The Modern Spaza

How can e-commerce support spaza shops in achieving the six dimensions of food security in a low-income area?

MPhil Environment, Society and Sustainability

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PLAGIARISM DECLARATION

I, Jade Konz (KNZJAD001), hereby declare that I know the meaning of plagiarism and that the dissertation that I hereby submit is all my own work.

ACKNOWLEDGEMENTS

I would like to offer my sincerest gratitude to Yebo Fresh for allowing me to use them as a case study and for all their help - without your assistance this research would have been impossible. I would also like to thank all the research participants. I am deeply grateful for the enriching stories you shared with me. I would also like to thank the two respondents from Yebo Fresh, who gave up their time to discuss the complexities of the sector. I commend both of your hard work and wish you all the best for the future. Lastly, I would like to thank my supervisor Dr Jane Battersby for all her help and advice.

ABSTRACT

South Africa (SA) is facing a food insecurity crisis, with those in low-income areas severely affected by multiple forms of malnutrition. Low-income communities rely on neighbourhood spaza shops to meet their shopping needs, yet they are also sources of obesogenic, highly processed foods. The emergence of e-commerce as a new component of the food system, driven by increased internet and smartphone access in low-income communities, presents an opportunity to explore its potential impact on food security. This research therefore examines how e-commerce can support spaza shops in achieving the six dimensions of food security. A case study was undertaken in Mitchells Plain with a spaza shop e-commerce provider – Yebo Fresh (YF). Interviews were conducted with nine foreign-owned spaza shops, two employees of YF on multiple occasions, and field notes were taken to evaluate the role of spaza shops in both supporting and undermining food security. The findings indicate that despite retailing high levels of processed foods, spaza shops contribute in varying degrees to all the food security dimensions, but the current impact of e-commerce in this sphere is minimal.

The research highlights challenges faced by YF, such as high levels of competition in the wholesaler market, limited access to economies of scale, as well as the significance of competitive pricing and product range availability on spaza shops' purchasing decisions. Serving the foreign spaza sector presents additional challenges related to the digital divide, language barriers, and the nature of informality. The thesis finds that YF supports the spaza shop industry however it does not directly improve the spaza's ability to meet the existing six dimensions of food security. Further investigation is required to evaluate the potential benefits of e-commerce for South African owned spaza shops.

ABBREVIATIONS

AFSUN - The African Food Security Urban Network

B2B - Business-to-business

B2C - Business-to-client

CCSA – Competition Commission South Africa

COD - Cash-on-delivery

CFS - Committee on World Food Security

ECD - Early childhood development

EPOS - Electronic point of sale

FAO - Food and Agriculture Organisation

HLPE - High Level Panel of Experts

NGO - Non-governmental organisation

PLAAS - Institute for Poverty, Land and Agrarian Studies

SA – South Africa

SAPS - South African Police Service

SARS - South African Revenue Service

SASSA – South African Social Security Agency

SM – Senior Management

SR – Sales Representative

Stats SA - Statistics South Africa

YF – Yebo Fresh

TERMINOLOGY

Bakkie Boys	Informal fresh produce salespeople that travel through townships with a truck of fresh produce to sell to shops that they have sourced from Cape Town Fresh Produce Market known as Epping Market.
Bulk Breaking	The selling of smaller quantities that may be more expensive per unit, but more affordable to the poor
Ekasi	Township slang meaning my community.
Epping Market	Cape Town Fresh Produce Market.
Food systems	Food systems encompass the various elements, activities, and processes involved in food production, processing, distribution, preparation, and consumption, along with their associated socio-economic and environmental impacts (HLPE, 2014, in Clapp *et al.* 2021).
Last Mile Deliveries	In supply chain terminology, the "last mile" refers to the transportation and logistics involved in delivering goods and services to their final destination. This stage is often the least efficient and most expensive part of the supply chain journey.
Highly processed foods	Highly processed foods are heavily modified food products containing numerous additives and are typically high in calories, unhealthy fats, sugars, and sodium. Examples: Sugary breakfast cereals, pre-packaged snacks (chips, sweets, biscuits), soda and other sugary beverages, instant noodles, processed meats, sweetened yoghurts, and flavoured milk drinks.
Mos	Colloquial Afrikaans used for emphasis.
Nutritional transition	A significant shift in dietary consumption patterns observed during the process of urbanisation and economic development. This transition typically involves a move away from traditional diets, which are often centered around locally sourced, minimally processed foods, towards increased consumption of highly processed and pre-packaged foods.
Load shedding	Controlled power outages to distribute demand across the system.
Macronutrients	Macronutrients are essential nutrients required by the body in relatively large quantities to provide the energy needed for various physiological processes and activities. The three main types of macronutrients are carbohydrates, proteins, and fats. Adequate intake of these nutrients is crucial for supporting body

	growth, development, and overall well-being (FAO, IFAD, *et al.*, 2022).
Malnutrition	An abnormal physiological condition caused by inadequate, unbalanced, or excessive intake of macronutrients and/or micronutrients (FAO, IFAD, *et al.*, 2022).
Micronutrients	Micronutrients are essential nutrients required by the body in smaller quantities but are equally important for overall health and proper functioning. They include vitamins and minerals that play vital roles in various physiological processes, growth, and development (FAO, IFAD, *et al.*, 2022).
Spaza	A spaza shop is an informal convenience store found in residential areas throughout South Africa. It is derived from the isiZulu and isiXhosa word "isipaza," which means "informal" or "temporary".
Supply chain management	The coordination and oversight of the entire process involved in the movement of goods or services, from the suppliers to the end-users or customers. It involves planning, organizing, and optimizing the various stages of the distribution chain to ensure efficient and timely delivery of products or services.
Township	A township in South Africa refers to a residential area or settlement that was historically designated for non-white population groups during the apartheid era. These areas were often characterised by segregation, discrimination, and limited access to resources and opportunities for residents, and these socio-economic disparities are still prevalent today (Cities Support Programme, 2018).
Undernutrition	Undernutrition refers to a condition in which a person's nutrient intake is insufficient to meet their body's needs for proper growth, development, and overall health. It includes various forms such as stunting (impaired growth and development), wasting (severe weight loss), and underweight (low body weight for age). Undernutrition is often caused by inadequate dietary intake, lack of access to nutritious food, and other socio-economic factors, leading to deficiencies in essential nutrients, vitamins, and minerals (FAO, IFAD, *et al.*, 2022).
Philippi Horticultural Area	A commercial agricultural area within the City of Cape Town

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1. Introduction

Food insecurity is one of the most pressing challenges facing South Africa (SA), over 30% of the population is food insecure, meaning that they are unable to consistently access enough nutritious food to support a healthy lifestyle (FAO, IFAD, *et al.*, 2022). Food insecurity unequally affects those living in low-income areas, and their food needs are often met by the informal sector (Battersby *et al.*, 2014). In low-income food environments, spaza shops in particular are responsive to the needs of the poor. Spaza shops are informal convenience stores found in residential areas throughout SA and deserve specific attention due to the increasing number of people relying on them, specifically those with irregular incomes and the unemployed (Battersby *et al.*, 2016; Rogerwilco and Survey54, 2023). COVID-19 not only worsened the food insecurity crisis in SA but brought it into the public eye (Stats SA, 2019). Spazas were essential points for food access and even distributed electronic food vouchers to those in need during the crisis (CoCare, 2021). COVID-19 also accelerated the adoption of e-commerce in the country (Vries and Engelbrecht, 2021). E-commerce – the sale of goods or services online - is one of the fastest growing markets in SA, but there is a great disparity between high-income and low-income areas. Despite townships having significant barriers to accessing such services, there have been an increasing number of ecommerce start-ups operating in these areas (Rogerwilco *et al.*, 2022; Vries and Engelbrecht, 2021). This emerging market brings about new possibilities to address some of the challenges that the country faces, and this thesis aims to explore how the emergence of e-commerce may provide potential solutions for supporting local food environments and the food security of the poor.

