if the participant receives a grant in aid, 4 if the participant receives a war veteran's grant, 5 if the participant receives a foster child grant, 6 if the participant receives a disability grant | | |
| MPC | Municipal policy | 1 if the municipal policy affects the participant's trading activities, 0 otherwise | Dummy | - |
| KMP | Kind of municipal policy | 0 if the participant is affected by the trading hours policy, 1 if the participant is affected by the trading area policy, 2 if the participant is affected by the trading area size policy | Categorical | - |
| IOG | Impoundment of goods | 1 if the participants had their goods impounded by the municipality, 0 otherwise | Dummy | - |
| RFI | Reasons for impoundment | 0 if the participant was trading in a prohibited area, 1 if the participant was trading illegal goods, 2 if the participant did not have a trading permit | Categorical | - |
| SUS | Supply shortage | 0 if the participant experiences supply shortages, 1 if the participant does not experience supply shortages, 2 if the participant experiences excess supply | Categorical | + |

Source: Compiled by author (2024)

Table 3.4 provides an overview of the dependent variable (adoption of livelihood strategies) and the independent variables, which are factors expected to influence the adoption of these strategies. It also outlines the anticipated correlation between the dependent and independent variables. In other words, the table serves as a foundational guide for understanding how various factors (independent variables) are predicted to affect the livelihood strategies adopted by informal food traders.

### 3.6.6 Marginal effects

After obtaining results from the MNL model, marginal effects were calculated to evaluate the predicted variation in the likelihood of opting for a specific choice due to a one-unit change in the explanatory variable (Gecho et al., 2014). The study utilised marginal effects analysis because the MNL model results only indicate the influence of independent variables on the dependent variable (Yuya and Daba, 2018). Consequently, the marginal effects offer insights into both the magnitude and direction of the relationships between the adoption of livelihood strategies (dependent variable) and factors affecting the adoption of these strategies (independent variables) in the MNL regression model (Wulff, 2015). Following Gecho et al. (2014), the marginal effects ($\delta_{tj}$) of the likelihood's characteristics are expressed as:

$$\delta \text{tj} = \frac{\partial P_t}{\partial x_t} = P_{tj}\left[\beta_{ij} - \sum_{j=0}^{j} P_{tj}\beta_{tj}\right] = P_{tj}[\beta_j - \beta^{-}] \quad \text{(Equation 19)}$$

Where $P_{tj}$ is the probability of an informal food trader to select $t$th livelihood strategies from the $j$ category; $x_t$ is a response likelihood predictor; and $\beta_j$ represents the parameters to be calculated using the estimator of maximum likelihood.

## 3.7 Validation and Reliability Testing

### 3.7.1 Pre-testing of the questionnaire

The questionnaire was piloted to improve both the validity and reliability of the information gathered, consistent with Lefophane et al. (2022). The pre-testing of the questionnaire is carried out to mitigate sampling biases, boost response rates, identify and address problems, and ensure that the targeted participants can understand the questions (Hilton, 2017). A drafted questionnaire was firstly pre-tested with a few informal food traders to identify errors and assess participants' comprehension of the questions. Moreover, the pilot test was designed to verify that all the information in the questionnaire is consistent with the study's objectives.

A total of 12 participants were interviewed in this study to pre-test the questionnaire as this is a cost, energy, and time-efficient number of participants (Basri et al., 2021). Subsequently, necessary corrections were made, leading to modification and improvement of the final questionnaire. The final questionnaire was structured into five sections: (1) socio-economic characteristics; (2) livelihood status; (3) adoption of livelihood strategies; (4) livelihood outcomes; and (5) factors affecting the adoption of the livelihood strategies. Additionally, a sample of 120 informal food sellers were interviewed. This sample size does not include participants who participated in the questionnaire's pre-testing. Mankweng Unit A was used for pre-testing due to its observed, relatively high concentration of informal food vendors. Additionally, the researcher was located in Mankweng Unit A during the time of data collection, hence, it was used for pre-testing to save time and costs.

### 3.7.2 Validation of Multinomial logistic regression results

The goodness-of-fit analysis was carried out to evaluate the suitability and accuracy of the MNL for the data (Mafukata, 2015). Both the Pearson chi-square test and log-likelihood were used to evaluate this fit. The chi-square test assessed the model's appropriateness, with significant results indicating that one or more predictors were important. Meanwhile, the log-likelihood test determined the best-fitting model, with smaller values indicating a better fit (Duressa, 2021).

## 3.8 Chapter summary

This chapter gave a comprehensive overview of the area of study and the rationale for its selection. It detailed the data collection methods, including questionnaires, interview techniques, and sampling methods, along with the ethical considerations addressed during data collection. The chapter also discussed the analytical techniques used, such as descriptive statistics, LAI, factor analysis, the MNL regression model, model specification, and marginal effects. Additionally, it explained methods employed to validate and ensure the reliability of the data, including pre-testing the questionnaire and conducting a goodness-of-fit analysis. The next chapter presents and discusses the descriptive results related to socio-economic characteristics, physical factors, legal factors, and institutional factors.

# CHAPTER FOUR: DESCRIPTIVE RESULTS AND DISCUSSION

## 4.1 Introduction

This chapter details the descriptive results derived through data collected from 120 informal food traders in the selected areas of the Polokwane Local Municipality. Descriptive statistics such as percentage, mean, minimum frequency, maximum, and standard deviation were used to describe the traders' socioeconomic characteristics. The statistical tools also assessed the legal, physical, and institutional factors that might affect the adoption of livelihood strategies by informal food traders. Hence, the discussion of the description statistics includes an understanding of how different factors are expected to affect the livelihood strategies adopted by informal food traders.

## 4.2 Descriptive Statistics Results

Descriptive statistics were applied in this study to fulfil the first objective, which is to identify and describe the socioeconomic characteristics of informal food traders in selected areas of Polokwane Local Municipality. Descriptive statistics were utilised to characterise the socioeconomic attributes of the sampled informal food traders. In addition, legal, physical, and institutional factors that are considered to affect the adoption of livelihood strategies by informal food traders were examined.

### 4.2.1 Descriptive results for socioeconomic characteristics

Socioeconomic characteristics are the social and economic variables which affect the well-being of an individual, and the quality of life (Chelak and Chakole, 2023). Variables that constitute socioeconomic characteristics are age, nationality, gender, marital status, educational level, other sources of income, breadwinner, source of capitals, monthly income of the household head, trading experience, and trading status. These socioeconomic characteristics are important factors in determining a person's livelihood, as they are directly related to the individual's assets and social standing (Michael et al., 2021). Table 4.1 presents the findings of the socioeconomic characteristics of the informal food traders operating in the field of study.

**Table 4.1: Socioeconomic characteristics of informal food traders (n=120)**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Categorical variables** | | | |
| **Gender** | Male | 44 | 36.7 |
| | Female | 76 | 63.3 |
| **Age** | < 21 years | 2 | 1.7 |
| | Between 21 and 25 years | 9 | 7.5 |
| | Between 26 and 35 years | 38 | 31.7 |
| | Between 36 and 40 | 43 | 35.8 |
| | >40 years | 28 | 23.3 |
| **Marital status** | Single | 68 | 56.7 |
| | Married | 36 | 30.0 |
| | Divorced | 7 | 5.8 |
| | Widowed | 9 | 7.5 |
| **Nationality** | South African | 84 | 70.0 |
| | Non-South African | 36 | 30.0 |
| **Educational level** | Informal education | 12 | 10.0 |
| | Primary education | 18 | 15.0 |
| | Secondary education | 63 | 52.5 |
| | Tertiary education | 27 | 22.5 |
| **Monthly income of the household head** | Less than R5000 | 74 | 61.7 |
| | Between R5000-R10000 | 39 | 32.5 |
| | Between R10000-R15000 | 4 | 3.3 |
| | Above R15000 | 3 | 2.5 |
| **Other sources of income** | No other sources of income | 35 | 29.2 |
| | Social grant | 62 | 51.7 |
| | SRD Grant | 14 | 11.7 |
| | Remittance | 3 | 2.5 |
| | Other sources of income | 6 | 5.0 |
| **Breadwinner Status** | Sole breadwinner | 96 | 80.0 |
| | Not sole breadwinner | 24 | 20.0 |
| **Source of capitals** | Savings | 55 | 45.8 |
| | Retrenchment payment | 6 | 5.0 |
| | Loan | 32 | 26.7 |
| | Got assistance | 19 | 15.8 |
| | Remittance | 8 | 6.7 |
| **Trading experience** | 0-3 years | 11 | 9.2 |
| | 4-6 years | 18 | 15.0 |
| | 7-10 | 40 | 33.3 |
| | >10 years | 51 | 42.5 |
| | | | |
| **Trading status** | Full-time trader | 107 | 89.2 |
| | Part-time trader | 7 | 5.8 |
| | Casual trader | 6 | 5.0 |
| **Continuous variables** | | | |

| Variable | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| **Trading hours** | 4 | 15 | 9.81 | 2.010 |

Source: Survey data (2024)

Gender is a dummy variable signifying whether a participant is male or female. The findings indicate that the majority of participants were females (63.3%), while a smaller proportion were males (36.7%). In this study, gender was expected to negatively affect the adoption of livelihood strategies by informal food traders, as women are less likely to diversify their livelihood strategies due to cultural and social obligations (Emeru et al., 2022). Age is a categorical variable that classifies participants into five age groups: below 21 years, between 21 and 25 years, between 26 and 35 years, between 36 and 40 years, and above 40 years.

The results indicated that the highest proportion of participants were aged between 36 and 40 years (35.8%), followed by those aged between 26 and 35 years (31.1%), above 40 years (23.2%), between 21 and 25 years (7.5%), and those younger than 21 years (1.7%). This implies that most informal food traders in the study area were older individuals (above 35 years), with fewer younger participants. Age was expected to negatively affect the adoption of livelihood strategies by informal food traders, as older individuals are less likely to participate in multiple livelihood strategies due to their resistance to diversification activities (Yuya and Daba, 2018).

Marital status is a categorical variable signifying whether the participant is single, married, divorced, or widowed. The findings reveal that most participants were single (56.7%), followed by those who were married (30.0%), widowed (7.5%), and divorced (5.8%). This shows that most informal food traders in the sample were single, with fewer divorced. Marital status is anticipated to positively affect the adoption of livelihood strategies by informal food traders, as married individuals are more likely to diversify their income sources due to having larger households (Michael et al., 2021).

Nationality is a dummy variable indicating whether the participant is a South African citizen or not. The results show that most informal food traders were South African citizens (70%), while 30% were foreign nationals. Nationality was expected to positively affect the adoption of livelihood strategies, as South African citizens are

more likely to pursue multiple livelihood strategies due to having access to various economic opportunities (Sasiprapha, 2010).

Educational level is a categorical variable indicating whether the participant has formal education (primary, secondary, or tertiary) or informal education. The results reveal that most participants had formal education (90.0%), with the majority having completed secondary education (52.5%), followed by tertiary education (22.5%) and primary education (15.0%). This implies that most informal food traders had completed secondary education, while fewer completed primary education. Educational level was expected to positively affect the adoption of livelihood strategies, as individuals with higher education levels have more skills and abilities to diversify their income (Kuuwill et al., 2022).

Monthly income is a categorical variable indicating whether the household head earns less than R5000, between R5000 and R10000, between R10000 and R15000, or above R15000. The findings reveal that most participants earned less than R5000 per month (61.7%), followed by those earning between R5000 and R10000 (32.5%), R10000 and R15000 (3.3%), and above R15000 (2.5%). The income of a household head is predicted to positively affect the adoption of livelihood strategies, as individuals with higher incomes have more resources and opportunities for diversification (Gebissa and Geremew, 2022).

"Other sources of income" is a categorical variable indicating whether participants receive social grants, SRD grants, remittances, pension payments, or other sources of income apart from informal trading. Most participants listed social grants as their primary other income source (51.7%), followed by SRD grants (11.7%), other sources (5%), and remittances (2.5%). This suggests that social grants are a crucial safety net, representing the second most significant source of income after trading (StatsSA, 2023). Participants who had additional income engaged in activities like beauty services, sewing, or transporting goods. In contrast, 29.2% of participants depended solely on informal trading. "Other sources of income" was expected to positively affect the adoption of livelihood strategies, as traders with additional income sources are better able to overcome financial barriers and diversify their income (Rajan and Bekele, 2017).

A breadwinner status is a dummy variable indicating whether a participant is the primary provider for their household. Most participants (80%) were breadwinners, suggesting they were the sole providers, while 20% were not. Breadwinner status was expected to positively affect the adoption of livelihood strategies, as sole providers are more likely to adopt multiple strategies to meet their households' needs (Chesley, 2017).

Source of capitals is a categorical variable indicating whether participants used savings, retrenchment payments, loans, assistance from family/friends, or remittances to start their businesses. A greater proportion of participants used savings (45.8%), followed by loans (26.7%), assistance from family/friends (15.8%), remittances (6.7%), and retrenchment payments (5.0%). This indicates that a greater proportion of informal traders lacked access to external funding, relying on their savings. The source of capitals was expected to negatively affect the adoption of livelihood strategies, as traders who used their savings to start businesses are financially limited due to reduced available capitals, making it harder to diversify their income sources (Mohammed, 2014; Mago, 2018).

Trading experience is a categorical variable indicating whether the participant has been trading for less than four years, between 4 and 6 years, between 7 and 10 years, or more than 10 years. A greater proportion of participants had been trading for more than 10 years (42.5%), followed by those trading for 7 to 10 years (33.3%), between 4 and 6 years (15.0%), and less than 4 years (9.2%). Trading experience was expected to negatively affect the adoption of livelihood strategies, as traders with more experience (and typically older) tend to make fewer efforts to diversify their income (Duguma et al., 2023).

Trading status is a categorical variable indicating whether the participant is a full-time, part-time, or casual trader. Most participants were full-time traders (89.2%), followed by part-time (5.8%) and casual traders (5.0%). Trading status was expected to negatively affect livelihood strategy adoption, as full-time traders are less likely to pursue multiple strategies due to time constraints (Khumalo, 2015).

Trading hours is a continuous variable indicating the number of hours traders work per day. Traders spent between 4 and 15 hours trading, with an average of 9.8 hours. Those working fewer hours typically sold ready-to-eat foods, while those working

longer hours sold prepared meals. The variable trading hours was expected to negatively affect the adoption of livelihood strategies, as traders with longer hours have less time to diversify their income sources (Khumalo, 2015).

### 4.2.2 Descriptive results for legal factors

Legal factors are the official laws, regulations, and policies that regulate the subject matter or activity (Harper and Zhang, 2021). These include trading licences, trading contracts, and periods of contracts. These legal factors can significantly affect the informal food traders' choice to adopt certain livelihood strategies. Table 4.2 provides the descriptive results for the legal factors.

**Table 4.2: Descriptive results for legal factors**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Trading licence status** | No trading licences<br>Acquired a trading licence<br>Trading licences have expired | 82<br>38<br>0 | 68.3<br>31.7<br>0 |
| **Trading contract** | No trading contracts<br>Have trading contract | 76<br>44 | 63.3<br>36.7 |
| **Period of Contract** | Otherwise<br>Full-time contract<br>No response | 12<br>32<br>76 | 10.0<br>26.7<br>63.3 |

Source: Survey data (2024)

Trading licence status is a categorical variable indicating whether the participant has acquired a trading licence, has not acquired a trading licence, or has an expired trading licence. Most participants had not acquired trading licences (68.3%), while 31.7% had obtained them, and none reported having expired licences (0%). Traders with trading licences were anticipated to be more likely to adopt multiple livelihood strategies (Mago, 2018), as they operate in a more secure and stable economic environment due to being less vulnerable to harassment and eviction by municipal authorities.

Trading contract is a dummy variable indicating whether participants have trading contracts with suppliers or not. Most participants did not have trading contracts with suppliers (63.3%), while a few had trading contracts with suppliers of their goods. Among those with contracts, 26.7% had full-time contracts, and 10% had part-time

contracts. Trading contracts, and their types, were expected to positively influence the livelihood strategies adopted by informal food traders, as traders with supplier contracts were more likely to adopt numerous livelihood strategies due to the financial stability and resources these contracts provide for additional income-generating activities (Ruml et al., 2022).

### 4.2.3 Descriptive results for physical factors

Physical factors pertain to the physical, material components of a domain or activity (Adams, 2015). These include a marketplace for goods, trading areas, shelter, storage, and transport, which can significantly affect the adoption of livelihood strategies by informal food traders. Table 4.3 displays the descriptive results of the physical factors.