This introductory chapter will firstly provide further background and context for the research. It will highlight the issue of urban food insecurity, then discuss advancements in digital technologies within the food system both locally and internationally. The background will highlight the current research in the field and identify the gaps, thereby showing the rationale for the research. Secondly, it will introduce the research question and objectives and set out how the research will achieve them. Next the chapter will discuss the structure of the thesis and finally conclude with an overview of the expected outcomes.

1.1. Background

Residents in low-income urban areas in Cape Town are some of the most food insecure in the country (Battersby, 2011). Research has shown that these residents rely on a variety of methods to access food, but that the informal sector has a significant role in supporting their food security (Battersby *et al.*, 2016; Charman *et al.*, 2019; Haysom *et al.*, 2017; Kroll *et al.*, 2019; Petersen and Charman, 2018; Peyton *et al.*, 2015). However, informal retailers face several challenges, such as transport, storage, and business constraints due to their informal nature (Battersby *et al.*, 2016). Furthermore, there is debate to what level they support food security due to the high level of unhealthy foods they sell, a lack of fresh produce, and substandard products (Petersen and Charman, 2018). These studies have generally focussed on all food retailers in the informal sector so narrowing the focus to spaza shops will be beneficial to understanding their specific challenges and these shops have been highlighted as sites of intervention for improving food security (Battersby and Crush, 2014). Furthermore, the City of Cape Town has recognised that the informal sector should be critical areas for research, alongside food insecurity interventions to ensure a sustainable future (City of Cape Town, 2019; FAO, European Union, *et al.*, 2022).

There has been a noticeable shift towards e-commerce in SA's food system, but it is not equitably distributed. As this topic is a relatively new phenomenon there is limited academic research on e-commerce in SA (Fortuin, 2023; Mkansi, 2020; Mkansi *et al.*, 2020; Weber and Badenhorst-Weiss, 2018). However, there have been industry led reports focusing on consumer research and business development within townships which provide key oversights of the market (Rogerwilco *et al.*, 2021, 2022; Rogerwilco and Survey54, 2023; Vries and Engelbrecht, 2021). Internationally, research has focussed on digitising supply networks to support food security through interventions at different points of the food system (Lu and Reardon, 2018; Saha, 2019). Of particular interest, is the focus on improving local corner shops offering of healthy foods through digital means which provide some insight into the possibilities in SA (See: Gittelsohn *et al.*, 2022; Lewis *et al.*, n.d.; Madlala *et al.*, 2023). There has also been research into how convenience shops improve their food environments through product offering and business strategies (Haboush-Deloye *et al.*, 2023; Joassart-Marcelli *et al.*, 2017; Lenk *et al.*, 2020; Lewis *et al.*, n.d.; Minkler *et al.*, 2019). There has also been research on digital technologies improving the supply chain to improve food security and food wastage – but these have generally focussed on first mile logistics (from production to processing) and agriculture (see: Aji, 2020; FAO, 2021a; Mantravadi and Srai, 2023; Saha, 2019). Research on the possibilities for last mile logistics and supply chain innovation is still in its infancy, particularly in in low-income areas in developing countries (Tuomala and Grant, 2021).

This brings to question what this could mean in SA, and how could such services be utilised to support food local environments and the food security of the poorest? This background and rationale for the study has briefly introduced the themes for the research as food security, spaza shops and e-commerce, and next the research question and objectives are presented.

1.2. Research Question and Objectives

The background and rationale to the research project demonstrates the need to understand: "How can e-commerce support spaza shops towards achieving the six dimensions of food security in a low-income area?" to achieve this, the following objectives will be used to guide the research:

> Objective One: Understand the role of spaza shops in the Mitchells Plain food environment using the six dimensions of food security.
>
> Objective Two: Explore the advantages and disadvantages of using e-commerce from the spaza shop perspective.
>
> Objective Three: Explore how an e-commerce company supports the six dimensions of food security by supplying spaza shops in townships.
>
> Objective Four: Draw conclusions and offer recommendations on the application of e-commerce to support food security in low-income areas.

A case study with an e-commerce company will be undertaken to investigate this question. The e-commerce company delivers goods to spaza shops in townships in Johannesburg and Cape Town, this thesis focusses on one area in particular – Mitchells Plain, Cape Town. Interviews with company employees, spaza shops and field notes will be used to gather in-depth qualitative data and rich accounts of how they fulfil the needs of their community and support food security, the challenges the spaza sector face, and the challenges an e-commerce company in its infancy have in meeting the needs of the sector. The research points to wider systemic flaws in the food system in SA and presents the discussion on how e-commerce can contribute to growth in the informal sector, but how digital challenges need to be addressed. Researchers have also pointed out the importance of generating qualitative data to understand the nuances of food insecurity and to better understand the lived experiences of those experiencing it, so this thesis will aim to capture the realities of spaza shops (Clapp *et al.*, 2021).

1.3. Thesis Structure

The thesis is organised into nine chapters. This chapter has introduced the research topic, discussed the rationale for the study and introduced the research question and its objectives. Chapter two reviews the literature and dissects the topic into three sections; firstly, it gives an overview of food security theory and introduces the underpinning framings of the research - the six dimensions of food security and food environment theory. Secondly, the literature focuses on low-income food environments and specifically on spaza shops in SA. Lastly, the literature discusses the emergence of e-commerce, how it is currently being utilised, and what potential impacts it could have on food security.

Chapter three introduces the methodology for the research. It justifies using a case study and introduces the company and the research setting - Mitchells Plain. It discusses how qualitative data was gathered through semi-structured interviews and field notes with spaza shops and company employees. It discusses how the data was thematically analysed and it presents a detail description of the spaza shops interviewed in Table 1. It discusses the limitations of the study and how the study ensured ethical standards were ensured.

Chapter Four and Five present the findings of the research. Chapter Four discusses the role of spaza shops in their local food environments and presents the findings on how they contribute towards the six dimensions of food security. Summarised findings are presented in Table 2, which shows that spazas meet all six dimensions to a certain degree and that they are essential pillars in their local communities. Chapter Five presents the benefits and challenges of an e-commerce provider in servicing the spaza sector. Despite the benefits of cost-saving and pricing, the company faces wider systemic issues of power within the food systems which signifies high levels of concentration and barriers to entry for small organisations, and severely impacts their ability to compete with multinational wholesalers.

Chapter Six interprets the findings and situates the results within the wider research that was discussed in the literature. It discusses what the research implications are and recommends further research focussing on locally operated spaza shops and on wholesaler supply chains. Chapter Seven concludes the thesis by providing a synthesis of the research and summarises key points from each chapter. It shows that the research question and aim and objectives were met, but there were several limitations, and how further research could contribute to addressing these gaps. Chapter Eight contains the references list and Chapter Nine contains all appendixes.