**Table 4.3: Descriptive results for physical factors**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Trading Area** | Mankweng Unit A | 42 | 35.0 |
| | Paledi | 20 | 16.7 |
| | Kruger street | 9 | 7.5 |
| | Polokwane taxi rank | 14 | 11.7 |
| | Bok Street | 7 | 5.8 |
| | Church Street | 13 | 10.8 |
| | Landros Mare | 7 | 5.8 |
| | Market Street | 8 | 6.7 |
| **Marketplace for goods** | Formal retailers/shops | 23 | 19.2 |
| | Informal traders | 62 | 51.7 |
| | Grows the fruits/vegetables | 2 | 1.7 |
| | Other places | 33 | 27.5 |
| **Shelter** | No Shelter | 27 | 22.5 |
| | Umbrella | 41 | 34.2 |
| | Cart | 1 | 0.8 |
| | Container | 4 | 3.3 |
| | Other forms of shelter | 47 | 39.2 |
| **Storage** | Lock-up storage | 16 | 13.3 |
| | On-site with security | 9 | 7.5 |
| | On-site without security | 66 | 55.0 |
| | Take goods home | 29 | 24.2 |
| **Mode of transport** | Walk | 14 | 11.7 |
| | Public | 101 | 84.2 |
| | own car | 5 | 4.2 |

Source: Survey data (2024)

Trading area is a categorical variable indicating whether participants is trading at Mankweng Unit A, Paledi, Kruger Street, Polokwane taxi rank, Bok Street, Church Street, Landros Mare, and Market Street. In this study, the trading area was expected to positively affect the adoption of livelihood strategies by informal food traders, as traders operating in Mankweng Unit A are more likely to diversify their livelihoods due to the presence of various retail shops, government offices, and transport hubs that provide traders with numerous opportunities (Maloka, 2013).

The marketplace for goods is a categorical variable indicating whether informal food traders source their goods from formal retailers or other informal traders, grow their fruits/vegetables for trading, or source their goods from other places (besides the ones mentioned herein). Most of the participants purchased their goods from other informal traders (51.7%), followed by those who sourced their goods from other places, such as cooking/baking for sale (27.5%), while 19.2% obtained their goods from formal retailers and only 1.7% grew fruits and/or vegetables for trading. This means that most of the informal food traders sourced their goods from other informal traders, while few grew fruits/vegetables for trading. Marketplace for goods is predicted to positively affect the adoption of livelihood strategies, as traders who source their goods from other informal traders are more likely to diversify their livelihood strategies (Emeru et al., 2022).

Shelter is a categorical variable indicating whether participants use no shelter, an umbrella, a cart, a container, or other forms of shelter for their trading activities. A higher proportion of participants were using other forms of shelter (39.2%), including tin-roofed, plastic-roofed, and net-roofed structures. This was followed by those using umbrellas (34.2%), no shelter (22.5%), containers (3.3%), and carts (0.8%). Participants were also asked where they stored their goods after hours. The majority stored their goods on-site without security (55.0%), followed by those who stored goods at home (24.2%), in lock-up storage facilities (13.3%), and on-site with security (7.5%). This shows that most of the informal food traders stored their goods on-site without security, while few stored them on-site with security. Shelter and storage facilities were anticipated to positively affect the adoption of livelihood strategies, as traders with access to these facilities are more likely to diversify their strategies (Mukwedeya and Mudhara, 2023).

Mode of transport is a categorical variable indicating whether a participant walks to work, uses public transport, or drives their own car. Most participants indicated they used public transport, such as minibuses and buses, to travel to work (84.2%), while a few walked (11.7%) or used their cars (4.2%). Mode of transport is predicted to positively affect the adoption of livelihood strategies by informal food traders, as access to transport allows for easier and quicker access to their workplace, facilitating diversification (Balense and Debebe, 2019).

### 4.2.4 Descriptive results for institutional factors

Institutional factors refer to social institutions, conventions, and practices that shape behaviour and organise collective action within an area (Fuenfschilling and Truffer, 2014). These include government support, kind of support, social grant, type of social grant, municipal policy, kind of municipal policy, impoundment of goods, reason for impoundment of goods, and supply shortage. Table 4.4 displays the descriptive results for institutional factors.

**Table 4.4 Descriptive results for institutional factors**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Government Support** | Did not receive government support | 118 | 98.3 |
| | Received government support | 2 | 1.7 |
| **Kind of Support** | Skills development | 2 | 1.7 |
| | Did not receive government support | 118 | 98.3 |
| **Social Grant** | Do not receive a social grant | 58 | 48.3 |
| | Receives social grants | 62 | 51.7 |
| **Type of Social Grant** | Old age | 18 | 15.0 |
| | Child support | 33 | 27.5 |
| | Care dependency | 2 | 1.7 |
| | Foster Child | 6 | 5.0 |
| | Disability grant | 3 | 2.5 |
| | Do not receive a social grant | 58 | 48.3 |
| **Municipal Policy** | Municipal policy does not affect trading | 84 | 70.0 |
| | Municipal policy affects trading | 36 | 30.0 |

| | | | |
|---|---|---|---|
| **Kind Municipal Policy** | Trading hours<br>Trading area<br>Trading area size<br>Municipal policy does not affect trading | 4<br>19<br>13<br>84 | 3.3<br>15.8<br>10.8<br>70.0 |
| **Impoundment of goods** | Goods were never impounded<br>Municipal impounded trader's goods | 94<br>26 | 78.3<br>21.7 |
| **Reason for the impoundment of goods** | Trading in a prohibited area<br>Trading illegal goods<br>No trading permit<br>Goods were never impounded | 8<br>7<br>11<br>94 | 6.7<br>5.8<br>9.2<br>78.3 |
| **Supply Shortage** | Experienced supply shortage<br>Never experienced supply shortage<br>Excess supply | 34<br>61<br>25 | 28.3<br>50.8<br>20.8 |

Source: Survey data (2024)

Government support is a dummy variable indicating whether participants received government support post-COVID-19 or not. Most participants (98.3%) reported not receiving government support. The kind of government support is a categorical variable indicating whether participants received a once-off grant, information support, infrastructural support, or skills development support to enhance their livelihoods. The study's findings indicate that post-COVID-19, skills development is the only form of support received by informal food traders. Particularly, only a small percentage of these traders (1.7%) reported having received skills development support. The study expected government support and the kind of support to positively influence the adoption of livelihood strategies by informal food traders, as those who receive government assistance are more likely to diversify their livelihood strategies (Zhong et al., 2022).

Social grant is a dummy variable indicating whether participants were receiving social grants or not. Most participants (51.7%) were receiving social grants, while 48.3% were not. The type of social grant is a categorical variable indicating whether beneficiaries were receiving a child support grant, old age grant, war veteran’s grant, care dependency grant, grant in aid, foster child grant, or disability grant. Most participants were receiving child support grants (27.5%), followed by old age grants

(15.0%), foster child grants (5.0%), disability grants (2.5%), and care dependency grants (1.7%). This implies that most informal food traders were receiving child support grants, while fewer were receiving care dependency grants. Social grants and the type of social grants are anticipated to positively affect the adoption of livelihood strategies, as they increase recipients' disposable income, thereby enhancing their ability to adopt multiple income sources (Patel et al., 2023).

The study also examined whether municipal policies affected the traders' operations. Thus, municipal policy is a dummy variable indicating whether participants' business activities were affected by municipal policies or not. Most participants (70.0%) reported that their business activities were not affected by municipal policies, while 30.0% said they were affected. The kind of municipal policy is a categorical variable indicating whether participants' business activities were affected by trading hours policy, trading area policy, or trading area size policy. Among those affected, 15.8% reported being affected by trading area policy, 10.8% by trading area size policy, and 3.3% by trading hours policies. This implies that a higher proportion of informal food traders were significantly impacted by the trading area policy, while only a few traders were affected by the trading hours policy.

Impoundment of goods is a dummy variable indicating whether participants' goods had ever been impounded by municipal authorities. Most participants (78.3%) reported that their goods had never been impounded, while 21.7% reported that their goods had been seized at least once. Reasons for impoundment is a categorical variable indicating whether goods were impounded due to trading in a prohibited area, selling illegal goods, or not having a trading permit. Most traders whose goods were impounded cited the lack of trading permits (9.2%) as the reason, followed by trading in prohibited areas (6.7%) and selling illegal goods (5.8%), such as counterfeit branded items. This indicates that the lack of trading licences was the most common reason for impoundment, while the sale of illegal goods was the least common reason. The variables related to municipal policy, kind of municipal policy, impoundment of goods, and reasons for impoundment were anticipated to negatively affect the adoption of livelihood strategies, as traders affected by municipal policies or whose goods were impounded are less likely to diversify their strategies (Mago, 2018).

Supply shortage is a categorical variable indicating whether participants experienced supply shortages, did not experience shortages, or had an excess supply of goods. Most participants (50.8%) reported never experiencing supply shortages, followed by those who experienced shortages (28.3%) and those with an excess supply of goods (20.8%). This implies that most informal food traders had not faced supply shortages, while a few had an excess supply of goods. Supply shortage was expected to negatively affect the adoption of livelihood strategies, as traders experiencing shortages are less likely to diversify due to reduced income and limited ability to invest in additional income sources (Utete, 2023).

### 4.3 Chapter summary

This chapter presented and discussed the descriptive results for socioeconomic characteristics, legal factors, physical factors, and institutional factors. The reporting covered descriptive statistics such as frequency, mean, percentage, minimum, maximum, and standard deviation, to identify and describe the informal food traders' socioeconomic characteristics, achieving objective one. Additionally, the variables for legal, physical, and institutional factors that affect the adoption of livelihood strategies by informal food traders were described, including a discussion of prior expectations on how each variable was expected to affect livelihood strategy adoption in the MNL analysis. The next chapter presents and discusses the results for livelihood status, livelihood outcomes, and the MNL results.

# CHAPTER FIVE: EMPIRICAL RESULTS AND DISCUSSION

## 5.1 Introduction

The chapter reports on the findings of the livelihood status of the informal food traders and factors affecting the adoption of their livelihood strategies post-COVID-19 pandemic. This includes findings for the livelihood status per capitals asset and overall livelihood status of informal food traders. This is followed by a discussion of the livelihood strategies adopted by informal food traders to cope with and deal with the aftermath of COVID-19. Afterwards, livelihood outcomes that informal food traders achieved after adopting certain livelihood strategies are discussed. Following this, the results of the multicollinearity test and factor analysis are outlined and discussed. Finally, MNL results are discussed alongside the marginal effect results.

## 5.2 Livelihood status of the informal food traders

The LAI was utilised to address the second objective, which is to examine the livelihood status of informal food traders post-COVID-19 in selected areas of Polokwane Local Municipality. In this study, livelihood status refers to the ability of informal food traders to access and utilise human, financial, physical, natural, and social livelihood capitals to manage the aftermath of COVID-19. The results are indicated in the next section.

### 5.2.1 Human Capitals Responses

Human capitals pertains to the competencies and knowledge acquired by individuals to manage other livelihood assets (Arisanty et al., 2020; Mbatha and Mlambo, 2021). The key components include health, experience, labour, training, and education (Popescu and Diaconu, 2009; Ding et al., 2018; Habib et al., 2022; Tikadar et al., 2022), which are critical determinants of the household economy (Arisanty et al., 2020). The findings related to human capitals indicators among informal food traders are presented in Table 5.1.

**Table 5.1: Human Capitals Responses**

| Indicators | Description | Findings |
|---|---|---|
| Health | Percentage of participants without chronic diseases | 91.7% |

| | | |
|---|---|---|
| Experience | Number of years of informal trading (Average) | 11.18 |
| Labour | The number of people that the participant is working with (Average) | 0.21 |
| Training | Percentage of participants with been trained | 5.0% |
| Formal education | Percentage of participants with formal education | 90% |
| Informal education | Percentage of participants with informal education | 10% |

Source: Survey data (2024)

When asked about chronic diseases that might impede their ability to operate their businesses, 91.7% of the participants reported having no chronic illnesses. This indicates that most informal food traders in the sample were in good health, with low susceptibility to infections and diseases, which facilitated their business activities. These findings align with those of Mago (2018), who reported that 95.2% of informal vendors in the Eastern Cape Province of South Africa did not suffer from illnesses that hindered their work. In contrast, Tikadar et al. (2022) reported that Bangladeshi fishermen had a high frequency of disease, contributing to a low human capitals index of 0.31.

Experience plays a crucial role in achieving desired livelihood outcomes, such as success in informal trading (Mbatha and Mlambo, 2021). The participants had an average of 11.8 years of experience in their businesses, aligning with Haque (2021), who reported an average of 11.5 years of experience among street vendors in Bangladesh. This level of experience suggests that most traders in the study area had the necessary experience to build a customer base and loyalty, enhancing their ability to earn higher incomes and sustain their businesses post-COVID-19.

Although the labour force is an important production factor, most of the informal food traders do not hire additional labourers, with an average of just one labour force per business. This is likely because informal trading typically involves small-scale business activities (Suharto, 2003), where the scale of operations does not require a large workforce.

Training is essential for increasing competency, knowledge, and business skills (Rodriguez and Walters, 2017). However, only 5% of the participants had received training related to operating their businesses. This finding aligns with that of Tikadar et al. (2022), who reported that fishermen in Bangladesh lacked training in revenue-generating activities. The lack of training implies that most traders might not have

possessed the skills needed for effective marketing, business management, finance, and relationship-building with customers and suppliers.

Despite the limited training, most of the participants (90%) had received formal education, whereas only a small percentage (10%) had informal education. This finding implies that the majority of informal food traders had a formal education, which likely contributed to improving their business performance (Mahmood et al., 2021).

### 5.2.2 Financial Capitals Responses

Financial capitals encompasses financial assets that people utilise to pursue and attain their livelihood objectives (Sarwer et al., 2016; Mhlanga and Ndhlovu, 2020). Key indicators include savings, income, loans, pensions, social grants, and insurance (Babulo et al., 2008; Neves et al., 2009; Makhetha, 2010; Pour et al., 2018; Mhlanga and Ndhlovu, 2020). The findings related to financial capitals are presented in Table 5.2.

**Table 5.2: Financial Capitals Responses**

| Indicators | Description | Findings |
|---|---|---|
| Savings | Percentage of participants who are saving | 27.5% |
| Income | Amount per month (in rand) (Average) | R2535.83 |
| Formal loan | Percentage of participants with access to formal loans | 27.5% |
| Informal loan | Percentage of participants with access to informal loans from sources such as friends, relatives, and loan sharks | 75.0% |
| Pension | Percentage of participants who receive the pension fund | 2.5% |
| Social grant | Percentage of participants who are receiving a social grant | 51.7% |
| Insurance | Percentage of participants who have insured their businesses | 0% |

Source: Survey data (2024)

The study reveals that informal food traders had limited access to financial resources, with only 27.5% saving money. The average monthly income generated by participants was R2,535.83, which is below the average income range of street food salespersons in South Africa, who earn between R3,808 and R13,743 per month (Wage Indicator, 2024). These findings align with those of previous studies (Asegie et al., 2021; Rahman et al., 2021; Khambule, 2022), which reported a decline in income, savings, and the ability to afford the cost of living due to the COVID-19 pandemic.

Additionally, only 27.5% of the participants had access to formal loans. Owing to limited access to formal credit, many traders borrowed money from friends, relatives, and loan sharks, with 75.0% accessing informal loans. The limited access to formal loans was primarily due to the lack of collateral required by formal lending institutions (Tikadar et al., 2022), which might have hindered the expansion of their businesses (Mago, 2018).

The study also investigated whether participants received pension funds to support their livelihoods post-COVID-19. Most informal food traders were not pensioners, with only 2.5% accessing and using pension funds. However, 51.7% of the participants received and utilised social grants to support their livelihoods post-COVID-19. Social grants supplement income from informal trading and help traders meet essential needs such as clothing, food, shelter, and medical care, thereby reducing the severity of poverty (Neves et al., 2009).

Insurance protects businesses from collapsing due to disasters (Kaushalya et al., 2014), including those such as COVID-19. However, none of the participants had insured their businesses, implying that in the event of unforeseen circumstances such as theft, accidents, or property damage, they could encounter financial losses that may be hard to overcome.

### 5.2.3 Physical Capitals Responses

Physical capitals encompasses basic infrastructure and physical goods that informal traders use to support their livelihoods (Mago, 2018). Key indicators include storage facilities, transport, trading stalls, contracts and licences, housing, cellphones, and electricity (Mago, 2018; Munishi et al., 2021; Lefophane et al., 2022; Tikadar et al., 2022; Habib et al., 2022). Findings related to physical capitals are presented in Table 5.3.

**Table 5.3: Physical Capitals Responses**

| Indicators | Description | Findings |
|---|---|---|
| Storage facilities | Percentage of participants with access to storage facilities | 28.3% |
| Transports | Percentage of participants with access to public transport | 100% |

| | | |
|---|---|---|
| Trading stall | Percentage of participants who own trading stalls | 77.5% |
| Public space | Percentage of participants renting the public space they operate their business on | 66.7% |
| Trading licence | Percentage of participants with trading licences/permits | 31.7% |
| Trading contract | Percentage of participants with contracts with the suppliers | 36.7% |
| Cellphones | Percentage of participants who use cellphones for their informal economic activities | 32.5% |
| Housing status | Percentage of participants who own a concrete house | 64.2% |
| Electricity | Percentage of participants with access to storage facilities | 98.3% |

Source: Survey data (2024)

The study reveals that only 28.3% of the participants had access to storage facilities. This limited access exposed their goods to theft and damage from adverse weather conditions (Mago, 2018), potentially leading to financial losses and difficulties in sustaining their livelihoods post-COVID-19.

Conversely, all participants (100%) had access to public transport, indicating that informal food traders living far from their workplaces utilised minibuses, buses, and other vehicles to reach their trading areas (Munishi et al., 2021). Additionally, 77.5% of the participants owned trading stalls, including umbrellas, carts, containers, and various roofed structures. Owning a trading stall can increase income potential by providing a stable trading location and helping to build a regular customer base (Lefophane et al., 2022).

The study further reveals that 66.7% of the participants paid rent for the public space used for their businesses. This suggests that most of the traders were less likely to face the risk of goods confiscation due to the non-payment of rent. Trading licences/permits are critical for security, economic stability, and overall well-being. Without these licences, traders are more vulnerable to harassment and eviction by municipal authorities (Lefophane et al., 2022). Despite this, 68.3% of informal food traders lacked trading licences, leaving them at risk of such issues. However, some traders operated in areas outside municipal jurisdiction and therefore could have avoided these risks by entering into lease agreements with private property owners (Lefophane et al., 2022).

Cellphones facilitate various economic activities, such as business promotion, digital payments, and order placement. Nevertheless, only 32.5% of the participants used their cellphones for these purposes, indicating that most of the informal food traders did not leverage this technology for business operations.

### 5.2.4 Natural Capitals Responses

Natural capitals denotes the natural resources that individuals utilise to support their livelihoods (Habib et al., 2022). It is assessed based on ownership of agricultural land, livestock, and access to forest and water resources (Arisanty et al., 2020). Table 5.4 presents the findings related to natural capitals.

**Table 5.4: Natural Capitals Responses**

| Indicators | Description | Findings |
|---|---|---|
| Land | Percentage of participants who own and use the land for agricultural activities | 37.5% |
| Livestock | Percentage of participants who raise livestock for trading | 8.3% |
| Water | Percentage of participants with access to safe drinking water | 94.2% |

Source: Survey data (2024)

Land ownership can facilitate participation in income-generating activities such as commercial agriculture, which may supplement income from informal trading (NDA, 2013). However, only 37.5% of the participants owned and used land for commercial agriculture. This implies that most of the informal food traders did not diversify their income through commercial agriculture, partly because much of the private land in South Africa is owned by white individuals (South African Government, 2018).

Similarly, livestock rearing can provide an additional income source by selling animals and/or animal products, which helps mitigate financial shocks (Rahman et al., 2021). However, only 8.3% of the participants engaged in livestock trading. These findings indicate that informal food traders largely did not engage in commercial agricultural activities to supplement their income in the post-COVID-19 period.

Having access to safe drinking water lowers the probability of water-borne diseases such as typhoid, diarrhoea, and cholera (Islam, 2018; Ahmed et al., 2021), which can improve productivity and regularity at work. Most of the participants (94.2%) had

access to safe drinking water, indicating that they were less susceptible to waterborne diseases and could work regularly. This access is primarily provided by municipalities through public taps and tankers during water crises (StatsSA, 2023). In contrast, Rahman et al. (2021) reported that shrimp farmers in certain areas in Bangladesh faced salinity and unsafe drinking water.

### 5.2.5 Social Capitals Responses

Social capitals includes both formal and informal social relationships that individuals leverage to enhance their livelihoods (Mbatha and Mlambo, 2021). Key indicators of social capitals include membership in organisations, trust, information sharing, savings groups, and assistance (Makhetha, 2010; Hua et al., 2017; Haque, 2021). Table 5.5 presents the findings related to social capitals.

**Table 5.5: Social Capitals Responses**

| Indicators | Description | Findings |
|---|---|---|
| Membership in informal and formal organisations including self-help groups | Percentage of participants who belong to a certain membership organisation | 55.8% |
| Information Sharing | Percentage of participants with trust in the organisation they belong to | 58.2% |
| Trust in organisation | Percentage of participants who share information within their organisation | 29.9% |
| Trust in institutions | Percentage of participants with trust in institutions | 28.4% |
| The group saving club such as stokvel | Percentage of participants who participate in group saving clubs (stokvels) | 64.2% |
| Opportunities to obtain assistance | Percentage of participants who can receive assistance from family or friends, including financial support during crises or labour during busy periods | 31.7% |

Source: Survey data (2024)

Informal organisations provide platforms for mutual support, solidarity among traders, and information sharing (Haque, 2021; Arisanty et al., 2022). Membership in these organisations serves as an informational channel and fosters cooperative efforts, underpinned by high levels of trust (Pagnani et al., 2021). Most of the participants (55.8%) were members of informal traders or community-based organisations, indicating that these traders were connected to principles that promote cooperation and collective action (Munishi et al., 2021). Additionally, 58.2% of the participants

shared information within their organisations, including details on affordable goods, funding opportunities, pricing, marketing channels, and job prospects.

Trust within membership organisations enhances traders' livelihoods by fostering a supportive, cooperative environment where resources can be pooled and collective bargaining can occur (Islam, 2018; Haque, 2021). However, only 28.4% of the participants expressed trust in their membership organisations and government institutions. This lack of trust might have contributed to the limited revenue generation among informal food traders (Enayati et al., 2024).

Group savings clubs (64.2% of participants) allow members to pool resources and access funds during financial hardships. These clubs, which include money savings clubs, help traders save money for groceries, funerals, and other expenses. This suggests that informal food traders have utilised group savings to support their livelihoods, especially during the post-COVID-19 period.

Assistance is essential for improving livelihood status (Hua et al., 2017). However, only 31.7% of the participants received assistance for their businesses, such as family labour or financial aid, during crises. This indicates a significant gap in support for informal food traders, similar to the decline in support observed among shrimp farmers in Bangladesh during the COVID-19 pandemic due to lockdown restrictions (Rahman et al., 2021).

### 5.2.6 Overall LAI of the Informal Food Traders

Table 5.6 presents the findings of the LAI findings for the assessment of the livelihood status of the informal food traders. The table contains the LAI values for each indicator and livelihood capitals.

**Table 5.6: Livelihood status of informal food traders**

| Indicators | Index values | Livelihood capitals | Overall index values |
|---|---|---|---|
| Health | 0.917 | Human Capitals | 0.40 |
| Experience | 0.38 | | |
| Labour | 0.07 | | |
| Training | 0.05 | | |

| | | | |
|---|---|---|---|
| Formal education | 0.9 | | |
| Informal education | 0.10 | | |
| Savings | 0.275 | Financial Capitals | 0.28 |
| Income | 0.11 | | |
| Formal loan | 0.275 | | |
| Informal loan | 0.75 | | |
| Pension | 0.025 | | |
| Social grant | 0.517 | | |
| Insurance | 0.000 | | |
| Storage facilities | 0.283 | Physical Capitals | 0.60 |
| Transports | 1 | | |
| Trading stall | 0.775 | | |
| Public space | 0.667 | | |
| Trading licence | 0.317 | | |
| Trading contract | 0.367 | | |
| Cellphones | 0.325 | | |
| Housing status | 0.642 | | |
| Electricity | 0.983 | | |
| Land | 0.375 | Natural Capitals | 0.47 |
| Livestock | 0.083 | | |
| Water | 0.942 | | |
| Membership | 0.558 | Social Capitals | 0.45 |
| Trust in organisation | 0.299 | | |
| Trust in an institution | 0.284 | | |
| Information Sharing | 0.582 | | |
| The Group Saving Club | 0.642 | | |
| Opportunities to obtain assistance | 0.317 | | |
| **Overall livelihood status of informal food traders** | | | 0.44 |

Source: Survey data (2024)

The LAI values, ranging from 0 to 1, provide insights into traders' ability to access and utilise five categories of livelihood capitals, namely, human, financial, physical, natural, and social resources post-COVID-19. LAI values close to 0 indicate low livelihood status, whereas values close to 1 signify high livelihood status. According to Tikadar et al. (2022), LAI values ranging from 0-0.49 indicate low livelihood status, 0.5 indicates moderate status, and 0.51-1.00 indicates high status. The overall LAI for informal food traders in this study is 0.44, reflecting a low livelihood status. This suggests that the traders had limited access to the five categories of livelihood capitals, largely due to the COVID-19 lockdown restrictions, which disrupted economic activities and constrained their livelihood opportunities. Similar studies, such as those by Haque (2021) and Rahman et al. (2021), also reported declines in livelihood status among street vendors and shrimp farmers in Bangladesh due to COVID-19 restrictions, with LAI values of 0.35 and 0.43, respectively.

### 5.2.7 The results from LAI analysis for the five livelihood capitals

While informal food traders exhibited low livelihood status, their performance varied across the five livelihood capitals. The findings for the LAI for the five livelihood capitals are presented in Table 7. Following previous studies (Arisanty et al., 2020; Tikadar et al., 2022). Figure 5.1 provide a graphical representation of the endowments of the five categories of livelihood capitals.

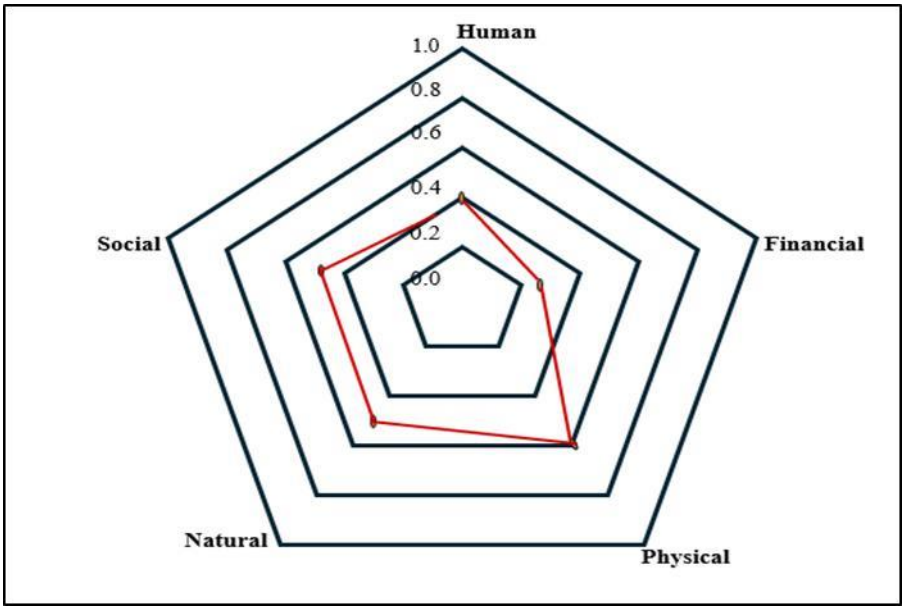


**Figure 5.1: Livelihood index values of informal food traders**

Source: Survey data (2024)

Physical capitals ranked the highest, with an LAI value of 0.60, followed by human capitals, which ranked second, with an index value of 0.40. Natural capitals and social capitals ranked third and fourth, with index values of 0.47 and 0.45, respectively. Financial capitals ranked fifth and lowest, with an index value of 0.28. Thus, none of these livelihood capitals were ranked as medium.

Physical capitals had the highest LAI value, which aligns with findings from previous studies (Arisanty et al., 2020; Rahman et al., 2021; Tikadar et al., 2022). This high value is attributed to the traders' access to public transport, electricity, trading stalls, and concrete houses. However, limitations were noted in access to storage facilities, trading contracts, licences/permits, and the use of cellphones for economic activities.

Human capitals ranked second but still reflected a low LAI value (0.40). This finding aligns with studies of fishermen and street vendors in Bangladesh, which also reported low human capitals (Haque, 2021; Tikadar et al., 2022). The low value in this study is due to limited access to human resources, such as training and hired labour, which are essential for coping with the COVID-19 aftermath. However, traders generally performed well in other human resource aspects, including health, experience, and formal education, which are crucial for sustaining livelihoods post-COVID-19.

The low LAI value of 0.45 for social capitals aligns with previous studies (Arisanty et al., 2020; Rahman et al., 2021). The low value is attributed to traders' lack of trust in membership organisations and government institutions and limited assistance from family and friends post-COVID-19. Despite these challenges, most of the traders were part of membership organisations and group savings clubs (stokvels), which provided some support during the pandemic.

Financial capitals had the lowest LAI value (0.28), which aligns with other studies (Haque, 2021; Rahman et al., 2021; Tikadar et al., 2022). This reflects traders’ limited access to the financial resources necessary to cope with the COVID-19 aftermath. The low value is attributed to the traders' inability to save, limited income, lack of insurance, and restricted access to formal loans and pensions. However, many traders accessed informal loans and social grants to sustain their livelihoods post-pandemic.

The findings on natural capitals align with those of Rahman et al. (2021), who reported a decline in the natural capitals status of shrimp farmers in Bangladesh. In contrast, other studies have reported varying natural capitals statuses, that is, high for street vendors (Haque, 2021), moderate for fishermen (Tikadar et al., 2022), and medium for women traders in Indonesia (Arisanty et al., 2020). The low level of natural capitals observed in this study is linked to traders' limited involvement in commercial agriculture, which could have supplemented their income post-COVID-19. However, most of the traders had access to safe drinking water, thereby alleviating the risk of waterborne diseases and potentially increasing their post-pandemic productivity.

## 5.3 Factors affecting the adoption of livelihood strategies

The MNL regression model was used to achieve the third objective, which is to determine the factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic in selected areas of Polokwane Local Municipality. First, the results for the livelihood strategies adopted by the traders were obtained, followed by an analysis of the livelihood outcomes achieved through the adoption of these strategies. Prior to the MNL analysis, a multicollinearity test was conducted to detect highly correlated independent variables, after which factor analysis was applied to further reduce the variable set and mitigate the multicollinearity problem. The MNL model was then utilised to determine the factors affecting the adoption of livelihood strategies by informal food traders. Lastly, marginal effects were calculated to provide detailed insights into the direction and magnitude of the relationships between the adoption of livelihood strategies and the influencing factors within the model.

### 5.3.1 Adoption of Livelihood Strategies

This study has characterised livelihood strategies as the economic activities (income sources) that informal food traders can engage in/diversify to cope with the aftermath of the COVID-19 pandemic. These livelihood strategies are “food trading” only, “food trading and non-food trading”, “food trading and non-trading”, and “combination of food trading, non-food trading, and non-trading”. Figure 5.2 shows the livelihood strategies the informal food traders in the study area have adopted to deal with COVID-19's aftermath. These are the livelihood strategies they pursued to continue supporting their livelihoods in the post-COVID-19 era.

**Figure 5.2: Livelihood strategies adopted by the informal food traders**

Source: Survey data (2024)

As observed from the survey results, "food trading only" is the main livelihood strategy (51.7%) adopted by informal food traders. This suggests that most traders have not diversified their income sources, making it difficult to sustain their livelihoods in the post-pandemic era. Several factors, including gender, age, marital status, education, experience, and household income (Yuya and Daba, 2018; Michael et al., 2021; Kuuwill et al., 2022; Emeru et al., 2022), may hinder diversification. This reflects that many traders in the study area lacked the essential resources, as highlighted in the livelihood conceptual framework (Figure 2.1), needed to diversify their livelihood strategies.

Despite this, the "food trading and non-food trading" strategy is the second-most adopted livelihood strategy (31.7%), indicating that a significant proportion of traders have diversified by selling both food and non-food items. Some observed non-food items included cigarettes, phone accessories, hair accessories, and traditional herbs. However, none of the participants (0%) reported adopting a "combination of food trading, non-food trading, and non-trading" strategy. Given that the focus was on informal food traders and the majority of traders (57.5%) pursued the "food trading only" strategy, and none of them adopted a more diversified strategy, the results

suggest that many traders opted to maintain their pre-pandemic livelihood strategy instead of diversifying into other income-generating activities. This implies that most of the informal food traders may have faced barriers or lacked incentives to adopt more diversified livelihood strategies, even though diversification could potentially offer greater resilience in the aftermath of the COVID-19 pandemic. Hence, the MNL analysis aims to uncover which factors affected their adoption of livelihood strategies in the post-COVID-19 era.

The study further reveals that 16.7% of the traders adopted a "food trading and non-trading" livelihood strategy, meaning they engaged in food sales alongside other economic activities such as hair braiding, beauty services such as make-up, catering for special occasions, cleaning services, or part-time domestic work. These findings indicate that the "food trading and non-trading" strategy is the least adopted (16.7%), suggesting that only a small proportion of traders have embraced multiple income streams to improve their standard of living in the post-COVID-19 era. This limited diversification is attributed to restricted access to livelihood capitals resources necessary for recovery and resilience, leaving few traders able to adopt multiple strategies such as combining food trading with non-trading activities.

### 5.3.2 Livelihood outcomes

Based on the conceptual framework for livelihood analysis (Figure 2.1), the livelihood outcomes are the results of the livelihood strategies that the informal food traders have adopted to deal with the aftermath of COVID-19. As such, the participants were asked about how the livelihood strategies that they have adopted contributed towards their livelihood outcomes. The livelihood outcomes were described in terms of improved poverty status, increased income, increased well-being, reduced vulnerability, and improved food security status. Moreover, these livelihood outcomes were evaluated on a four-point Likert scale, ranging from “strongly agree” to “disagree”. Table 5.7 presents the findings of the livelihood outcomes.