1.4. Conclusion

In conclusion this introductory chapter has outlined the significance of the research project and how it aims to address significant gaps in the research in the current understanding of how spaza shops specifically inform food security and it has shown the rise in e-commerce and how servicing spaza shops through this potentially may address some of the challenges they face. As a new phenomenon this provides a significant contribution to research in the food security field in low-income areas.

2. Literature Review

2.1. Introduction

The following literature will be reviewed to guide the research to investigate and explore e-commerce as an emerging component of the food system. The existing literature will inform the case study which takes place with an e-commerce business – referred to as YF - that operates within townships servicing businesses, residents, and charities. The focus of this research is particularly on spaza shops and their role within local food environments, and whether e-commerce can support them in improving food security in low-income areas.

This chapter begins by broadly discussing the current understanding of food security through discussing the six dimensions that are needed to achieve this. Next, an in-depth discussion is undertaken on the food crisis in SA specifically examining the issue of the triple burden of malnutrition. The obesogenic food environment, particularly in townships, is then discussed to gain an understanding of how macro and micro environmental and systemic issues impact people's food choices. Food provisioning strategies are examined through looking at bulk buying and month end shopping, to spaza shops and how they match the food shopping strategies of the poor. The final section moves beyond the household level and discusses influences from the macro food environment and how consolidation in the food system controls local food environments and impacts on people's food choices.

The second section of the literature review introduces spaza shops as important pillars in low-income neighbourhoods' food environments. They are discussed in terms of how they meet the dimensions of food security. Spaza shops also face several challenges and addressing these is essential for future sustainability. The dichotomy of whether spazas are indeed supporting food security due to the high level of obesogenic food products that they sell is highlighted.

The final section of the literature review investigates the growing e-commerce market, how access to e-commerce is unequally distributed, and the reasons behind that. It examines the growing ekasi (township slang meaning my community) commercial environment and how supply to spaza shops could support food security.

2.2. The Six Dimensions of Food Security

The Food and Agriculture Organisation (FAO) (2006) defines food security "as a situation in which all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life". This definition of food security is globally accepted and is centred around achieving six dimensions that are present at multiple scales within the food system. These six dimensions are: availability, access, utilisation, stability, sustainability, and agency (HLPE, 2020). *Figure 1* below shows how the six dimensions correlate with the definition of security. These dimensions are interconnected, rather than separate pillars, and all need to be fulfilled for food security to be achieved long term (HLPE, 2020). These dimensions form the grounding framework for the research question.

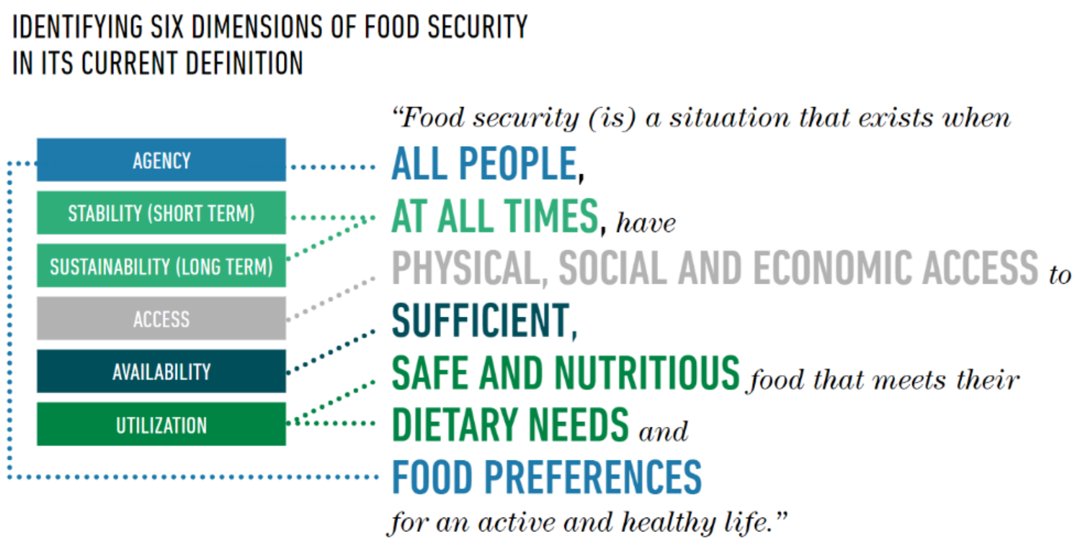

Figure 1: The Six Dimensions of Food Security. Source: HLPE (2020)

The dimension of availability relates to whether food is available in the entire system and encompasses the macro scale factors influencing this. It encapsulates production, food reserves, markets, wild foods and transportation (FAO, IFAD, *et al.*, 2022). Access focusses on the ability to access food on the household and neighbourhood level. Researchers have expanded this to consider the dimension in terms of physical, economic and social access (Battersby and Haysom, 2018). Utilisation relates to nutritious food being consumed and how this can be impacted by external factors such as fuel, water, sanitation, and health care. The fourth dimension, stability, refers to meeting the other three dimensions regardless of any political, social or environmental shocks both in the short and long term (FAO, IFAD, *et al.*, 2022).

The final two dimensions - sustainability and agency - were recommended to be incorporated into the theory of food security in 2020 by the High Level Panel of Experts (HLPE) of the Committee on World Food Security (CFS) (HLPE, 2020). They have not been formally adopted by FAO or other organisations yet, but they have been recognised as essential components of food security literature (Clapp *et al.*, 2021; FAO, European Union, *et al.*, 2022; FAO, IFAD, *et al.*, 2022).

The sustainability dimension aims to ensure food security for the future and to promote regenerative practices. It encapsulates understanding how ecosystems, livelihoods, society, and politics are connected to food systems and clearly situates food security as a complex part of wider systems (Clapp *et al.*, 2022; HLPE, 2020). Agency is the ability of individuals, communities, neighbourhoods, and groups to self-govern, and provide input into food system processes. This dimension recognises food as a human right and highlights the power imbalances and inequalities that exist within food systems (Clapp *et al.*, 2022).

The recognition of these final dimensions represents a movement towards adopting a multi-level and holistic approach to addressing food security. Food insecurity is not simply insufficient food consumption, but multiple forms of malnutrition; it goes beyond simply access to food to understanding why people's diets are a certain way. All these elements need to be addressed through holistic approaches for food security to be achieved.

There have been very few studies that consider all dimensions. A systematic literature review of indicators measuring food security by Manikas *et al.* (2023) shows that most research uses the household-level calorie adequacy indicator, the dietary diversity-based and experience-based indicators. Many of these only consider a specific dimension, which fails to reveal the full extent of food insecurity. Katre and Raddatz (2023) found that only three studies measured the original four dimensions, and in the other studies utilisation and stability were seldom captured. The challenge for many studies is building a quantitative research model that can measure all of these on a large scale. This can be seen as significant research gap, that can fail to uncover key findings that could be exposed through in-depth research on all the dimensions (Clapp *et al.*, 2022). Clapp *et al.* (2022) further notes the importance of conducting qualitative research to discover nuances and relationships throughout whole food systems to improve policy and planning around them. This study therefore embraces qualitative measures and in-depth questions to examine all the dimensions through a case study methodology. It also uses this framework to find key indicators in the literature and applies these to understand how spaza shops contribute to food security and how e-commerce can support them in doing this.