**Table 5.7: Findings of the informal food traders’ livelihood outcomes**

| Livelihood outcomes | Strongly agree | Agree | Strongly disagree | Disagree |
|---|---|---|---|---|
| Improved poverty status | 53.3% | 40.8% | 4.2% | 1.7% |
| Increased income | 29.2% | 23.3% | 43.3% | 4.2% |
| Reduced Vulnerability | 17.5% | 21.7% | 42.5% | 18.3% |

| | | | | |
|---|---|---|---|---|
| Increased well-being | 32.5% | 55.8% | 5.0% | 6.7% |
| Improved Food security status | 17.5% | 27.5% | 40.8% | 14.2% |
| Sustainable Use of Natural Resources | 20.0% | 54.2% | 11.7% | 14.2% |

Source: Survey data (2024)

A larger proportion of participants (53.3%) strongly agreed that their livelihood strategies contributed to improved poverty status, with an additional 40.8% agreeing. This high level of agreement (94.1% combined) suggests that the livelihood strategies they adopted to deal with the aftermath of COVID-19 were largely effective in reducing their poverty levels. Only a small fraction (5.9%) disagreed, showing that their livelihood strategies may not have had the desired effect in pulling them out of poverty.

In contrast, the responses regarding increased income were more diverse. While 29.2% of participants strongly agreed and 23.3% agreed that their income had improved, a large portion (43.3%) strongly disagreed, with an additional 4.2% disagreeing. This reveals that, although some informal food traders experienced financial gains from their livelihood strategies, nearly half saw little to no improvement in their income. The results suggest that the adopted strategies were not universally successful in boosting economic outcomes for all traders. In other words, while some traders managed to recover, a significant portion continued to struggle due to financial losses experienced during the COVID-19 lockdowns. The restrictions led to disruptions in the informal food supply, reduced foot traffic, decreased demand, and lower sales, which extremely impacted income levels. Thus, many informal food traders have yet to recover fully from these financial setbacks, and their livelihood strategies may not have been sufficient to compensate for the losses incurred during this period.

Similar to income, responses on food security were divided. While 17.5% strongly agreed and 27.5% agreed that their food security status had improved. This suggests that the livelihood strategies for a few informal food traders assisted them in not only maintaining access to food but also improving the quality and quantity of food available to their households. However, 40.8% strongly disagreed with an additional 14.2% disagreeing, indicating that food access and availability remained a critical issue for many informal food traders. This suggests that while some traders may have found

ways to secure their food needs through their livelihood strategy, a significant portion continued to experience food insecurity.

In terms of vulnerability, only 17.5% strongly agreed and 21.7% agreed that their vulnerability had decreased. These signify that the livelihood strategies for few of the informal food traders had a stabilising effect, enabling them to better withstand shocks, including economic and financial downturns and health crises, in the aftermath of COVID-19. However, the most participants (42.5% strongly disagreed and 18.3% disagreed) felt their vulnerability remained the same or worsened, suggesting that their livelihood strategies did not sufficiently equip them to withstand shocks in the aftermath of COVID-19.

Most participants (88.3%) reported improved well-being, with 32.5% strongly agreeing and 55.8% agreeing. This indicates that while income may not have increased significantly for all informal food traders, their livelihood strategies likely led to non-financial improvements, such as better mental health, stability, and overall quality of life. The low proportion of participants who disagreed (11.7%) suggests that very few informal food traders experienced these non-financial improvements through their livelihood strategies.

A large majority (74.2%) of participants agreed and strongly agreed that their strategies led to the sustainable use of natural resources. This is a positive outcome, as it indicates that the livelihood strategies for many informal food traders enabled them to adopt environmentally friendly practices, which could have long-term benefits for their livelihoods and the ecosystems they depend on. However, 25.9% still expressed disagreement, highlighting the need for some traders to adopt environmentally friendly practices. In conclusion, the livelihood strategies that the informal food traders have adopted to cope with the aftermath of COVID-19, have enabled them to improve their poverty status, increase their income, increase their well-being, and use natural resources sustainably.

## 5.4 Factors affecting the adoption of livelihood strategies: Empirical Analysis

### 5.4.1 Multicollinearity test

The multicollinearity test was conducted using SPSS Version 29 to assess the correlation between independent variables using Tolerance and Variance Inflation Factor (VIF). Following the guidelines of Bayman and Dexter (2021), the test was

performed to avoid inflated standard errors and unreliable estimates in the MNL regression model. According to the decision rules, for VIF, a value below 5 indicates no multicollinearity, between 5 and 10 indicates moderate multicollinearity, and above 10 suggests high multicollinearity (Shrestha, 2020). For tolerance, values below 0.1 indicate a multicollinearity problem, while values above 0.1 mean that there is no multicollinearity problem (Manasoe et al., 2021). Table 5.8 presents the results of the multicollinearity test.

**Table 5.8: Findings of the multicollinearity test**

| | Collinearity Statistics | |
|---|---|---|
| **Variables** | **Tolerance** | **VIF** |
| Gender | 0.649 | 1.541 |
| Age | 0.459 | 2.179 |
| Marital status | 0.551 | 1.814 |
| Nationality | 0.236 | 4.245 |
| Educational level | 0.544 | 1.837 |
| Monthly income of household head | 0.544 | 1.839 |
| Other sources of income | 0.122 | 8.178 |
| Breadwinner | 0.561 | 1.782 |
| Source of capitals | 0.749 | 1.334 |
| Trading experience | 0.801 | 1.248 |
| Trading hours | 0.667 | 1.498 |
| Trading status | 0.576 | 1.736 |
| Trading licence | 0.705 | 1.418 |
| Trading contract | 0.118 | 8.455 |
| Period contract | 0.114 | 8.736 |
| Marketplace for goods | 0.596 | 1.678 |
| Trading Area | 0.654 | 1.529 |
| Shelter | 0.709 | 1.411 |
| Storage facilities | 0.860 | 1.162 |
| Mode of transport | 0.580 | 1.725 |
| Government support | 0.722 | 1.385 |
| Social grant | 0.087 | 11.516 |
| Type of social grant | 0.119 | 8.416 |
| Municipal policy | 0.094 | 10.661 |
| Kind of municipal policy | 0.101 | 9.871 |
| Impoundment of goods | 0.162 | 6.165 |
| Reasons for impoundment of goods | 0.171 | 5.832 |
| Supply shortage | 0.617 | 1.621 |

Source: Survey data (2024)

According to the findings presented in Table 5.8, all variables exhibited tolerance values exceeding 0.1 and VIF values below 10, with the exceptions of "social grant" and "municipal policy". These two variables recorded tolerance values of 0.087 and 0.094, respectively, and both had VIF values exceeding 10, indicating severe multicollinearity. Additionally, moderate multicollinearity was observed among variables with VIF values ranging from 5 to 10. These variables include “other sources of income,” “trading contracts,” “period of contract,” “type of social grant,” “type of municipal policy,” “impoundment of goods,” and “reason for impoundment of goods.” The remaining variables do not exhibit multicollinearity, as they had VIF values below 5 and tolerance values above 0.1.

While the multicollinearity test results show an absence of multicollinearity for most variables, factor analysis was conducted due to the large quantity of variables with potential associations. In line with Kyriazos and Poga (2023), factor analysis was conducted to eliminate redundant or highly intercorrelated variables, thereby reducing the variable set. Since none of the physical factors exhibited multicollinearity, factor analysis was not applied to this group. Although some variables related to legal factors (trading contracts and contract period) and socioeconomic factors (other sources of income) show moderate multicollinearity, they did not meet the criteria for factor analysis. In contrast, factor analysis was carried out using PCA for the institutional factors, as they met the required criteria for the analysis. However, the variables exhibiting severe multicollinearity, namely "social grant" and "municipal policy," were excluded from the factor analysis to ensure the validity of the findings.

### 5.4.2 Factor analysis results

In line with Kyriazos and Poga (2023), Principal Component Analysis (PCA) was conducted using SPSS Version 29 to minimise the problem of multicollinearity while reducing the number of variables to a manageable level before employing them in the MNL regression analysis. Variables with VIF values greater than 10, such as municipal policy and social grants, were excluded due to high multicollinearity, which could compromise the validity of the results. Before performing PCA, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s Test were applied to the socioeconomic, institutional, and legal factors to assess the suitability for factor analysis, as recommended by Rauf et al. (2020). The KMO index, ranging from 0 to 1, requires a minimum value of 0.50

for factor analysis to be appropriate. Additionally, Bartlett's Test must show significance ($p < 0.05$) to confirm that correlations between variables are sufficient for PCA. Although some legal factors (trading contracts and contract period) and one variable for socioeconomic factors (other sources of income) displayed moderate multicollinearity, they did not meet the criteria for factor analysis. Retaining these variables could have compromised the model's reliability, so their exclusion was necessary to ensure more accurate and stable results. Therefore, factor analysis was not conducted on these factors to maintain the robustness of the analysis. Consequently, PCA was performed only on the institutional factors, as this category met the necessary thresholds.

First, eigenvalues were calculated, followed by the application of the Varimax rotation technique to enhance the interpretability of the components. Following the recommendations of Güvendir and Özkan (2022), only variables with high loadings (typically values above 0.50) on specific components were retained for further analysis. Variables exhibiting strong cross-loadings on multiple components or low loadings across all components were considered less relevant and excluded from further analysis. This approach aimed to improve the reliability of the MNL regression by ensuring that the predictors used were distinct and relevant.

### 5.4.3 PCA results for institutional factors

Table 5.9 presents the results of Barrlett's and KMO's test to assess for suitability of conducting factor analysis for institutional factors.

**Table 5.9: KMO and Bartlett's Test results**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .518 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 200.864 |
| | Df | 15 |
| | Sig. | <,001 |

Source: Survey data (2024)

The results indicate that the Bartlett test of sphericity is highly significant ($p < 0.001$). Additionally, the KMO measure of sampling adequacy is 0.518, suggesting that the sample size is adequate. These findings confirm that the criteria to conduct factor

analysis for institutional factors are met. Consequently, PCA was carried out, and the findings are shown in Table 5.10.

**Table 5.10: Extraction of Institutional Factors**

| Total Variance Explained | | | | | | |
|---|---|---|---|---|---|---|
| | Initial Eigenvalues | | | Rotation Sums of Squared Loadings | | |
| Component | Total | Variance% | Cumulative (%) | Total | Variance % | Cumulative (%) |
| 1 | 2.044 | 34.060 | 34.060 | 2.037 | 33.952 | 33.952 |
| 2 | 1.092 | 18.194 | 52.254 | 1.098 | 18.302 | 52.254 |
| 3 | 1.000 | 16.666 | 68.921 | | | |
| 4 | .939 | 15.643 | 84.563 | | | |
| 5 | .823 | 13.721 | 98.284 | | | |
| 6 | .103 | 1.716 | 100.000 | | | |
| Extraction Method: PCA | | | | | | |

Source: Survey data (2024)

Table 5.10 presents the eigenvalues and total variance explained for institutional factors. The results indicate that two distinct linear components have eigenvalues greater than 1, accounting for a combined total variance of 52.254%. The first component explains 33.952% of the total variance, with an eigenvalue of 2.044, while the second component explains 18.302% of the total variance, with an eigenvalue of 1.092. Following the determination of the number of factors to retain, the Varimax rotated component matrix was applied to extract the relevant variables for further analysis, with the results presented in Table 5.11.

**Table 5.11: Varimax rotation results for institutional factors**

| | Component | |
|---|---|---|
| | 1 | 2 |
| Government support | .106 | .716 |
| Type of social grant | | -.188 |
| Kind of municipal policy | .481 | |
| Impoundment of goods | -.950 | |
| Reasons for impoundment | .940 | |
| Supply shortage | | .742 |
| Extraction Method: PCA<br>Rotation Method: Varimax with Kaiser Normalization. | | |

Source: Survey data (2024)

The variables extracted based on high-factor loadings include "government support," "impoundment of goods," "reasons for impoundment," and "supply shortage." However, "type of social grant" and "kind of municipal policy" were not retained due to their low factor loadings, indicating weak relationships with the principal components. Additionally, despite their high-factor loadings, "impoundment of goods" and "reasons for impoundment" were excluded from the final analysis because they exhibited VIF values greater than 5, indicating moderate multicollinearity. Retaining these variables could have compromised the model's reliability, so their exclusion was necessary to ensure more accurate and stable results. Therefore, they were removed to maintain the robustness of the analysis.

Overall, variables excluded from the MNL analysis include those identified in the VIF analysis as exhibiting severe multicollinearity, specifically "social grant" and "municipal policy." Additionally, variables related to legal factors ("trading contracts" and "contract period") and socioeconomic factors ("other sources of income"), which showed moderate multicollinearity, were also excluded. Furthermore, variables for institutional factors, extracted through PCA in the factor analysis, were removed from the MNL analysis. These variables include "Type of Social Grant," "Kind of Municipal Policy," "impoundment of goods," and "reasons for impoundment." Consequently, the number of variables has been reduced from 29 to 19.

### 5.4.4 Econometric results: Multinomial logistic regression

The MNL regression model was used to achieve the third objective, which is to determine the factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic in selected areas of Polokwane Local Municipality. The livelihood strategies adopted by informal food traders served as the dependent variable, as the MNL model requires an unordered categorical dependent variable. In this study, "livelihood strategy" refers to the economic activities that informal food traders engage in to sustain their livelihoods post-COVID-19. These include "food trading only," "food trading + non-food trading," "food trading + non-trading," and a "combination of food trading, non-food trading, and non-trading." Descriptive results reveal that the most common livelihood strategy in the study area was "food trading only" (51.7%), followed by "food trading + non-food trading" (31.7%), and "food trading

+ non-trading" (17.7%). Notably, none of the participants (0%) adopted the "combination of food trading, non-food trading, and non-trading" strategy.

Consequently, the MNL regression model was performed, with the "food trading only" livelihood strategy as the base category, as most informal traders pursued this strategy. The "combination of food trading, non-food trading, and non-trading" strategy was excluded from the analysis since no participants adopted it. The MNL model results provided insights into the influence of the independent variables on the dependent variable. However, to capture both the direction and magnitude of these relationships, a marginal effects analysis was conducted using Stata version 14.

Table 5.12 presents the MNL regression model results, while Table 5.13 displays the marginal effects findings, which highlight the factors affecting the livelihood strategies adopted by informal food traders post-COVID-19. As a result, both sets of findings are discussed together. The MNL results demonstrate the influence of the predictors on the adoption of livelihood strategies, while the marginal effects offer insights into the probability of adopting specific livelihood strategies. By analysing these findings together, this study provides a clearer understanding of how each predictor affects the likelihood of selecting a particular strategy, offering a comprehensive view of the factors affecting livelihood strategy choices. Marginal effects quantify the change in probability, which is a proportion between 0 and 1. As such, the results are interpreted as a percentage by multiplying the marginal probability value by 100 to make the interpretation clearer and easier to understand (Wooldridge, 2010; Greene, 2018). This allows us to express the change in probability in percentage terms, making it easier to understand the influence of each predictor on the likelihood of adopting a particular livelihood strategy.

**Table 5.12: MNL model results**

| | | | |
|---|---|---|---|
| LR chi2(38) =61.45 Prob > chi2 = 0.0094 Log likelihood = -80.047261<br>Pseudo R-Square: Cox and Snell 0.567<br>: Nagelkerke .654<br>: McFadden .416 | | | |
| **Variables** | **Coefficients** | **Standard error** | **P-value** |
| **Food trading + non-food trading livelihood strategy** | | | |
| Gender | -0.493 | 0.260 | 0.058* |

| | | | |
|---|---|---|---|
| Age | -0.683 | 0.330 | 0.038** |
| Marital status | 0.639 | 0.338 | 0.059* |
| Nationality | 0.028 | 0.567 | 0.960 |
| Educational level | 0.944 | 0.369 | 0.011** |
| Monthly household income | 0.168 | 0.489 | 0.731 |
| Breadwinner | 0.395 | 0.737 | 0.592 |
| Source of capitals | -0.133 | 0.199 | 0.506 |
| Trading experience | -1.081 | 0.488 | 0.027** |
| Trading hours | 0.014 | 0.098 | 0.891 |
| Trading status | -0.660 | 0.748 | 0.378 |
| Trading licence | -0.061 | 0.514 | 0.906 |
| Marketplace for goods | -0.026 | 0.242 | 0.914 |
| Trading area | 0.147 | 0.074 | 0.048** |
| Shelter | -0.284 | 0.169 | 0.093* |
| Storage | -0.262 | 0.249 | -0.293 |
| Mode of transport | 0.071 | 0.287 | 0.804 |
| Government support | -0.709 | 0.330 | 0.032** |
| Supply Shortage | -0.613 | 0.255 | 0.016** |
| **Food trading + non-trading livelihood strategy** | | | |
| Gender | -0.282 | 0.158 | 0.074* |
| Age | -0.432 | 0.583 | 0.458 |
| Marital status | 0.550 | 0.701 | 0.432 |
| Nationality | -1.155 | 1.223 | 0.345 |
| Educational level | 1.305 | 0.784 | 0.096* |
| Monthly income of household | 1.816 | 0.977 | 0.063* |
| Breadwinner | 0.535 | 1.251 | 0.669 |
| Source of capitals | -0.306 | 0.283 | 0.279 |
| Trading experience | -0.061 | 0.514 | 0.906 |
| Trading hours | -0.262 | 0.156 | 0.094* |
| Trading status | -0.511 | 0.733 | 0.486 |
| Trading licence | -2.161 | 0.935 | 0.021** |
| Marketplace for goods | -0.016 | 0.471 | 0.972 |

| | | | |
|---|---|---|---|
| Trading area | 0.056 | 0.112 | 0.618 |
| Shelter | -0.383 | 0.314 | 0.223 |
| Storage | -0.077 | 0.404 | 0.848 |
| Mode of transport | 1.112 | 0.400 | 0.005*** |
| Government support | -1.198 | 0.381 | 0.002*** |
| Supply Shortage | -0.186 | 0.362 | 0.608 |

Source: Survey data (2024)

Note: p*<0.1; **p<0.05, *** p<0.01

**Table 5.13: Marginal effects findings**

| **Livelihood strategies** | **Food trading only** | **Food trading + non-food trading** | **Food trading + Non-trading** |
|---|---|---|---|
| **Predicted probability** | 0.571 | 0.317 | 0.112 |
| **Variables** | **Marginal effects** | | |
| Gender | 0.142 | -0.111 | -0.031 |
| Age | 0.111 | -0.106 | -0.005 |
| Marital status | -0.109 | 0.095 | 0.014 |
| Educational level | -0.175 | 0.124 | 0.051 |
| Monthly household income | -0.079 | -0.030 | 0.109 |
| Trading experience | 0.076 | -0.058 | -0.018 |
| Trading hours | 0.006 | 0.011 | -0.017 |
| Trading licence | 0.075 | 0.056 | -0.131 |
| Trading area | -0.028 | 0.031 | -0.003 |
| Shelter | 0.052 | -0.038 | -0.014 |
| Mode of transport | -0.074 | -0.025 | 0.099 |
| Government support | 0.200 | -0.124 | -0.076 |
| Supply shortage | 0.099 | -0.111 | 0.012 |

Source: Survey data (2024)

The results from Table 5.12 show the MNL model's effectiveness, with a chi-square value of 61.45 (p-value < 0.005) and a Log-likelihood of -80.047, indicating a good fit. A Nagelkerke $R^2$ value of 0.654 signifies that 65.4% of the variance in the livelihood strategy choices among informal traders is explained by the 19 predictor variables, 12 of which are statistically significant. This conveys that a substantial percentage of the

decision-making process in livelihood strategies can be attributed to these predictors. Moreover, the sum of the marginal effects values across the three categorised livelihood strategies equals zero, while the values for the predicted probabilities sum to one. The section that follows is a discussion of the significant variables.

### 5.4.5 Discussion of significant results

#### 5.4.4.1 Socioeconomic factors

Out of the eleven socioeconomic factors analysed in the MNL model, seven were found to be statistically significant: gender, age, marital status, educational level, monthly income of the household head, trading hours, and trading experience. These variables play a crucial role in explaining the livelihood strategy choices of informal food traders. In contrast, nationality, breadwinner status, source of capitals, and trading status did not show significant influence, indicating that they do not have a significant effect on the adoption of livelihood strategies by informal food traders. The significant socioeconomic factors are discussed in the section that follows.

**Gender**

As anticipated, the gender variable is negative and statistically significant at the 10% level for both the "food trading + non-food trading" strategy and the "food trading + non-trading" strategy. This indicates that gender negatively influences the adoption of diversified livelihood strategies, suggesting that being female reduces the likelihood of adopting the "food trading + non-food trading" and "food trading + non-trading" strategies. The negative coefficients for both strategies imply that females are less likely than males to pursue these diversified livelihood strategies compared to the "food trading only" strategy. Conversely, males are more inclined to adopt diversified strategies ("food trading + non-food trading" and "food trading + non-trading") relative to the "food trading only" strategy.

The marginal effects for gender reveal that being female decreases the probability of adopting the "food trading + non-food trading" strategy by 11.1% and the "food trading + non-trading" strategy by 3.1% relative to the "food trading only" strategy. This highlights the significant role gender plays in livelihood diversification, with females being less likely to diversify into non-food trading or combine trading activities, likely due to socio-cultural constraints and limited opportunities. These findings are in line with the findings of Gecho et al. (2014) for 300 rural households in Ethiopia.

**Age**

In line with prior expectations, the age variable is negative and statistically significant at the 5% level for the "food trading + non-food trading" strategy. This demonstrates that age negatively influences the adoption of diversified livelihood strategies, suggesting that older traders are less likely to adopt the "food trading + non-food trading" strategy. The negative coefficient implies that older traders are less likely than younger ones to diversify their livelihoods into food and non-food trading activities compared to the "food trading only" strategy. Conversely, younger traders are more inclined to adopt the "food trading + non-food trading" strategy relative to the "food trading only" strategy.

The marginal effect for age reveals that each additional year of age decreases the probability of adopting the "food trading + non-food trading" strategy by 10.6%. This illustrates the crucial role age plays in livelihood diversification, with older traders being less likely to diversify into food and non-food trading activities, as they often resist innovation and prefer familiar trading methods. These findings are consistent with the findings of Yuya and Daba (2018) for 180 smallholder farmers in Ethiopia.

**Marital status**

Contrary to prior expectation, the marital status variable is positive and statistically significant at the 10% level for the "food trading + non-food trading" strategy. This signifies that marital status positively influences the adoption of diversified livelihood strategies, suggesting that being single increases the likelihood of adopting the "food trading + non-food trading" strategy. The positive coefficient suggests that single traders are more inclined than others (married, divorced, and widowed) to pursue this diversified livelihood strategy compared to the "food trading only" strategy. In contrast, married, widowed, and divorced traders are less likely to adopt the "food trading + non-food trading" strategy relative to the "food trading only" strategy.

The marginal effect of 0.095 suggests that being single increases the probability of adopting this strategy by 9.5%. This highlights the vital role marital status plays in livelihood diversification, with single traders more likely to diversify their livelihoods

into food trading and non-food trading activities, as they may have fewer household obligations, allowing for greater flexibility in managing multiple trading ventures. These results contradict the findings of Michael et al. (2021) for 480 rural households in Nigeria.

**Educational level**

As anticipated, the educational level variable is positive and statistically significant at the 5% level for the "food trading + non-food trading" strategy and the 10% level for the "food trading + non-trading" strategy. This indicates that education positively influences the adoption of diversified livelihood strategies, suggesting that traders with higher educational levels are more likely to adopt the "food trading + non-food trading" and "food trading + non-trading" strategies. The positive coefficients imply that educated traders are more likely than those with lower education to pursue these diversified strategies relative to the "food trading only" strategy. Alternatively, traders with lower education are less inclined to adopt the "food trading + non-food trading" and "food trading + non-trading" strategies compared to the "food trading only" strategy.

The marginal effects suggest that higher education increases the probability of adopting the "food trading + non-food trading" strategy by 12.4% and the "food trading + non-trading" strategy by 5.1%. This demonstrates the significant role educational level plays in livelihood diversification, with highly educated traders more likely to adopt diversified trading activities, as they are equipped with a variety of abilities and information. The results align with the findings of Hoq et al. (2022) for 300 households in Bangladesh.

**Monthly income of the household head**

As hypothesised, the monthly income of the household head variable is positive and statistically significant at the 10% level for the "food trading + non-trading" strategy. This implies that income positively influences the adoption of diversified livelihood strategies, suggesting that traders from higher-income households are more likely to adopt the "food trading + non-trading" strategy. The positive coefficient suggests that traders from higher-income households are more likely than those with lower incomes to pursue the "food trading + non-trading" strategy compared to the "food trading only"

strategy. Conversely, lower-income traders are less inclined to adopt the "food trading + non-trading" strategy relative to the "food trading only" strategy.

The marginal effect shows that an increase in household income increases the probability of adopting this strategy by 10.9%. This demonstrates the significant role that the monthly income of the household head plays in livelihood diversification, with higher-income households more likely to adopt multiple trading activities, as they may have greater financial flexibility, consistent with the finding of Duressa (2021) for 292 households in Ethiopia.

**Trading experience**

In line with prior expectations, the trading experience variable is negative and statistically significant at the 5% level for the "food trading + non-food trading" strategy. This indicates that trading experience negatively influences the adoption of diversified livelihood strategies, suggesting that more experienced traders are less likely to adopt the "food trading + non-food trading" strategy. The negative coefficient implies that experienced traders are less likely than those with less experience to pursue the "food trading + non-food trading" strategy compared to the "food trading only" strategy. Alternatively, less experienced traders are more likely to adopt the "food trading + non-food trading" strategy relative to the "food trading only" strategy.

The marginal effect implies that more experience reduces the probability of adopting the "food trading + non-food trading" strategy by 5.8%. This demonstrates the significant role trading experience plays in livelihood diversification, with more experienced traders less likely to diversify their livelihoods into food trading and non-food trading activities, as they may be older and tend to make fewer efforts to diversify their income sources. These findings are consistent with the findings of Duguma et al. (2023) for 400 smallholder farmers in Ethiopia.

**Trading hours**

As expected, the trading hours variable is negative and statistically significant at the 10% level for the "food trading + non-trading" strategy. This indicates that the number of hours spent trading negatively influences the adoption of diversified livelihood strategies, suggesting that traders who invest more time in trading are less likely to pursue the "food trading + non-trading" strategy. The negative coefficient suggests

that traders who work long hours are less likely than those who work fewer hours to pursue the "food trading + non-trading" strategy compared to the "food trading only" strategy. Conversely, traders who work for fewer hours are more inclined to adopt the "food trading + non-trading" strategy relative to the "food trading only" strategy.

The marginal effect indicates that working long hours reduces the probability of adopting the "food trading + non-trading" strategy by 1.7%. This demonstrates the significant role trading hours play in livelihood diversification, with traders working long hours less likely to diversify their livelihoods into food trading and non-trading activities, due to having limited time to diversify their income sources, aligning with the results of Khumalo (2015) for 100 informal traders in South Africa.

#### 5.4.4.2 Legal factors

The "trading contract" and "period of the contract" variables were excluded from the MNL analysis because they had VIF values exceeding 5, indicating a severe multicollinearity problem. Only the trading licence variable was incorporated into the MNL model, and it was found to be significant in affecting the informal food traders' choice of adoption of livelihood strategies. The detailed results for the "trading licence" are discussed in the next section.

**Trading licence**

Contrary to prior expectations, the trading licence variable is negative and statistically significant at the 5% level for the "food trading + non-trading" strategy. This suggests that having no trading licence positively influences the adoption of diversified livelihood strategies, indicating that traders without a trading licence are more likely to adopt the "food trading + non-trading" strategy. The negative coefficient implies that traders without licences are more likely than licenced traders to pursue this strategy compared to the "food trading only" strategy. In contrast, traders with trading licences are less likely to adopt the "food trading + non-trading" strategy compared to the "food trading only" strategy.

The marginal effect suggests that having a trading licence decreases the probability of adopting this strategy by 13.1%. This highlights the crucial role that trading licences play in livelihood diversification, with licenced traders less likely to diversify their livelihoods into food trading and non-trading activities. This is possibly due to

regulatory restrictions that limit flexibility in diversifying their livelihoods, contradicting Mago (2018)'s findings for 125 informal traders in South Africa.

#### 5.4.4.3 Physical factors

Of the five physical factors included in the MNL analysis, three were found to be significant, while the remaining two were not. The significant variables include trading area, shelter, and mode of transport. In contrast, the marketplace for goods and storage were deemed statistically insignificant. This implies that these two variables do not significantly influence the informal food traders' choice of livelihood strategies in the context of this study. The significant physical factors are discussed in the next section.

**Trading area**

In line with prior expectations, the trading area variable is positive and statistically significant at the 5% level for the "food trading + non-food trading" strategy. This indicates that the trading area positively influences the adoption of diversified livelihood strategies, implying that traders in Mankweng Unit A are more likely to adopt the "food trading + non-food trading" strategy. The positive coefficient suggests that traders in Mankweng Unit A are more likely than those trading in other areas (such as Paledi, Kruger Street, Church Street, Market Street, Landros Mare Street, Bok Street, and Polokwane Taxi Rank) to adopt the "food trading + non-food trading" strategy compared to the "food trading only" strategy. Conversely, traders who are not operating in the Mankweng Unit A are less likely to adopt the "food trading + non-food trading" strategy relative to the "food trading only" strategy.

The marginal effect shows that trading in Mankweng Unit A increases the probability of adopting the "food trading + non-food trading" strategy by 3.1%. This highlights the significant role that trading areas play in livelihood diversification, with traders operating in Mankweng Unit A more likely to diversify into both food and non-food trading activities, likely due to the presence of various retail shops, transport hubs (Maloka, 2013), and proximity to the University of Limpopo.

**Shelter**

Contrary to prior expectations, the shelter variable is negative and statistically significant at the 10% level for the "food trading + non-food trading" strategy. This

suggests that shelter negatively influences the adoption of diversified livelihood strategies, implying that traders having no shelter are more likely to pursue the "food trading + non-food trading" strategy compared to those with shelter (such as an umbrella, cart, container, or other forms). The negative coefficient indicates that traders having no shelter are more likely than those owning shelter to pursue the "food trading + non-food trading" strategy compared to the "food trading only" strategy. In contrast, traders with shelter are less likely to adopt the "food trading + non-food trading" strategy compared to the "food trading only" strategy.

The marginal effect indicates that owning a shelter decreases the probability of adopting the "food trading + non-food trading" strategy by 3.8%. This highlights the critical role that shelter plays in livelihood diversification, with traders owning shelter less likely to diversify their livelihoods into both food trading and non-food trading activities, likely due to limited resources such as finance, contradicting Mukwedeya and Mudhara (2023)’s findings for 200 youth in Zimbabwe.

**Mode of transport**

As anticipated, the mode of transport variable is positive and statistically significant at the 1% level for the "food trading + non-trading" strategy. This means that those using public transport to work are more likely to adopt the "food trading + non-trading" strategy than those walking to work and using their own cars. This indicates that the mode of transport positively influences the adoption of the "food trading + non-trading" strategy, suggesting that using public transport to work increases the likelihood of engaging in both food and non-food activities. The positive coefficient implies that traders using public transport to work are more likely than those walking and using their own cars to pursue the "food trading + non-trading" strategy compared to the "food trading only" strategy. Conversely, traders who walk to work and use their own cars are less likely to adopt the "food trading + non-trading" strategy relative to the "food trading only" strategy.

The marginal effect reveals that using public transport to work increases the probability of adopting the "food trading + non-trading" strategy by 9.9%. This highlights the significant role the mode of transport plays in livelihood diversification, with traders using public transport to work more likely to diversify into both food and non-food trading activities, likely due to lower transport costs and easier access to their

workplace. These results are consistent with the findings of Balense and Debebe (2019) for 196 households in Ethiopia.

#### 5.4.4.4 Institutional factors

Institutional variables that were excluded from the MNL analysis due to multicollinearity include “impoundment of goods”, “reasons for impoundment”, and “social grant”, and the ones that were not extracted from factor analysis include “type of social grant”, and “municipal policy”. As such, only "government support" and "supply shortage" were included in the analysis, as they were extracted from the factor analysis and did not exhibit multicollinearity. Both variables, incorporated in the MNL analysis, significantly influence the informal food traders' choice of livelihood strategies and are discussed in detail in the next section.

**Government support**

Contrary to expectations, the government support variable is negative and statistically significant at the 5% level for the "food trading + non-food trading" strategy, and at the 1% level for the "food trading + non-trading" strategy. This indicates that government support negatively influences the adoption of diversified livelihood strategies, suggesting that receiving government support reduces the likelihood of adopting the "food trading + non-food trading" and "food trading + non-trading" strategies. The negative coefficients for both strategies imply that traders receiving government support are less likely than those not receiving government to pursue these diversified livelihood strategies compared to the "food trading only" strategy. Conversely, traders not receiving government support are more inclined to adopt diversified strategies ("food trading + non-food trading" and "food trading + non-trading") relative to the "food trading only" strategy.

The marginal effect for government support reveals that receiving government support decreases the probability of the food trading + non-food trading" strategy by 12.4% and the "food trading + non-trading" strategy by 7.6% relative to the "food trading only" strategy. This suggests that receiving government support does not play a crucial role in livelihood diversification, as traders who receive support are less likely to adopt a more diversified strategy and instead tend to rely on their existing trade activities. This may be due to reliance on government support, which can discourage them from

diversifying their income, in contrast to findings for 334 farmers and herders by Zhong et al. (2022) in China.

**Supply shortage**

Contrary to expectations, the supply shortage variable is negative and statistically significant at the 5% level for the "food trading + non-food trading" strategy. This suggests that supply shortages may negatively influence the adoption of diversified livelihood strategies, implying that traders facing supply shortages are less likely to engage in the "food trading + non-food trading" strategy compared to "food trading only." The negative coefficient indicates that traders who experience supply shortages are less likely to pursue the "food trading + non-food trading" strategy compared to the “food trading” strategy. In contrast, traders who experience excess supply and who never experience supply shortage are more inclined to adopt the "food trading + non-food trading" strategy.

The marginal effect reveals that experiencing supply shortages decreases the probability of adopting this strategy by 11.1%. This highlights the crucial role that supply shortages play in livelihood diversification, with traders facing shortages being less likely to expand their trading activities, contradicting the findings of Duma and Utete (2023) in South Africa.

## 5.5 Chapter summary

This chapter reported the findings on the livelihood status of informal food traders and discussed the livelihood outcomes achieved after adopting specific livelihood strategies. It also presented the findings of multicollinearity testing, factor analysis, MNL logistic regression, and marginal effects. Furthermore, it highlighted variables with no significant effect on the adoption of livelihood strategies and discussed those with significant influence. The next chapter offers a summary of the study, presents the conclusions derived from the findings, and provides recommendations. Additionally, it addresses the limitations and suggestions for further research.

# CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 6.1 Introduction

This chapter concludes the study by providing a concise summary of its key aspects, including the research aims, objectives, methodologies, and main findings. It emphasises the essential outcomes, draws conclusions, and offers recommendations based on the study's findings. Additionally, it outlines delimitations and identifies potential areas for future research.

## 6.2 Summary

This study examined informal food traders' livelihood status and factors affecting their adoption of livelihood strategies post-COVID-19 pandemic in selected areas of Polokwane Local Municipality. The first objective was to describe and identify the socioeconomic characteristics of informal food traders. The second objective was to examine the livelihood status of informal food traders post-COVID-19 pandemic, and the last objective was to determine factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic.

To achieve the study objectives, 120 informal food traders from eight locations with a high concentration of informal food trading operations in Polokwane Local Municipality were selected using purposive sampling. A structured questionnaire was utilised to gather primary data from the traders via in-person interviews. Prior to comprehensive data collection, the questionnaire was pre-tested with 12 informal food traders to enhance the reliability of the collected data. The research complied with ethical standards, which encompassed obtaining informed consent, ensuring confidentiality and anonymity, and promoting voluntary participation.

For the analysis, descriptive statistics were generated to describe and identify the socioeconomic characteristics of informal food traders; thus, achieving objective one. Additionally, legal, physical, and institutional factors underpinning the adoption of livelihood strategies were also described through descriptive statistics. The LAI was used to examine the livelihood status of informal food traders post-COVID-19 pandemic; thus, achieving objective two. This index was chosen for its ability to evaluate the extent to which informal food traders accessed and utilised five capitals assets (financial, human, physical, social, and natural capitals) to recover from and cope with the aftermath of COVID-19 while sustaining their livelihoods. The MNL

model was employed to determine factors affecting the adoption of livelihood strategies by informal food traders post-COVID-19 pandemic; thus, achieving objective three. The livelihood strategies involved four unordered economic activities (income sources) that informal food traders engaged in or diversified to cope with the aftermath of the COVID-19 pandemic; hence MNL model was suitable for the analysis.

The main findings of the study cover objectives two and three and are as follows. The LAI results reveal a low overall livelihood status among informal food traders, with an estimated LAI value of 0.44. This low status indicates limited access to the necessary livelihood capitals assets for recovery and sustainability post-COVID-19, primarily due to the COVID-19 lockdown restrictions, which disrupted economic activities and constrained their livelihood opportunities. Despite the overall low status, performance varied across the five livelihood capitals. Physical capitals ranked the highest, suggesting that most of the traders had access to essential infrastructure and physical goods, such as transportation, electricity, concrete housing, trading spaces, and trading stalls, which were crucial for sustaining their livelihoods. On the other hand, financial capitals ranked the lowest, reflecting the traders' limited access to financial resources, including savings, income, insurance, formal loans, and pensions. As a result, many traders had to rely on informal loans from friends, relatives, and loan sharks, and social grants, to sustain their livelihoods post-COVID-19.

Before the MNL analysis, a multicollinearity test was conducted to identify potential issues among the explanatory variables. The results indicate that most variables were free from multicollinearity, as tolerance values were greater than 0.1, while VIF values were less than 5. Variables showing severe multicollinearity were excluded from the MNL analysis. Additionally, factor analysis was applied to minimise the number of variables, but only institutional factors met the criteria for analysis. The PCA extracted two variables, government support and supply shortage, which were included alongside other explanatory variables in the MNL model.

The results for the adoption of livelihood strategies showed that most traders (57.5%) adopted a "food trading only" livelihood strategy, while 31.7% adopted a "food and non-food trading" strategy. Additionally, 16.7% of traders adopted a "food and non-trading" strategy, and no participants reported adopting a "combination of food trading, non-food trading, and non-trading" strategy to sustain their livelihoods in the post-

COVID-19 era. Given that the focus was on informal food traders and the majority (57.5%) pursued the "food trading only" strategy, the results suggest that many traders opted to maintain their pre-pandemic livelihood strategy instead of diversifying into other income-generating activities. This implies that most of the informal food traders may have faced barriers or lacked incentives to adopt more diversified livelihood strategies, even though diversification could potentially offer greater resilience in the aftermath of the COVID-19 pandemic.

The results for the livelihood strategies served as the dependent variable in the MNL analysis. The MNL results indicated that gender, age, trading experience, trading hours, trading licence, shelter, government support, and supply shortages had a negative and significant influence on the adoption of multiple livelihood strategies by informal food traders. This suggests that female traders, older traders, those with a trading licence, those trading longer hours, and those experiencing supply shortages were less likely to adopt diverse livelihood strategies. Additionally, traders with more experience, access to shelter, and government support were less likely to adopt multiple livelihood strategies. Conversely, marital status, educational level, household head's monthly income, trading area, and mode of transport had a positive and significant influence on the adoption of multiple livelihood strategies. This implies that single traders, those with higher education, higher household income, those using public transport, and those operating in Mankweng Unit A were more likely to adopt multiple livelihood strategies.

### 6.3 Conclusion

The study had two hypotheses for the second and third objectives. The study's first hypothesis posits that access to human, financial, physical, social, and natural capitals does not improve the livelihood status of informal food traders post-COVID-19 in the selected areas of Polokwane Local Municipality. The study fails to reject this hypothesis, as the LAI results reveal that informal food traders within the study area had limited access to the capitals assets needed for recovery and sustainability post-COVID-19.

Specifically, while physical capitals ranked the highest with an LAI value of 0.60 due to traders' access to public transport, electricity, trading stalls, and concrete houses, limitations were noted in access to storage facilities, trading contracts,

licences/permits, and the use of cellphones for economic activities. Human capitals ranked second but reflected a low LAI value of 0.40 due to limited access to human resources, such as training and hired labour, which are essential for coping with the COVID-19 aftermath.

Natural capitals ranked third, with a low LAI value of 0.47, due to traders' limited involvement in commercial agriculture, which could have supplemented their income post-COVID-19. Social capitals also ranked low and fourth, with an LAI value of 0.45, due to traders' lack of trust in membership organisations and government institutions, and limited assistance from family and friends, all of which are essential for recovery. Financial capitals had the lowest LAI value of 0.28 due to traders' inability to save, limited income, lack of insurance, and restricted access to formal loans and pensions, which hindered their recovery from COVID-19 financial losses.

Overall, the noted limitations in access to human, financial, physical, social, and natural capitals contributed to the overall LAI value of 0.44. This implies that access to these livelihood capitals assets did not improve the livelihood status of informal food traders. Despite limited access to certain capitals assets, there was no notable improvement in their overall livelihood status; hence, the study fails to reject the first hypothesis.

The study’s third hypothesis posits that socioeconomic, legal, physical, and institutional factors do not significantly affect the adoption of livelihood strategies by the informal food traders post-COVID-19 in the selected areas of Polokwane Local Municipality. However, this hypothesis is rejected based on the MNL model results, which reveal that variables such as age, gender, trading hours, trading experience, trading licence, shelter, government support, and supply shortages negatively and significantly affected the adoption of livelihood strategies by informal food traders. This included four variables associated with socioeconomic factors (age, gender, trading hours, and trading experience), one variable (trading licence) pertaining to legal factors, and one variable linked to physical factors (shelter). Institutional factors that negatively influenced the adoption of livelihood strategies included government support and supply shortages.

Conversely, the MNL results revealed that variables such as marital status, educational level, monthly income of household head, trading area, and transport had

a significant and positive influence on the adoption of livelihood strategies. These included three socioeconomic variables (marital status, education level, and monthly income of household head), and two variables for physical factors (trading area and mode of transport). These positively correlated variables indicate that factors such as higher levels of education, increased household income, trading area, and using public or own transport enhanced the probability of adopting diversified livelihood strategies. Furthermore, marital status served as a socioeconomic factor that facilitated the adoption of diversified livelihood strategies by informal traders.

### 6.4 Recommendations

Overall, the findings highlighted that informal food traders in the study area had limited access to the capitals assets needed for recovery and resilience post-COVID-19. Therefore, policy interventions should prioritise strengthening human capitals, enhancing access to financial capitals, improving the utilisation of natural capitals, expanding physical capitals, and boosting social capitals. Government institutions, NGOs, and local authorities should focus on building human capitals by implementing training programmes that improve business skills, financial literacy, and operational knowledge. Financial institutions, in collaboration with the government, should offer microloans with relaxed collateral requirements tailored specifically to informal traders. Additionally, community-based savings schemes and affordable insurance products should be introduced for informal traders, ensuring they have a financial cushion to weather future crises. The government should further expand the availability of social grants, such as SRD grants, to assist informal food traders during crises like COVID-19.

To promote income diversification, informal food traders should be supported to utilise available natural resources, such as land and livestock, for commercial farming activities. Furthermore, community engagement and trust-building initiatives should be organised to foster stronger relationships between traders, societal organisations, and government institutions through mentorship programs and peer-to-peer networking events. Finally, local governments should work to improve market conditions by ensuring traders have access to essential infrastructure, such as storage facilities and trading spaces. By addressing these key areas, human, financial, natural, social, and physical capitals, informal food traders would be better equipped to recover from the impacts of COVID-19 and build more resilient and sustainable livelihoods in the future.

The MNL regression results revealed that factors such as age, trading experience, trading licence, and supply shortage negatively affect the adoption of livelihood strategies by informal food traders. Therefore, it is crucial to develop mentorship and peer support programs aimed at older traders, facilitating intergenerational partnerships where they can exchange knowledge and encourage exploration of diversification opportunities. For instance, an established trader with several years of experience can partner with younger traders through a structured mentorship programme, meeting monthly to discuss challenges and share insights on market trends. This collaborative environment could help older traders to develop new skills and strategies for diversifying their livelihoods.

For experienced traders, creating targeted training workshops will be beneficial; these should focus on new market trends, diversification strategies, and risk management. For example, a local business development centre might organise workshops on the latest digital marketing techniques, enabling traders to reach new customers through social media and online platforms. Another workshop could specifically address non-food trading options, including sessions on selling handmade crafts, clothing, or services, thereby broadening traders' business perspectives and encouraging them to consider new revenue avenues.

Moreover, simplifying the licensing process is essential. Implementing a fast-track licensing programme, where traders can obtain a licence in just a few days by submitting an online application with reduced fees during a promotional period, can motivate unlicensed traders to formalise their operations. Additionally, a grace period for compliance may allow traders to operate without a licence for the first three months while they gather the necessary documents, further encouraging formalisation.

Strengthening supply chain resilience is critical to mitigating the adverse effects of supply shortages on trading activities. For example, a policy that incentivises local farmers to partner with traders can ensure access to fresh produce and goods, thereby reducing reliance on distant suppliers. Additionally, investing in local market infrastructure, such as building a central storage facility, can help traders store goods safely and efficiently, allowing for better inventory management and swift responses to changes in supply and demand. Ultimately, these initiatives will support traders in

diversifying their livelihoods effectively and enhancing their overall business sustainability.

## 6.5 Delimitations of the study and areas for further research

There are five delimitations of this study that serve as areas for future research. Firstly, this study focused only on informal food traders, excluding other types of informal traders, which limits the understanding of livelihood strategies across different sectors of informal trade. Therefore, future research should focus on all types of informal traders to provide a broader understanding of their livelihood status and the factors affecting the adoption of their livelihood strategies.

Secondly, the study primarily assessed the livelihood status of informal food traders post-COVID-19 without comparing their status during the pandemic. Thus, further research should assess and compare the livelihood status of informal food traders during and post-COVID-19 to investigate whether their livelihood status improved, declined, or remained the same in the post-pandemic era.

Thirdly, the study's geographic scope was concentrated on Polokwane Local Municipality, which restricts the generalisation of findings to other regions. Therefore, future research should expand the geographic scope and compare the livelihood status and adoption of informal food traders' livelihood strategies in Polokwane with those in other municipalities or regions in South Africa.

Lastly, the study did not explore in detail how the five livelihood capitals (financial, human, physical, social, and natural capitals) influence the adoption of livelihood strategies by informal traders. Hence, future research should investigate the influence of these five livelihood capitals to gain a deeper understanding of how access to these assets affects traders' resilience and diversification efforts.

## REFERENCES


Abiodun, T.C., Olutumise, A.I. and Ojo, S.O., 2019. Evaluation of choices of livelihood strategy and livelihood diversity of rural households in Ondo State, Nigeria. *Journal of Social Sciences and Humanities*, 5(1), pp.17-24.

Adams, K.M., 2015. Introduction to non-functional requirements. *Nonfunctional Requirements in Systems Analysis and Design*, pp.45-72.

Ahmed, A.S. and Mustapha, A.L., 2020. Evaluation of Livelihood Status among Smallholder Cowpea Farmers in Kano State, Nigeria. *Journal of Agricultural Economics, Environment and Social Sciences*, 6(1), pp.118-130.

Ahmed, M., Saha, S.M., Hossain, M.E., Khan, M.A. and Prodhan, M.M.H., 2021. Assessment of livelihood and food poverty status of the floating fishermen in riverine system of Bangladesh. *Journal of Social Sciences & Humanities Open*, 4(1), pp.100219.

Akriti, K., Satpathy, I. and Patnaik, B., 2021. Covid-19 and its impact on livelihood: An Indian perspective. *Eurasian Chemical Communications*, *3*(2), pp.81-87.

Ali, M.H., Hossain, A.N.G.M., Hasan, M.A. and Bashar, M.A., 2008. Assessment of the livelihood status of the fish farmers in some selected areas of Bagmara upazilla under Rajshahi district. *Journal of the Bangladesh Agricultural University*, 6(452-2016-35511).

Aluoch, P.D., 2014. Complexities of informal cross border trade: Vulnerabilities and coping strategies among traders in Namanga, Kenya (*Unpublished Master's Dissertation, International Institute of Social Studies*).

Amevenku, F.K.Y., Asravor, R.K. and Kuwornu, J.K., 2019. Determinants of livelihood strategies of fishing households in the volta Basin, Ghana. *Cogent Economics & Finance*, 7(1), pp.1595291.

Arisanty, D., Putro, H.P.N., Normelani, E. and Anis, M.Z.A., 2020. Women traders livelihoods in tourism area of Lok Baintan floating market. *Journal of Indonesian Tourism and Development Studies*, *8*(1).

Asegie, A.M., Adisalem, S.T. and Eshetu, A.A., 2021. The effects of COVID-19 on livelihoods of rural households: South Wollo and Oromia Zones, Ethiopia. *Heliyon*, 7(12).

Astuti, N.B., Mutiara, V.I. and Hariance, R., 2021, May. Livelihood strategies of farmers in Padang City during pandemic Covid-19. In IOP Conference Series*: Earth and Environmental Science*, 741 (1), pp. 012070.

Babulo, B., Muys, B., Nega, F., Tollens, E., Nyssen, J., Deckers, J. and Mathijs, E., 2008. Household livelihood strategies and forest dependence in the highlands of Tigray, Northern Ethiopia. *Agricultural systems*, *98*(2), pp.147-155.

Banu, N., Sk, R., Mustaquim, M., Ali, M.K., Sarkar, R. and Mandal, S., 2023. Impact of COVID-19 pandemic on livelihoods of informal workers in Kolkata: from sustainable livelihood perspective. *GeoJournal*, pp.1-18.

Basri, A.R.H., Sharuddin, A., Fahimi, M.H.M. and Manivannan, N., 2021. Determinant factors that influence tourists to travel as backpackers in Malaysia (*Doctoral dissertation*, Universiti Malaysia Kelantan).

Bayaga, A., 2010. Multinomial Logistic Regression: Usage and Application in Risk Analysis. *Journal of applied quantitative methods*, 5(2).

Bayman, E.O. and Dexter, F., 2021. Multicollinearity in logistic regression models. *Anesthesia & Analgesia*, *133*(2), pp.362-365.

Bekele, S. and Rajan, D.S., 2017. Rural household livelihood strategies choices: The case of Humbo Woreda, Wolaita Zone, Southern Nation Nationalities and Peoples Regional State Ethiopia. *Journal of Economics and Sustainable Development*, 8(3), pp.69-85.

Balense, A. and Debebe, S., 2019. Determinants of rural livelihood strategies and income diversification among pastoral and agropastoral households in Southern Ethiopia. *Ethiopian Journal of Business and Social Science*, 2(1), pp.164-188.

Benhura, M. and Magejo, P., 2020. Differences between formal and informal workers' outcomes during the COVID-19 crisis lockdown in South Africa. *South Africa: National Income Dynamics Study*.

Burgess, H.K., DeBey, L.B., Froehlich, H.E., Schmidt, N., Theobald, E.J., Ettinger, A.K., HilleRisLambers, J., Tewksbury, J. and Parrish, J.K., 2017. The science of citizen science: Exploring barriers to use as a primary research tool. *Biological Conservation*, *208*, pp.113-120.

Cai, J., Wang, T., Xia, X., Chen, Y., Lv, H. and Li, N., 2019. Analysis on the choice of livelihood strategy for peasant households renting out farmland: Evidence from western poverty-stricken areas in China. *Sustainability*, *11*(5), pp.1424.

Carney, D., 1998. Implementing the sustainable rural livelihoods approach. Sustainable rural livelihoods: *What contribution can we make*, 3, pp.27.