2.3. The State of Food Insecurity in South Africa

While SA is food secure at the national scale - meaning that it produces enough food to feed the country (Stats SA, 2021) - the country still suffers from high levels of food insecurity. Stats SA (2019) found that before COVID-19 20% of households were food insecure and the pandemic further escalated these figures with the most marginalised and poorest communities being the worst affected (Battersby, 2020; Stats SA, 2021). Current estimates suggest that over 20 million people, or more than 30% of the population, suffer from food insecurity in SA (Sulcas, 2022).

In the Western Cape province, the setting for this research, 17.5% of residents are food insecure (Stats SA, 2019). Notably, the City of Cape Town had the highest rate of food insecurity among all metropolitan areas in the country, with 31% of households reporting access issues (Western Cape Government, 2016). This distinctly situates food insecurity as an urban issue, and the increasing rate of urbanisation namely due to rural urban migration makes it even more pressing (City of Cape Town, 2019; Stats SA, 2021). The numbers of urban poor are likely to increase and with it an increase in processed foods, that are representative of changing urban lifestyles and diets (HLPE, 2020). This impact can be seen in how food insecurity figures in low-income areas within the city are even higher; with research finding that up to 80% of households in neighbourhoods in the Cape Flats were food insecure (Battersby, 2019).

The financial and national health cost of food insecurity is significant. The cost to treat people with diabetes is almost R3 billion a year according to a 2018 Global Health Action study and that study also found that the figure would be closer to R21 billion if undiagnosed cases were included (Boachie *et al*., 2022; Erze *et al.*, 2019). Over 20 million people in the country are overweight or obese - approximately 31% of men, 68% of women and 13.5% of children (Sulcas, 2022). The Western Cape has a 10% greater prevalence of overweight and obesity compared to national level (Western Cape Government, 2016). Most concerningly, malnutrition is a significant underlying cause of child mortality and is the associated cause of one-third of all child in-hospital deaths (May *et al.*, 2020). The Child Gauge Report found that 27% of children under five years old are stunted (May *et al.*, 2020) and the long term effects this has on a child's cognitive and social development are severe, which then impacts health care costs and economic growth in the country (Harrison, 2023; May *et al.*, 2020). It expands the understanding of food security to encompass multiple forms of malnutrition that are symptomatic of obesogenic environments and food choices that are driven by poverty and the nutritional transition that is happening in SA. This crisis is known as the triple burden of malnutrition and is discussed further next.

2.3.1. Conditions Driving the Triple Burden of Malnutrition

The coexistence of three forms of malnutrition - undernutrition, micronutrient deficiencies, and overweight/obesity - is known as the triple burden of malnutrition and highlights the complex and multifaceted nature of food insecurity. In SA, the triple burden can co-exist in urban households and a person can experience all of these at different points of their life (Gómez *et al.* 2013 in Battersby and Haysom, 2018). To understand how malnutrition and food insecurity can be addressed the complex drivers of the triple burden of malnutrition should be understood.

FAO, European Union, *et al.*, (2022) recognise three key drivers of the triple burden of malnutrition in SA. Firstly, high levels of inequality and persistent income poverty which means those in low-income areas frequently must make difficult dietary decisions. The City of Cape Town estimates that unemployment is at 29%, and finding reveal that those low household incomes reduce the quantity and quality of food compromising their nutritional status (Western Cape Government, 2016, 2022). The second driver is multidimensional poverty (which includes water, sanitation, and health) which informs how food can be stored and prepared, housing quality, access to affordable and reliable energy, and social care. This directly affects the utilisation dimension. The final driver that FAO identifies is the cost of healthy foods and availability of highly processed food. Findings suggest that the cost of fresh fruits and vegetables have increased faster than other food products (FAO, European Union, *et al.*, 2022) and obesogenic, ultra-processed foods are cheaper now than healthier options (Battersby, 2016). Approximately 80% of pre-packaged food items available in South African supermarkets are classified as highly processed or ultra-processed. This means they contain excessive amounts of added sugars, salt, unhealthy fats, and chemical additives (Frank *et al.*, 2021). This driver relates to the dimensions of availability, economic access, utilisation, and sustainability (due to the environmental impact highly processed foods have on the environment).

Turner *et al.*, (2018) emphasise the lack of research in low-income countries on how food environments shape diets. They find that food environment research focusses purely on obesity rather than holistically on the triple burden. One of the recommendations that FAO, European Union *et al.* (2022) suggest is improving food environments in low-income areas through reducing the cost of fresh produce and its logistics and storage. This is particularly important given the research objective of examining e-commerce in townships focuses on logistics in townships and provisioning of food. Furthermore, it is interesting to note that The Western Cape Government notes the severity of the public health concern of the triple burden of malnutrition and highlights the role of the corporatisation of food through supermarkets on affecting consumers consumption patterns (Western Cape Government, 2016). These points introduce the concept of food environments which informs people's food choices and how they navigate the food system.

2.3.2. The Food Environment

The food environment is defined by Turner *et al.* (2018, p. 95) as the "interface that mediates people's food acquisition and consumption within the wider food system" and emphasises the importance of holistically understanding how people acquire and consume food, and how both external environmental and personal factors contribute to food insecurity. Environmental factors such as availability, price, retailers, product properties, and marketing inform how, why, and where people acquire foods. These elements are often shaped by private companies, industry, and legal frameworks that inform poor health (HLPE, 2020). Personal factors include the accessibility, affordability, convenience and desirability of food sources and products, which then inform the food choices within these environments (Turner *et al.*, 2018). Therefore, food environments shape people's food choices and consumption patterns (Kroll *et al.*, 2019). This theory therefore deepens the understanding of how systemic poverty influences how people interact within these environments and what they can purchase (Kroll *et al.*, 2019).

In Cape Town, there is a disparity between how people who live in different areas interact with their food environments – the geographies of the poor are polar to the wealthy in the city (Kroll *et al.*, 2019). There are unequal structural barriers to accessing healthy food between low-income communities and high-income areas in Cape Town (Kroll *et al.*, 2019). Findings also show that in townships the quality of produce is lower and that fewer healthy foods are stocked (Battersby and Crush, 2014). This means that low-income area residents have a more obesogenic food environment that has high levels of nutritionally poor food and lacks widely available and accessible healthy, fresh produce (Haysom, 2021).

Low-income food environments in the country can be connected to the theory of food deserts, which are areas where "access to nutritious, affordable food is lacking, due to limitations stemming from the geographies of poverty, transportation, and food distribution" (Peyton *et al.*, 2015). However, Battersby (2011) argues that the concept needs to be understood from an African city perspective as it is not purely an absence of food, but also the disparity in the quality and accessibility of food purchased from a both an economic and social perspective. Joassart-Marcelli *et al.* (2017) concur with this and find that small retailers are consistently left out of food desert literature, despite their important role in people's food provisioning strategies in low-income neighbourhoods. Further arguing that this omission disregards poor people's agency in navigating food environments, and disregards the role of these small businesses, noting that they are often owned or managed by people from within these low-income communities, and can often be immigrants (Joassart-Marcelli *et al.*, 2017).

Katre and Raddatz, (2023) find that food behaviours are reflective of the failures of a corporatised food system, and that low-income families are affected globally by this issue. Their research found that the triple burden of malnutrition could be improved through addressing the barriers to accessing nutritious food within neighbourhoods, barriers such as time, education and transportation (Katre and Raddatz, 2023). The time and transportation aspects are particularly relevant to this research, as offering food deliveries in townships would address the economic and time costs of travelling to shops. They also highlight that a multilevel approach is needed, and that simply improving the availability of foods or access to food is not enough, like food desert literature does (Katre and Raddatz, 2023). Turner *et al.* (2019) further demonstrate the need to link food environment and food value chain research to emphasise the relationship between formal and informal actors in influencing how people acquire foods, which is what this research will investigate.

The concept of the food environment thus has significant impact on how food security can be achieved. It has clear connections to the six dimensions of food security and the triple burden of malnutrition. The food environment affects how people access food, what food is available to them, how they can utilise their foods (including environmental factors like water, gas, and electricity), and impacts how they choose what to buy – this is reinforced by corporatised food systems and marketplace consolidation (HLPE, 2020). Yet, as Kroll *et al.* (2019, p. 5) find, "food retailers themselves are shaped by the constraints on aggregate demand in poor food geographies." This section has highlighted the structural challenges of food insecurity and systemic issues within food environments. The next section will now discuss how households and neighbourhoods navigate these challenging environments.

2.3.3. Food Shopping Strategies of the Urban Poor

Research into township food environments in SA reveals that people use several coping strategies to acquire food, which is how people interact with the food environment on a personal level (Turner *et al.*, 2018). Low-income households were found to conduct a single monthly bulk shop, usually from one supermarket (Battersby *et al.*, 2016; Charman *et al.*, 2019). They often purchase 'hampers' (a bundle of staple items, including maize meal, flour, oil, rice and sugar) at a discount price from either formal or informal outlets (Coste *et al.*, 2022).

This is shown in the Child Gauge survey where caregivers explain how they look through newspapers to find the best combo deals before month end (May *et al.*, 2020). A typical example of the types of combos that major retailers offer is illustrated in a brochure from USave eKasi, a Shoprite subsidiary that competes with spaza shops in the township sector (see Image 1). Bowden *et al.* (2018) found that the location of the store (such as its distance, travel time, and associated expenses), access to credit, and food quality are significant factors that influence where households purchase from, along with the combo deals. Research also shows that consumers from a lower income bracket group are brand loyal and did not have disposable income to experiment with unknown products (Cant *et al.*, 2013). This is shown in Image 1 with recognisable brands (Sasko, Lucky Star, Jungle Oats) being used in the combo. However, the recent Township Report found that consumers were becoming less brand loyal due to price sensitivities and this research will aim to investigate this further.

Image 1: USave eKasi End of Month Specials May/June 2023 (Usave, 2023).

Battersby *et al*. (2016) found that households rely on spaza shops and vegetable sellers to purchase smaller and more affordable foodstuffs on a weekly basis, sometimes even on credit. The Child Gauge Report in 2020 substantiated this by finding that caregivers buy small amounts of fresh produce from vegetable hawkers and spaza shops to “top up” during the week (May *et al*., 2020). These consumers also predominantly pay in cash, despite often having bank accounts (Masojada, 2021; Rogerwilco *et al.*, 2021).

This section has revealed on how individuals interact with the food system, showing how an individual's financial situation makes them search for hampers of staples (with low nutritional quality) to get through the month, and how they are attracted to these specials by wider environmental factors, advertising, supermarkets, and brands. Furthermore, on a neighbourhood level they rely on the informal sector for small amounts of fresh produce and topping up when they can afford it, or on credit. This section highlighted how the dimensions of availability, access and utilisation are enacted in peoples' lived realities. This introduces the wider macro food environment which examines where households purchase from and the role these companies have in local food environments.

2.3.4. The Macro Food Environment

Supermarkets are the main supply of household food (in value terms) in SA (Charman *et al.*, 2019). The grocery retail sector in SA is dominated by only a few actors; Shoprite Holdings holds 26% market share, followed by Massmart-Walmart (20%), the Spar Group (20%), and the Pick 'n Pay group (16%) (Trade Intelligence, 2016 in Coste *et al.*, 2022). This has led to SA's food system being recognised as one of the most consolidated globally (Greenberg, 2016; Greenberg, 2010; Igumbor *et al.*, 2012 in Battersby, 2016). The development of numerous new shopping centres and retail establishments within township geographies shows the shift in the food system towards neo-liberal trade tendencies of corporations trying to capture the lower income market (Charman *et al.*, 2019). This is often promoted as creating new availability and access to food through supermarkets, ignoring the informal avenues of accessing food that already exist (Joassart-Marcelli *et al.*, 2017). The impact of this growth of formal retailers on food security has been questioned and findings show that supermarketisation has resulted in an increased availability of and access to products that are highly processed but failed to decrease the cost of fresh produce (Charman *et al.*, 2019; Skinner and Haysom, 2016). Additionally, some researchers believe that supermarket expansion has adversely impacted food access for the poor (Coste *et al.*, 2022; Peyton *et al.*, 2015). The Competition Commission South Africa (CCSA) found that supermarkets may have adversely impacted the food environment through competing with the informal sector which has led to business closures (CCSA, 2019).

Research from low-income areas in the United States has begun to focus on the role of community stores, ethnic markets, and bodegas (which are all akin to spaza shops in SA) as sites of research as they are frequently left out of food desert literature. Furthermore, similarly to SA they also recognise that supermarkets frequently do not meet the needs of the poor and fail to improve food security. These local level interventions specifically look at purchasing behaviour, marketing and supply in low-income neighbourhoods has shown positive results in decreasing obesogenic foods sold and increasing healthy diets (Joassart-Marcelli *et al.*, 2017). In SA, there has been growing research on the important role that the informal sectors play in food environments, in their communities and on food security. As discussed, most residents in low-income neighbourhoods depend on supermarkets for their end of month shopping, while they rely on their local spazas for essential items (such as fresh bread and milk), daily shopping and top-ups when they have run out of basic food items (Charman *et al.*, 2019; Rogerwilco *et al.*, 2022). This introduces the next section of the literature review where these informal shop's role in local food environments is examined.

2.4. Spaza Shops

It is difficult to precisely measure how many spaza shops there are in SA due to their informal nature, but research suggests there are more than 150,000 (Battersby *et al.*, 2016; Rogerwilco *et al.,* 2022). These businesses are classified as informal because they are largely unregistered and deal predominantly in cash (Battersby *et al.*, 2016). Research has generally focussed on all food segments of the informal sector – from fruit and vegetable hawkers, to butchers, cooked meats, and spazas (see: (Battersby *et al.*, 2016; Charman *et al.*, 2019; Kroll *et al.*, 2019; Petersen *et al.*, 2019; Peyton *et al.*, 2015). This section therefore aims to draw out specifics from the literature on spaza shops and their relationship with food security. How these spaza shops support food security in townships and why are they important is discussed first.