Chambers, R., and Conway, G. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. *Brighton: Institute of development studies*, 296, pp. 1-29.

Chazovachii, B., 2020. Understanding strategies for resilient livelihoods by Masvingo Urban's vulnerable groups during the COVID-19 pandemic in Zimbabwe. *African Journal of Governance & Development*, 9(1.1), pp.139-159.

Chebanga, F., Mukumbi, K., Mutetwa, M. and Mtaita, T., 2018. Postharvest losses to agricultural product traders in Mutare, Zimbabwe. *Journal of Scientific Agriculture*, *2*, pp.26-38.

Chelak, K. and Chakole, S., 2023. The role of social determinants of health in promoting health equality: A narrative review. *Cureus*, *15*(1).

Chen, M.A., 2023. The Informal Economy in Comparative Perspective: Theory, Policy and Reality. *The Indian Journal of Labour Economics*, 66(2), pp.395-420.

Chesley, N., 2017. What does it mean to be a "breadwinner" mother?. *Journal of Family Issues*, *38*(18), pp.2594-2619.

Daniel, M., 2014. Determinants of rural households' diversification of livelihood strategies: A Case of Intsika Yethu Farmers of the Eastern Cape Province (*Doctoral dissertation*, University of Fort Hare).

Datta, J., Gangadharappa, N.R., Biradar, G.S. and Kendra, G.K.V., 2014. Livelihood status of tribal people practicing shifting (jhum) cultivation in Tripura state of North-East India. *Tropical Agricultural Research*, 25(3), pp.316-326.

DeFranzo, S.E., 2014. *Advantages and disadvantages of face-to-face data collection. Snap Surveys Ltd, London*. Available at: https://www.bing.com/search?q=DeFranzo%2C+S.E.%2C+2014.+Advantages+and+disadvantages+of+face-to-face+data+collection.+Snap+Surveys+Ltd%2C+London.&cvid=6340dcb9c584428787c88e670628c928&gs_lcrp=EgZjaHJvbWUyBggAEEUYOTIICAEQ6QcY_FXSAQczMTlqMGo0qAIEsAIB&FORM=ANAB01&PC=U531 [Accessed: 15 March 2023].

Department for International Development., 2000. *Sustainable Livelihoods Guidance Sheets*. Available at: https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf [Accessed: 10 February 2023].

Department of Small Business Development., 2021. *Impact of COVID-19 on micro and small businesses*. Available at: https://www.dsbd.gov.za/publication/impact-covid-19-micro-and-informal-businesses [Accessed: 9 March 2024].

De Villiers, V., 2022. Investigating the socio-economic profile of informal street traders in Cape Town's central business district: a COVID-19 perspective (*Doctoral dissertation*, North-West University).

Ding, W., Jimoh, S.O., Hou, Y., Hou, X. and Zhang, W., 2018. Influence of livelihood capitals on livelihood strategies of herdsmen in inner Mongolia, China. *Sustainability*, 10(9), pp.3325.

Doyo, D.K., Okoyo, E.N. and Lemma, T., 2018. Livelihood diversification strategies among the Borana pastoral households of Yabello District, Oromia Region, Ethiopia. *Journal of Agricultural Extension and Rural Development*, 10(10), pp.211-221.

Duguma, G., Beyene, F., Ketema, M. and Jemal, K., 2023. Determinants and impacts of livelihood choice strategies on farm households' food security status in North Shewa zone Oromia, Ethiopia. *International Journal of Applied Agricultural Sciences*, 9(3), pp.61-73.

Duressa, D.S., 2021. Multinomial Logistic Regression Analysis of Livelihood Diversification Strategies of Rural Farm Households: A Case of Limmu District, East Wollega Zone of Oromiya Regional State, Ethiopia. *Journal of Economics and Sustainable Development,* 12 (13).

Emeru, G.M., Fikire, A.H. and Beza, Z.B., 2022. Determinants of urban households' livelihood diversification strategies in North Shewa Zone, Ethiopia. *Cogent Economics & Finance*, 10(1), pp.2093431.

Enayati, M., Arlikatti, S. and Ramesh, M.V., 2024. A qualitative analysis of rural fishermen: Potential for blockchain-enabled framework for livelihood sustainability. *Heliyon*, 10(2).

Eneyew, A. and Bekele, W., 2012. Determinants of livelihood strategies in Wolaita, southern Ethiopia. *Agricultural Research and Reviews*, 1(5), pp.153-161.

Etim, E. and Daramola, O., 2020. The informal sector and economic growth of South Africa and Nigeria: A comparative systematic review. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), pp.134.

Fenner, L. and Banwell, C., 2019. What Do the 'Breadwinners' Do? Understanding Fathers' Roles in Family Food Work in Australia. *Global Journal of Health Science*, *11*(3), pp.1.

Fuenfschilling, L. and Truffer, B., 2014. The structuration of socio-technical regimes—Conceptual foundations from institutional theory. *Research policy*, *43*(4), pp.772-791.

Ganti A., 2023. *Central Limit Theorem: Definition and key*. Available at: https://www.investopedia.com/terms/c/central_limit_theorem.asp#:~:text=A%20sample%20size%20of%2030,representative%20of%20your%20population%20set [Accessed: 20 February 2023].

Gebissa, B. and Geremew, W., 2022. Determinants of food insecurity and the choice of livelihood strategies: the case of Abay chomen district, Oromia regional state, Ethiopia. *The Scientific World Journal*, 2022.

Gecho, Y., Ayele, G., Lemma, T. and Alemu, D., 2014. Rural household livelihood strategies: Options and determinants in the case of Wolaita Zone, Southern Ethiopia. *Social sciences*, 3(3), pp.92-104.

Greene, W.H., 2018. *Econometric Analysis.* 8th ed. Cambridge, Massachusetts: Pearson.

Güvendir, M.A. and Özkan, Y.Ö., 2022. Item removal strategies conducted in exploratory factor analysis: A comparative study. *International Journal of Assessment Tools in Education*, *9*(1), pp.165-180

Habib, N., Rankin, P., Alauddin, M. and Cramb, R., 2022. Determinants of livelihood diversification in rural rain-fed region of Pakistan: evidence from fractional multinomial logit (FMLOGIT) estimation. *Environmental Science and Pollution Research*, pp.1-12.

Harper, C.M. and Zhang, S.S., 2021. Legal tech and Lawtech: towards a framework for technological trends in the legal services industry. Market engineering: insights from two decades of research on markets and information, pp.183-197.

Harith, N.H.M., Kamarunzaman, N.Z., Ismail, T.N.T., Zainuddin, A. and binti Jamil, N.F.A., 2022. A Preliminary Findings of Urban Poor Malay Households Livelihood Strategies in Klang Valley, Malaysia. *Resmilitaris*, 12(2), pp.2254-2271.

Hattar, N., 2023. Unveiling the Impacts of the Covid-19 Crisis: Exploring the Experiences of Women in the South African Informal Economy (*Masters Dissertation*, Stockholm University).

Haque, M. M. (2021). *Impact Of COVID-19 on Livelihoods Of Street Vendors In Dhaka City, Bangladesh* (Masters dissertation, Sher-E-Bangla Agricultural University).

Hendratmi, A., Agustina, T.S., Sukmaningrum, P.S. and Widayanti, M.A., 2022. Livelihood strategies of women entrepreneurs in Indonesia. *Heliyon*, 8(9).

Hilton, C.E., 2017. The importance of pretesting questionnaires: a field research example of cognitive pretesting the Exercise referral Quality of Life Scale (ER-QLS). *International Journal of Social Research Methodology*, 20(1), pp.21-3.

Hoq, M.S., Uddin, M.T., Raha, S.K. and Hossain, M.I., 2022. Determinants of households' livelihood diversification strategies to adapt to natural hazards: evidence from ecologically vulnerable haor region of Bangladesh. *Natural Hazards*, 114(3), pp.3255-3291.

Hua, X., Yan, J. and Zhang, Y., 2017. Evaluating the role of livelihood assets in suitable livelihood strategies: Protocol for anti-poverty policy in the Eastern Tibetan Plateau, China. *Ecological Indicators*, 78, pp.62-74.

Illangasingha, C.K., Wickramaratne, I.U., Rathnayaka, R.M.S.M., Dassanayake, W.M.S.U. and Gamage, M.G.K.N., 2024. Livelihood status of the fishing community of Mahakanadarawa reservoir in Anuradhapura, Sri Lanka. *Sri Lanka Journal of Aquatic Sciences*, 29(1), pp.43-56.

Integrated Development Plan., 2023. *Polokwane Local Municipality*. Available at: IDP (polokwane.gov.za) [Accessed: 9 February 2023].

Islam, M.M. and Chuenpagdee, R., 2018. Nomadic fishers in the hilsa sanctuary of Bangladesh: The importance of social and cultural values for wellbeing and sustainability. *Social wellbeing and the values of small-scale fisheries*, pp.195-216.

Kabir, K.R., Adhikary, R.K., Hossain, M.B. and Minar, M.H., 2012. Livelihood status of fishermen of the old Brahmaputra River, Bangladesh. *World Applied Sciences Journal*, 16(6), pp.869-873.

Kabonga, I., Zvokuomba, K. and Nyagadza, B., 2021. The challenges faced by young entrepreneurs in informal trading in Bindura, Zimbabwe. *Journal of Asian and African Studies*, 56(8), pp.1780-1794.

Kabonga, I., Zvokuomba, K., Nyagadza, B. and Dube, E., 2023. Swimming against the tide: Young informal traders' survival strategies in a competitive business environment in Zimbabwe. *Youth & Society*, 55(2), pp.280-299.

Kaliyadan, F. and Kulkarni, V., 2019. Types of variables, descriptive statistics, and sample size. *Indian dermatology online journal*, 10(1), pp.82-86.

Kamruzzaman, M. and Hakim, M.A., 2016. Livelihood status of fishing community of Dhaleshwari river in central Bangladesh. *International Journal of Bioinformatics and Biomedical Engineering*, 20, pp.2-86.

Kanjere, M., 2015. The challenges faced by informal traders in greater Letaba municipality in Limpopo province, South Africa. *Africa's Public Service Delivery & Performance Review*, 3(4), pp.57-75.

Kasim, Y., 2019. Impacts of livelihood assets on wellbeing of rural households in Northern Nigeria. J*ournal of Engineering, Management, & Applied Sciences & Technologies*, 10, pp.13.

Kaushalya, H., Karunasena, G., and Amarathunga, D., 2014. Role of insurance in post disaster recovery planning in business community. *Procedia Economics and Finance*, *18*, pp.626-634.

Khambule, I., 2020. The effects of COVID-19 on the South African informal economy: Limits and pitfalls of government's response. *Loyola Journal of Social Sciences*, 34(1), pp.95-109.

Khambule, I., 2022. COVID-19 and the informal economy in a small-town in South Africa: governance implications in the post-COVID era. *Cogent Social Sciences*, 8(1), pp.2078528.

Khumalo, S.M.S., 2015. The role of informal trading in economic development: the case study of Mtubatuba (*Doctoral dissertation*, University of Kwazulu-Natal).

Koma, T.V.M., 2017. The effects of the implementation of municipal by-laws on street vending: a case of Devenish Street in Polokwane City, Limpopo, Province (*Doctoral dissertation,* University of Limpopo).

Khumalo, S.M., Mthuli, S.A. and Singh, N., 2019. Economic development through the local informal economy in sustaining livelihoods: The case of the rural coastal town of Mtubatuba. *Journal of Public Administration*, 54(4-1), pp.772-789.

Kruger, P., Moyo, K., Mudau, P., Pieterse, M. and Spies, A., 2021. *Republic of South Africa: Legal Response to COVID-19*. Available at: https://oxcon.ouplaw.com/display/10.1093/law-occ19/law-occ19-e6 [Accessed: 2 June 2024].

Kuuwill, A., Kimengsi, J.N. and Campion, B.B., 2022. Pandemic-induced shocks and shifts in forest-based livelihood strategies: learning from COVID-19 in the Bia West District of Ghana. *Environmental Research Letters*, 17(6), pp.064033.

Kyriazos, T. and Poga, M., 2023. Dealing with multicollinearity in factor analysis: the problem, detections, and solutions. *Open Journal of Statistics*, *13*(3), pp.404-424.

Labour Market Intelligence (LMI), 2022. *Skills Needs of the Informal Sector: A conceptual framework*. Available at: Skills Needs of the Informal Sector: A Conceptual Framework (lmi-research.org.za) [Accessed: 14 March 2024].

Langry, F. and Rena, R., 2023. Socio-Economic Implications of the COVID-19 Pandemic and its Impact on the South African Informal Economy. African *Journal of Inter/Multidisciplinary Studies*, 5(1), pp.1-12.

Lefophane, M.H., Mdungwa, M.S. and Oluwatayo, I.B., 2022. Analysis of Factors Influencing the Income Generated By Informal Fresh Produce Traders during COVID-19 Pandemic in Polokwane Local Municipality, South Africa*. International Journal of Food and Agricultural Economics*, 10(1128-2022-1179), pp.325-342.

Legodi, K. and Lawal, J.O., Omonona, B.T. and Oyinleye, O.D., 2011. Effects of livelihood assets on poverty status of farming households' in Southwestern, Nigeria. *European Association of Agricultural Economists*, 726(2016), pp.49770.

Duma, L.S. and Utete, R., 2023. Tracking and unpacking the impact of Covid-19 on informal food traders in South Africa. *Management and Entrepreneurship Trends of Development 23(1),* pp. 21-27.

Mabitsela, P.W., 2017. Regulating informal trading in local government: The case of Polokwane Local Municipality (*Doctoral dissertation*, University of Limpopo).

Mafukata, M.A., 2015. Factors having the most significance on the choice and selection of marketing channels amongst communal cattle farmers in Vhembe District, Limpopo Province. *Journal of Human Ecology*, 49(1-2), pp.77-87.

Mago, W., 2018. Understanding sustainable livelihood strategies of informal traders: a case of Mount Frere, Eastern Cape (*Doctoral dissertation*, University of the Free State).

Majadibodu, M.I., 2016. The impact of street trading on the economic development in the city of Polokwane, Limpopo Province (*Doctoral dissertation*, University of Limpopo).

Makaye, P. and Munhande, C., 2008. The contribution of informal food trading to urban food security in Zimbabwe: The case of Gweru 2000–2007. *Journal of Sustainable Development in Africa*, 10(2), pp.312-332.

Makhetha, P., 2010. Exploring the livelihood strategies employed by street traders selling vegetables and fruits along Noord Street (*Doctoral dissertation*, Johannesburg).

Makondo, P.P., 2022. *The Impact of Social Grants (including COVID-19 SRD Grant) on Livelihood Strategies and Food Security in Benfarm Village, Limpopo Province* (Doctoral dissertation, University of Johannesburg).

Maloka, C.M., 2013. *The contribution of small, medium and micro enterprises towards local economic development in Mankweng township, Limpopo Province* (Doctoral dissertation, University of Limpopo).

Manasoe, B., Mmbengwa, V.M. and Lekunze, J.N., 2021. Analysis of the impact of the networks on the status of the internal resources of the small-scale agro-processors in South Africa. *Cogent Social Sciences*, *7*(1), pp.1964201.

Mathe, P. and Ndlovu, B.C., 2021. *Neglected or Negligence: A Study to Assess the Challenges Faced by Informal Traders in Hwange Urban during the COVID-19 Era*. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3947832 [Accessed: 22 April 2023].

Matomola, L.N., 2023. Experiences of Female Informal Traders in Namibia during the National Coronavirus Lockdown of 2020 (*Masters Dissertation*, University of Cape Town).

Mbatha, M.W. and Mlambo, D.N., 2021. Using sustainable livelihood approach to analyse the impact of COVID-19 on the South African rural agricultural markets. *Humanities and Social Sciences*, 28(4), pp.71-80.

Mbatha, M.W., Ndimande, N.J. and Tembe, K.S., 2021. COVID-19 Pandemic and Food Security in South Africa: The Government's Response. *African Renaissance*, 18(4), pp.305.

Mahmood, R., Zahari, A. S. M., Ibrahim, N., Jaafar, N. F. H. N., and Yaacob, N. M., 2021. The impact of entrepreneur education on business performance. *Asian Journal of University Education*, *16*(4), 171-180.

Meso, K.K., 2017. Contributions of informal trading towards urban livelihoods in Polokwane city central business District, Limpopo Province (*Doctoral dissertation*, University of Limpopo).

Michael, A., Tashikalma, A.K., Kolawole, A.A. and Akintunde, M.O., 2021. Rural livelihood improvement: An assessment of households' strategies and activities in Adamawa State, Nigeria. *Journal of Rural and Community Development*, 16(1).

Mmbengwa, V.M., Myeki, L. and Khoza, T.M., 2023. *The determinants of intrinsic participatory capacity in collective smallholder farming entrepreneurs: A case of land reform emerging farmers in North West Province of the Republic of South Africa*. Available at: https://www.namc.co.za/wp-content/uploads/2018/10/The-determinants-of-an-intrinsic-participatory-capacity.pdf [Accessed: 5 July 2023].

Mmbengwa, V.M., Rambau, K., Rakuambo, J., Tempia, N. and Qin, X., 2019. Participation of smallholder farmers in agro-processing industries: implications for the extension services of Gauteng Province. *South African Journal of Agricultural Extension*, 47(4), pp.106-119.