2.4.1. Food Security and The Spaza Shop

The informal retail sector in has been recognised as playing a pivotal role in food security because of the reliance of households on them to provision food (Battersby, 2011, 2020; Battersby *et al.*, 2016; Petersen and Charman, 2018; Peterson *et al.*, 2019; Peyton *et al.*, 2015; Skinner and Haysom, 2016). Spaza shops aim to provide food that is both culturally responsive, spatially accessible, and relatively affordable (Charman *et al.*, 2019). A study in 2019 found that 74% of households bought food from spazas; 29% on a weekly basis and 25% daily (Charman *et al.*, 2019). A more recent study now suggests that up to 51% of people in townships shop at spazas daily and that the unemployed were the most likely to shops at spazas (Rogerwilco and Survey54, 2023).

Spaza shops are significant because supermarkets cannot meet the all the needs of the poor and are not in line with their food shopping strategies (Peyton *et al.,* 2015). Battersby *et al.*'s (2016) research concurred and found that the food insecure rely more on informal traders than those that are more food secure. Those with irregular incomes can use what they have when they can to buy from spazas, unlike those who have steady incomes that can do a bulk shop and budget ahead. This is an important understanding of spazas food security role – that make food accessible to people that may be excluded from more formalised shopping methods. The way in which spazas accommodate the food shopping strategies of low-income communities emphasises the impact they have on supporting food security.

Spazas offer convenient accessibility due to their locations and the long hours that they operate, often staying open much later than supermarkets, therefore supporting people that travel long hours to and from the city (Peterson *et al.*, 2019). These shops can be located close to people's homes and near transport hubs to further support accessibility (Petersen and Charman, 2018). Furthermore, their location also supports the utilisation aspects of food security as those with limited refrigeration and storage capacity can buy fresh produce when they need it (Battersby *et al.*, 2016).

Research has shown however that people were hesitant to shop at spaza shops because they believed that they stock a limited range of products and brands that are of a lower quality with a shorter shelf life, that items being sold were close to expiry, and that non-perishables were more expensive (Charman *et al.*, 2019; Kroll *et al.*, 2019; Petersen *et al.*, 2019). This may impact the dimensions of availability and utilisation. More recently however, research has shown that trust in the products and brands that spazas sell has grown, that they are increasingly price competitive with supermarkets, and hence there has been an increase in people shopping at spazas (Rogerwilco and Survey54, 2023; Vries and Engelbrecht, 2021). In 2015, Peyton *et al.* found that most products sold by spazas were cheaper than the local Usave. Kroll *et al.* (2019) found that fresh produce was cheaper than supermarkets. Furthermore, spazas go above and beyond simply pricing competitively and often extend small amounts of credit to their customers - a study by AFSUN found that 58% of businesses offered goods on credit to known customers (Battersby *et al.*, 2016). This is an essential lifeline for many as they can rely on their local spazas during difficult times, which supports the dimensions of accessibility on both an economic and social level. This service builds social capital and a loyal client base for spazas and epitomises how informal economies work - they plan an important supportive role in local food environments, one a large supermarket chain cannot offer. Charman *et al.* (2019), however disagree with this, finding that very few people were offered credit, and only those with low-risk profiles may get small amounts. This research will aim to see how prevalent credit is in spazas, as this could form a vital safety net for those without economic access.

To further support price sensitive and cash strapped customers spazas sell products that are broken down into smaller quantities (Battersby *et al.*, 2016; Rogerwilco and Survey54, 2023). Due to frequent power outages in the country (load shedding) recent findings showed that townships residents were buying smaller items more frequently - the 2023 Township survey found that more than 54% of respondents bought repackaged products from spazas (Rogerwilco and Survey54, 2023). This may mean that brands are becoming less important and shows how price sensitive consumers are, which is symptomatic of the wider economic environment in the country. SA is experiencing record high levels of food inflation and a continued high unemployment rate. Supermarkets are unable to sell the same accessible quantities and prices to low-income consumers. Financial accessibility is a major determinant of food security, particularly towards the triple burden of malnutrition, where people are forced to cut nutritious staples out of their diet. The more nuanced dimension here however is agency which is seen through how spazas are receptive and cater for their customer's needs, in ways that supermarkets cannot.

Spazas may support agency through having close relationships with their communities which impacts which products they stock, but also as small businesses they can use agency to buy where they want and may harness their buying power to inform the food environment. Spazas can be seen to support food security through meeting the dimensions of availability, access (financial, social and physical), and stability. The informal sector also utilises food resourcefully and sustainably through practices like selling fruits and vegetables that may have blemishes and are not considered sellable in supermarkets (Peterson *et al.*, 2019). Their convenient locations also mean that they are in walking distance to homes and no transport is needed to access them.

On the other hand, spaza shop are the predominant retailers of processed foods in townships. They sell large amounts of highly processed food – for example chips, sweets, cool drinks, ice cream and instant noodles - that contribute to the triple burden of malnutrition (FAO, European Union, *et al.*, 2022). Research shows that in low-income areas, highly processed foods that lack nutrition and have high energy density are easily accessible through spaza shops that often advertise these products (FAO, European Union, *et al.*, 2022). Processed foods are also highly unsustainable and use production methods that affect the environment. Peterson *et al.*

(2019) found that few spaza shops sold fresh produce and that consumers preferred to not buy such produce at spaza shops due to a perceived low quality and cleanliness of shops. A 2010 case study on creating a delivery platform for spaza shops highlights the large spending on sugar which can be seen in Figure 2 below, but it also shows the core staples that spazas are buying for their communities like rice and maize (Coetzer and Pascarel, 2010). The researchers question in their findings the spaza's social responsibility in influencing consumer behaviour, and the role suppliers have in ensuring healthy food environments. This is an important nuance, research from corner shops in the USA found that promoting healthy foods increases their sales (Joassart-Marcelli *et al.*, 2017; Minkler *et al.*, 2019).

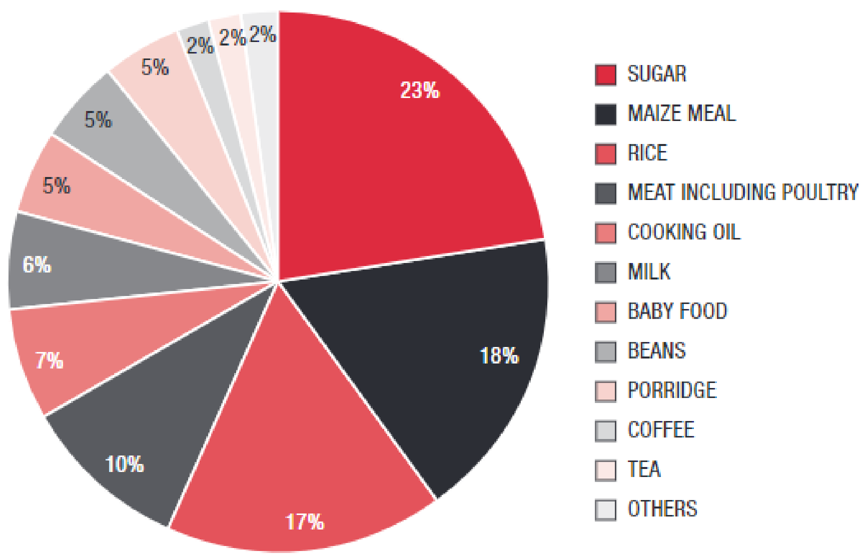

Figure 2: Product Sales from Sekula spaza express (Coetzer and Pascarel, 2010)

In summary, while spaza shops are providing availability and access, some of the products they are selling have little nutritional value. This directly impacts both the utilisation and sustainability aspects of food security. There is a need for a specific research agenda on spazas to understand their contribution to food security, as their role is still poorly understood (Petersen *et al.*, 2019). There is also a concentrated focus on the dimensions of availability and accessibility, and to some degree utilisation, in terms of nutritious food, in the literature. This clearly situates this study in a key research area within low-income food environments due to its focus on all the dimensions. This research therefore will aim to clarify spazas role in food security, whether they support the availability of a wide variety of produce and nutritious foods, whether they offer accessibility through physical, economic and social dimensions, how they support their neighbourhood in utilising food correctly, whether they offer stability in food supply, if they increase neighbourhood level of agency within the food system, and if they contribute to long term sustainable food systems. In order to do this, a more in depth understanding of the challenges these businesses face is necessary next.

2.4.2. Challenges in the Spaza Sector

The spaza sector faces some significant challenges, and despite their importance they are frequently are left behind in policy making due to their informality. Key challenges that were identified in the literature were supermarket expansion, access to supply chains, informality and foreign owned spazas. These are each examined in turn to set out how an e-commerce company may aim to support these businesses.

Supermarket expansion into township food environments

Township retail businesses are affected by wider economic structures and the high levels of concentration that exist within the food system (Cities Support Programme, 2018). Figure 3 shows some of the key issues that spaza shops faced (CCSA, 2019). The CCSA report in 2019 found that the entry of the four largest supermarket chains into township areas has shifted the competitive landscape and that exclusive leases in malls were anticompetitive. They found a decline or exit of spaza shops and independent retailers (CCSA, 2019). This shows a significant impact on spaza shops sustainability and longevity, which is especially poignant noting their role on food access and availability. This also raises questions on both spaza shops and community's agency within the food system. What say do both these groups have on the growing formalisation of shops in their neighbourhoods?

The creation of an anticompetitive retail environment has effects on both consumers, and businesses, which then has wider impacts on local economies and food environments. While other research has shown that some of the informal sector benefit from the foot traffic drawn by supermarkets and is able to operate in their periphery, this is not true for spazas (Battersby *et al.*, 2016; CCSA, 2019). Township spaza entrepreneurs feel that their businesses have been directly threatened by these corporations, see Figure 3 (CCSA, 2019). Due to the significant business opportunities that townships present, last year R150 billion in cash was spent in spaza shops, township food environments continue to see investment and entry from the private sector (Rogerwilco *et al.*, 2022).

Figure 3: Constraints experienced by spaza shops (CCSA, 2019, p. 82)

Formal retailers have created competitive spaza-like stores to try access the township market. Shoprite created their USave ekazi stores to directly compete with spazas and Pick n Pay launched independent grocers through upgrading existing spazas and stocking them with their own branded products (see Image 2). Pick n Pay explain the benefits of utilising their supply chain, systems capability, value-added services, and loyalty programme in partnership with a spaza owner's local knowledge, as spazas lacked access to these networks (Pick n Pay, 2018). Pick n Pay however closed their last store in 2023, which shows the how supermarket and formalised stores are ill matched to the shopping strategies of the poor. This research has therefore focussed on a case study that is supporting spaza shops, through working within and with the local environment to protect and support these independent businesses. Spazas, however face further challenges due to their informal nature.

Image 2: Pick n Pay independent grocers (Pick n Pay, 2018).

Informality and Formal Supply Chains

The nature of informality means that businesses are largely unregistered and operate in cash. Findings suggest that up to 80% of informal sellers do not have bank accounts (Hartzenberg, 2022). This cashed based economy and separation from banking services, impacts business management and growth, cash flow, and puts businesses at risk of robbery (see Figure 3). This means that due to their informal nature, they cannot open accounts with wholesalers, have no digital record of their transactions to be able show accurate turnovers, and are not afforded credit at suppliers (Battersby *et al.*, 2016). The CCSA found that less than 5% of spaza used credit to buy key staples (maize, bread, milk, and oil) (CCSA, 2019). Furthermore, there is low trust from consumers on banking services and card payments, with people consistently preferring to pay in cash (Rogerwilco *et al.*, 2021). However, YOCO (a mobile payment company) has seen its township merchant customer base double over the last two years which may illustrate that card payments are becoming more prevalent (Rogerwilco *et al.*, 2022). Furthermore, research showed that despite only 7% of spazas consumers using card to pay, a third of spaza shops are using e-wallets when buying from suppliers which will be discussed further in the following section e-commerce (Rogerwilco *et al.*, 2022).

Spaza shops in general face similar challenges to residents in townships in food acquisition. Transportation, cash flow, storage, refrigeration, energy, and fuel costs all influence how and when they can restock their outlets (Battersby *et al.*, 2016). Shops that are independently run and managed may have to close their businesses to travel to purchase stock, so sourcing products is both costly and time consuming. Shops that fall into this category are more commonly SA owned than foreign owned. Spazas in Cape Town source their products from wholesalers, discount supermarkets, Cape Town Fresh Produce Market (commonly referred to as Epping Market) and from "Bakkie Boys" (CCSA, 2019). The Bakkie Boys are salespeople that travel around townships with a truck of fruits and vegetables that they have bought from the market and then sell to shops and vendors that do not have their own transport and are an essential supplier of fresh produce in township food environments (Battersby *et al.*, 2016). Large corporations such as Coca-Cola, Clover (dairy) and Albany (bread) however have long recognised the township market demand and have been offering deliveries to spazas alongside branding and merchandise (von Bormann, 2005). This was apparent where Battersby *et al.* (2016) noted the only formal deliveries were in these categories, the remaining categories of products were sourced through informal means and transport. The biggest challenge however is often competing with other spazas and supermarkets (Figure 3). This was recognised as a gap in the market by the case study company, and further positions the research in this context. This sector is highly complex however, and the decisions to embrace informality has also been an entrepreneurial one by some.

Research by Sustainable Livelihoods Foundation (SLF) found that only 30% of spazas were informal by choice and use informality as a business strategy (Peterson *et al.*, 2019). They found that these shops operated from dedicated premises (as opposed to house shops), were larger, had a wide range of stock, offered credit, and had business ties with wholesalers (Peterson *et al.*, 2019). Many wholesalers have created networks of spazas and contracted arrangements with them, achieving significant turnovers, despite being unregistered; the authors note that these vertically integrated spazas have intensified competition. These supply agreements have allowed for order and stock aggregation between shops, and social network supply chain between businesses, which according to Peterson *et al.* (2019) have also reduced the need for formal banking. Kroll *et al.* (2019) also acknowledge this ‘hybrid system’ between the informal sector and formal sector and the transnational networks of people, goods, and finance. These relationships with wholesalers are under-researched as recognised in the literature, and this research aims to contribute towards this through the investigation of an e-commerce wholesaler. Furthermore, the research shows that these businesses that are part of this food environment are predominantly foreign owned, and there is debate as to whether this has led to locally owned spazas being unable to compete and going out of business.

Foreign Owned Spaza Shops

The landscape of spaza shops in SA undergone significant changes, with a notable increase in foreign-owned shops. These shops, primarily owned by migrants from countries such as Somalia, Pakistan, and Bangladesh, have become a staple in many low-income communities (Charman *et al.,* 2019; Peterson *et al.,* 2019). These studies have suggested that the “influx” of foreign-owned spaza shops has led to the displacement of South African-owned businesses. Critics however argue that this narrative carries a prejudicial connotation and oversimplifies the complex socio-economic dynamics at play (Crush & Tawodzera, 2014).