Mmbengwa, V.M., Qin, X. and Nkobi, V., 2021. Determinants of youth entrepreneurial success in agribusiness sector: The case of Vhembe district municipality of South Africa. *Cogent Social Sciences*, 7(1), pp.1982235.

Mohammed U.H., 2014. Survey of Sources of Capitals among Traders of Wunti Market in Bauchi Metropolis*. Journal of Poverty, Investment and Developmen*t, (5) 2014.

Muchuweni-Chiumira, M., 2019. Informal trading in South Africa: the experiences of African informal migrant traders operating in Pretoria central (*Doctoral dissertation*, University of the Witwatersrand).

Mukwedeya, B. and Mudhara, M., 2023. Factors influencing livelihood strategy choice and food security among youths in Mashonaland East Province, Zimbabwe. *Heliyon*, 9(4).

Municipalities of South Africa., 2023. *Polokwane Local Municipality (LIM354)*. Available at: https://municipalities.co.za/overview/1121/polokwane-local-municipality [Accessed: 2 March 2023].

Munishi, E.J., Kirumirah, H.M. and Lwoga, E.T., 2021. COVID-19 and Urban-Based Informal Vendors in Global South: A Review of Associated Livelihood Threats and Policy Implications. *African Journal of Applied Research, 7(2), 2021*.

National Development Agency (NDA)., 2013. *Civil society participation in income generating activities in South Africa*. Available at: https://www.nda.org.za/assets/resources/CF824421-4FA0-41EE-AB69-4DB10CD0384A/Research_report_Income_Generation_study_report.pdf [Accessed: 8 May 2024].

Nielsen, Ø.J., Rayamajhi, S., Uberhuaga, P., Meilby, H. and Smith-Hall, C., 2013. Quantifying rural livelihood strategies in developing countries using an activity choice approach. *Agricultural economics*, *44*(1), pp.57-71.

Nkosi, N.V. and Tabit, F.T., 2021. The food safety knowledge of street food vendors and the sanitary conditions of their street food vending environment in the Zululand District, South Africa. *Heliyon*, 7(7).

Ndhlovu, E. and Mhlanga, D., 2023. The Effects of COVID-19 on Informal Traders in Undesignated Spaces. *Emerging Science Journal*, 7, pp.95-104.

Nene, B.A.M.V., Delao, K.C.A., Vargas, A.M., Mandal, J.M. and Tan, V.J.D., 2021. The Psychological Well-Being of Breadwinners in Selected Families of a Third-Class Municipality: A Literature Review. *International Journal of Innovative Science and Research Technology*, *8*(7), pp.2595-2601.

Neves, D., Samson, M., van Niekerk, I., Hlatshwayo, S. and Du Toit, A., 2009. *The use and effectiveness of social grants in South Africa*. Available at: https://www.academia.edu/3023713/The_use_and_effectiveness_of_social_grants_in_South_Africa [Accessed, 20 August 2023].

Nieman, G. and Nieuwenhuizen, C., 2009. *Entrepreneurship: A South African Perspective*. 2nd ed. Pretoria: Van Schaik.

Nyanga, T., Zirima, H. and Mashavira, N., 2020. Withering COVID 19 storm: survival strategies employed by informal traders in Masvingo urban, Zimbabwe. *Management Dynamics*, 20(1), pp.1-9.

Parajuli, A., 2013. Livelihood Opportunities of Street Vendors: Study of Ason, Indrachowk and Khullamunch of Kathmandu Metropolitan City (*Doctoral dissertation*, National College Dhumbarahi, Kathmandu).

Patel, L.E.I.L.A., Dikoko, V.I.W.E. and Archer, J.A.D.E., 2023. Social grants, livelihoods and poverty responses of social grant beneficiaries in South Africa. *Johannesburg: Centre for Social Development in Africa, University of Johannesburg*, *9*, pp.2023.

Pagnani, T., Gotor, E. and Caracciolo, F., 2021. Adaptive strategies enhance smallholders' livelihood resilience in Bihar, India. *Food Security*, 13(2), pp.419-437.

Polokwane Local Municipality., 2024. *Spatial Development Framework*. Available at: Polokwane-SDF-2024-JS.pdf [Accessed: 19 September 2024].

Popescu, C. and Diaconu, L., 2009. *Informal Education and Productivity*. Available at https://dx.doi.org/10.2139/ssrn.1328239 [Accessed: 22 February 2023].

Pour, M.D., Barati, A.A., Azadi, H. and Scheffran, J., 2018. Revealing the role of livelihood assets in livelihood strategies: Towards enhancing conservation and livelihood development in the Hara Biosphere Reserve, Iran. *Ecological Indicators*, 94, pp.336-347.

Purwaningsih, S.S., Romdiati, H. and Latifa, A., 2022. Urban Informal Sector Workers during the COVID-19 Pandemic in Indonesia: Social Networking as a Strategy for Business Sustainability*. International Journal of Interreligious and Intercultural Studies*, 5(1), pp.37-52.

Rahman, M.S., Majumder, M.K., Sujan, M.H.K. and Manjira, S., 2021. Livelihood status of coastal shrimp farmers in Bangladesh: Comparison before and during COVID-19. *Aquaculture Reports*, 21, pp.100895.

Rauf, U.A.A., Jabar, J. and Mansor, N., 2020. An exploratory factor analysis for measuring knowledge management component construct in Malaysian public higher education. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), pp.4523-4534.

Resnick, D., Sivasubramanian, B., Idiong, I.C., Ojo, M.A. and Tanko, L., 2022. The enabling environment for informal food traders in Nigeria's secondary cities. *In Transforming Urban Food Systems in Secondary Cities in Africa*, pp. 103-131.

Ringson, J. and Raniga, T., 2022. The Implications of COVID-19 on informal trading in Gauteng, South Africa. *African Journal of Governance & Development*, 11(1.2), pp.307-327.

Rwafa-Ponela, T., Goldstein, S., Kruger, P., Erzse, A., Abdool Karim, S. and Hofman, K., 2022. Urban Informal Food Traders: A Rapid Qualitative Study of COVID-19 Lockdown Measures in South Africa. *Sustainabilit*y, 14(4), pp.2294.

Rodriguez, J., and Walters, K., 2017. The importance of training and development in employee performance and evaluation. *Worldwide journal of multidisciplinary research and development*, *3*(10), pp.206-212.

Ruml, A., Ragasa, C. and Qaim, M., 2022. Contract farming, contract design and smallholder livelihoods. *Australian Journal of Agricultural and Resource Economics*, *66*(1), pp.24-43.

Saba, S., Sarker, M.A.R. and Gow, J., 2022. Determinants of non-farm income diversification strategies and decisions of Bangladesh farm households. *Economic Analysis and Policy,* 76, pp.226-235.

Sagaya, A., 2019. Livelihood strategies and household food security of vegetable street vendors in Morogoro town, Tanzania: an empirical analysis (*Doctoral dissertation*, Sokoine University of Agriculture).

Sarwer, M.G., Ali, M.Y., Bhowmik, S., Asadujjaman, M. and Sharmin, M.S., 2016. Pond farming and livelihood status of fish farmers in Subarnachar, Noakhali, Bangladesh. *Agriculture and Biology Journal of North America*, 7(3), pp.134-139.

Sasiprapha, C., 2010. Migration and livelihood strategies in Thailand: A case of Mae Sai non-citizen resident. *Asian Rural Sociology iv*, pp.148.

Satter, 2023. *Structured Questionnaire: Definition, Types + Pros & Cons*. Available at: https://www.questionpro.com/blog/structured-questionnaire/ [Accessed: 17 February 2023].

Scharn, M., Hengel, K.O., Boot, C.R., Burdorf, A., Schuring, M., Van Der Beek, A.J. and Robroek, S.J., 2019. Influence of chronic diseases on societal participation in paid work, volunteering and informal caregiving in Europe: a 12-year follow-up study. *Epidemiol Community Health*, 73(2), pp.136-141.

Sinyolo, S., Jacobs, P. and Maila, M., Women informal food traders in South Africa during COVID-19: more vulnerable yet given least assistance. *HSRC Review*, 20(3), pp.12-15.

Simon, B.A. and Khambule, I., 2022. Modelling the impact of the COVID-19 pandemic on South African livelihoods. *International Journal of Sociology and Social Policy*, 42(11/12), pp.926-948.

Schotte, S. and Zizzamia, R., 2023. The livelihood impacts of COVID-19 in urban South Africa: a view from below. *Social Indicators Research*, 165(1), pp.1-30.

Shrestha, N., 2020. Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, *8*(2), pp.39-42.

Shrestha, N., 2021. Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, 9(1), pp.4-11.

Skinner, C. and Watson, V., 2021. Planning and informal food traders under COVID-19: The South African case. *Town Planning Review*, 92(3), pp.301-307.

South African Government., 2018. *Land audit report - Phase II: Private land ownership by race, gender and nationality*. Available at: https://www.gov.za/sites/default/files/gcis_document/201802/landauditreport13feb2018.pdf [Accessed: 5 August 2024].

South African Government., 2021. *Electoral Commission Former Chairperson Brigalia Bam receives Covid-19 vaccine, 24 May*. Available at: https://www.gov.za/news/media-advisories/government-activities/electoral-commission-former-chairperson-brigalia-bam [Accessed: 5 August 2024].

South African Government., 2022. Disaster Management Act: Termination of national state of disaster. Available at: https://www.gov.za/documents/notices/disaster-management-act-termination-national-state-disaster-04-apr-2022. [Accessed: 5 August 2024].

South African Government (2024). *About Coronavirus COVID-19*. Available at: https://www.gov.za/Coronavirus [Accessed: 16 July 2024].

Statistics South Africa (StatsSA)., 2019. *Gender Series Volume VII: Informal Economy*. Available at: https://www.statssa.gov.za/publications/Report-03-10-23/Report-03-10-232019.pdf [Accessed: 10 June 2024].

Statistics South Africa., 2023. *General Household survey*. Available at: GHS 2023 P0318 (statssa.gov.za) [Accessed: 12 August 2024].

Stiegler, N. and Bouchard, J.P., 2020. South Africa: Challenges and successes of the COVID-19 lockdown. *In Annales Médico-psychologiques, revue psychiatrique*, 178 (7), pp. 695-698.

Suharto, E., 2003. Accommodating the Urban Informal Sector in the Public Policy Process. *New Zealand Journal of Asian Studies*, *4*(2), 115–133.

Sun, W., Chou, C.P., Stacy, A.W., Ma, H., Unger, J. and Gallaher, P., 2007. SAS and SPSS macros to calculate standardized Cronbach's alpha using the upper bound of the phi coefficient for dichotomous items. *Behavior research methods*, 39, pp.71-81.

Sunny, A.R., Ahamed, G.S., Mithun, M.H., Islam, M.A., Das, B., Rahman, A., Rahman, M.T., Hasan, M.N. and Chowdhury, M.A., 2019. Livelihood Status of The Hilsa (Tenualosa ilisha) Fishers: The Case of Coastal Fishing Community of The Padma River. Bangladesh. *J Coast Zone Manag*, 22(2), pp.469.

Taherdoost, H.A.M.E.D., Sahibuddin, S. and Jalaliyoon, N.E.D.A., 2022. Exploratory factor analysis; concepts and theory. *Advances in applied and pure mathematics*, 27, pp.375-382.

Takaza, S.C. and Chitereka, C., 2022. An investigation into the livelihoods strategies of informal women traders in Zimbabwe. *Journal of Innovation and Entrepreneurship*, 11(1), pp.37.

Tavakol, M. and Dennick, R., 2011. Making sense of Cronbach's alpha. *International journal of medical education*, 2, pp.53.

Tavakol, M. and Wetzel, A., 2020. Factor Analysis: a means for theory and instrument development in support of construct validity. *International journal of medical education*, 11, pp.245.

Tikadar, K.K., Islam, M.J., Saha, S.M., Alam, M.M., Barman, S.K. and Rahman, M.A., 2022. Livelihood status of small-scale fishermen and determinants of their income: insights from north-eastern floodplains of Bangladesh. *Geography and Sustainability*, 3(3), pp.204-213.

Thulare, M.H. and Moyo, I., 2021. COVID-19 and street traders in the City of uMhlathuze, KwaZulu-Natal, South Africa: On responses and adaptation mechanisms. *Cogent Social Sciences*, 7(1), pp.2006392.

Uddin, M.T. and Dhar, A.R., 2016. Conservation agriculture practice and its impact on farmers livelihood status in Bangladesh. *SAARC Journal of Agriculture*, 14(1), pp.119-140.

witije, C. 2016. Contributions of Street Vending on Livelihood of Urban Low-Income Households in the City of Kigali, Rwanda (*Master's Dissertation*, University of Nairobi_.

Uys, M.D. and Blaauw, P.F., 2006. The dual labour market theory and the informal sector in South Africa. Acta *Commercii*, 6(1), pp.248-257.

Wegerif, M.C., 2020. "Informal" food traders and food security: experiences from the COVID-19 response in South Africa. *Food Security*, 12(4), pp.797-800.

Wage Indicator., 2024. *Role & Pay - Street food salespersons*. Available at: https://mywage.co.za/work-smart/role-pay/south-africa-street-food salespersons#:~:text=The%20majority%20of%20Street%20food,and%20R 10%20257%20per%20month [Accessed: 15 August 2024].

World Health Organisation (WHO) (2023). *Coronavirus disease 2019 (COVID-19)*. Available at: https://www.who.int/healthtopics/coronavirus#:~:text=Coronavirus%20disea se%20(COVID%2D19)%20is%20an%20infectious%20disease%20caused, recover%20without%20requiring%20special%20treatment. [Accessed: 20 March 2023].

Wooldridge, J.M., 2010. *Econometric Analysis of Cross Section and Panel Data.* 2nd ed. London: MIT Press

Workie, D.M., 2023. Livelihood Diversification Strategies and Determinants by Smallholder Farmers in the Highland Areas of North Shewa Ethiopia. *Journal of Agribusiness and Rural Development,* 68(2), pp.217-228.

Wulff, J.N., 2015. Interpreting results from the multinomial logit model: Demonstrated by foreign market entry. *Organisational research methods*, *18*(2), pp.300-325.

Yizengaw, Y.S., Okoyo, E.N. and Beyene, F., 2015. Determinants of livelihood diversification strategies: The case of smallholder rural farm households in Debre Elias Woreda, East Gojjam Zone, Ethiopia. *African journal of agricultural research*, 10(19), pp.1998-2013.

Yobe, C.L., Mudhara, M. and Mafongoya, P., 2019. Livelihood strategies and their determinants among smallholder farming households in KwaZulu-Natal province, South Africa. *Agrekon*, 58(3), pp.340-353.

Yuya, B.A. and Daba, N.A., 2018. Rural households livelihood strategies and its impact on livelihood outcomes: The case of eastern Oromia, Ethiopia. *Agris on-line Papers in Economics and Informatics*, 10(2), pp.93-103.

Zhang, K., Hassan, M., Yahaya, M. and Yang, S., 2018. Analysis of Work-Zone Crashes Using the Ordered Probit Model with Factor Analysis in Egypt. *Journal of Advanced Transportation*.

Zhao, H., Guo, X. and Peng, N., 2022. What catalyzes the proactive recovery of peasants from the COVID-19 pandemic? A livelihood perspective in Ningqiang County, China. *International Journal of Disaster Risk Reduction*, 73, pp.102920.

Zhong, F., Ying, C. and Fan, D., 2022. Public service delivery and the livelihood adaptive capacity of farmers and herders: the mediating effect of livelihood capitals. *Land*, *11*(9), pp.1467

Zhou, W., Guo, S., Deng, X. and Xu, D., 2021. Livelihood resilience and strategies of rural residents of earthquake-threatened areas in Sichuan Province, China. *Natural hazards*, 106, pp.255-275.

Zogli, L.K.J., Dladla, N. and Dlamini, B., 2021. Assessing the challenges faced by informal street traders operating in Durban, South Africa. *International Journal of Entrepreneurship and Business Development*, 4(4), pp.412-417.

## APPENDIX A: ETHICAL CERTIFICATE LETTER

**University of Limpopo**
**Department of Research Administration and Development**
**Private Bag X1106, Sovenga, 0727, South Africa**
**Tel: (015) 268 3935, Fax: (015) 268 2306, Email: tukiso.sewapa@ul.ac.za**

**TURFLOOP RESEARCH ETHICS COMMITTEE**

**ETHICS CLEARANCE CERTIFICATE**

**MEETING:** **31 OCTOBER 2023**

**PROJECT NUMBER:** **TREC/1606/2023: PG**

**PROJECT:**

| | |
|---|---|
| **Title:** | Examining informal food traders' livelihood status and factors affecting the adoption of their livelihood strategies post-COVID-19 pandemic in South Africa: A case study of Polokwane local municipality." |
| **Researcher:** | M Morwatshehla |
| **Supervisor:** | Dr MH Lefophane |
| **Co-Supervisor/s:** | Prof A Belete |
| **School:** | Agriculture and Environmental Sciences |
| **Degree:** | Master of Science in Agricultural Sciences |

**PROF D MAPOSA**
**CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE**

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

**Note:**

i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**

ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**

iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**

*Finding solutions for Africa*