Foreign-owned spaza shops often benefit from strong community support networks, which provide them with access to bulk purchasing and financial resources, enabling them to offer competitive prices and credit facilities (Peterson *et al.*, 2019). This business model, while advantageous for consumers, has created competition that local entrepreneurs find difficult to match. However, it is also important to recognise that local spaza shop owners face significant barriers, including limited access to capital and business training, which hinder their ability to compete effectively.

South African spaza shop owners have raised concerns about foreigners selling imported expired goods below cost, disregarding by-laws, and evading taxes (IOL, 2015). PLAAS argues that competition in township spaza shops should not be framed as a conflict between locals and foreigners, but rather between those who comply with regulations and those who do not;

regulations that include the sale of counterfeit products and illegal working practices (Peterson *et al.*, 2019).

The government has recently committed to supporting South African owned spaza shops and facilitating their transition into profitable, formalised businesses. The Small Enterprise Finance Agency (SEFA) offers grants through the Spaza Shop Support Programme to assist spaza shop owners (Small Enterprise Finance Agency (SEFA), 2023). Legislation has been initiated to formalise South African informal traders, including spaza shops, by providing company registration assistance and ensuring compliance with tax and labour regulations. In 2022, the Gauteng premier explained that the Township Economy Bills was not for foreigners and that South Africans needed to "take back the spaza" (Njilo, 2022). Although all foreign nationals lawfully residing in SA have the same right to trade as South Africans, they are not being offered any government support, despite their contribution to township economies and food security. Petersen *et al.*, (2019) find that SA government needs to engage with everyone in the informal sector. Thus, it is crucial to develop policies that support both local and foreign-owned businesses, ensuring fair competition and promoting economic inclusivity. In conclusion, the rise of foreign-owned spaza shops in South Africa is a multifaceted issue that requires a balanced approach to understand its full implications. More comprehensive and peer-reviewed research is needed to inform policies that can foster coexistence and mutual benefit for all stakeholders involved.

2.4.3. Spaza Shop Conclusion

In summary, this section on spaza shops has highlighted their significance in relation to food security and how they meet the six dimensions of food security. It looked at how spazas fit into local food environments and align with the food purchasing strategies of the poor. This section also showed the challenges that spazas face from competition from the wider food system and the nature of informality (operating in cash, no traditional credit or business facilities). It has situated spaza shops as being predominantly foreign owned and discussed the strategies that have been embraced by these business owners to serve their communities. The subsequent section introduces the rapidly growing sector of e-commerce and explores the potential of leveraging e-commerce technology within townships to support these informal businesses.

2.5. E-commerce

This final section of the literature review discusses how food environments are rapidly changing, and how growth in online trade (e-commerce) - fuelled by COVID-19 and technological advances - has led to the rise of online food shopping and new online food environments (Liang *et al.*, 2022). This section will briefly discuss the growth in e-commerce in SA, and then look at township e-commerce and spaza shops, specifically discussing the challenges of moving towards digital economies. Finally, this section will discuss the need for further research on the potential impacts this could have on food security.

2.5.1. The Rise of E-Commerce in South Africa

In SA, online retail reached over R50-billion in 2022 and the sector is experiencing continued growth (World Wide Worx, 2022). There has also been a steady increase in internet penetration, through mobile devices; over 70% of the population has access to the internet and a smart phone (Rogerwilco *et al.*, 2022). Online food retail increased by 54% from 2019 to 2020 (International Trade Association, 2021). The major supermarket chains in the country saw incredible growth in online food retail, fuelled by COVID-19. Checkers Sixty60 grew their turnover by 150% and Pick ’n Pay reported a 72.5% growth in online sales for the end of the financial year in 2022 (World Wide Worx, 2022). Checkers Sixty60 calculated amidst the rising cost of fuel in the country that it was cheaper to get groceries delivered with the R35 delivery fee than drive to the supermarket (Luckhoff, 2022). While the formalised grocery sector is experiencing growth in e-commerce, this is not the case in low-income food environments.

Low-income areas and townships are often not on delivery routes, and residents in these areas still rely on brick-and-mortar stores (Ramalepe and Bottomley, 2020). There are several reasons for the lack of penetration in these areas for business-to-consumer e-commerce, such as logistical challenges (warehousing and last-mile delivery), cultural attitudes, crime, the digital divide, and market share (FAO, 2021b). Literature from the Global North has shown that low-income areas are less serviced by online food retail showing that it is not confined to developing nations but is correlated with inequality and income poverty (Fernandez and Raine, 2021; Trude *et al.*, 2022; Zatz *et al.*, 2021). This means that the food insecure may be excluded from the benefits of e-commerce, and it may further contribute to the digital divide (Fernandez and Raine, 2021). This is despite research showing the potentials for e-commerce to create and support greater access to nutritious food for people living in food deserts (Jilcott Pitts *et al.*, 2018). In 2021 The Township Report noted how the informal economy is excluded from e-commerce due to poor infrastructure and high data costs (Rogerwilco *et al.*, 2021).

Despite these challenges e-commerce is beginning to infiltrate the township market. The pandemic created growth throughout SA in e-commerce, not just in the middle class. In 2021 28% of respondents from townships had shopped online, while this number increased to 70% in 2022, 29% having ordered food online (Rogerwilco *et al.*, 2021). This massive growth in online shopping saw several ekasi food and grocery delivery platforms emerging and recognising the potential of the township market (see: Order Kasi, Delivery Ka Speed, Cloudy Deliveries, Ebasket, Bitcoin Ekasi.)

2.5.2. E-commerce in the Spaza Sector

Digitising and working with the spaza sector market has attracted attention from the private sector, especially given the value of the sector that we saw earlier. BFA Global, a consulting and venture capitalist firm, has invested in three South African technology start-ups since the pandemic - A2Pay, Yebo Fresh and Vuleka (BFA Global, 2023; Mburu and Winiecki, 2022). Their 'Digital Spaza' program was introduced with the aim of enhancing the livelihoods and resilience of spaza shop owners in townships. The program focuses on providing comprehensive solutions throughout the value chain, encompassing digital ordering, stock delivery, digital stock management, establishing wholesale connections, and facilitating access to suitable financial solutions, such as affordable credit for restocking purposes (BFA Global, 2023). However, the pivot to digital is still a challenge in townships (BFA Global, 2023; Rogerwilco *et al.*, 2022).

BFA's programme finds that access to smartphones, connectivity, data costs, digital skills, limited literacy, and language barriers were all issues faced by spaza shops. Half the spazas in their research did not have access to a smartphone, despite the smartphone penetration that was discussed earlier. Furthermore, unreliable electricity is a barrier to e-commerce solutions that need constant connectivity. The creator of Vuleka (an ordering and delivery platform for spaza shops) notes that there are still issues with consumer trust with ordering online and the importance of agents on the ground from the areas that they operate in (Rogerwilco *et al.*, 2022). They note how they have built trust through using WhatsApp as consumers are familiar with the platform, findings that also resonate with Yebo Fresh and A2Pay. Yebo Fresh and Vuleka both developed applications for their field agents who meet spaza owners face-to-face instead of immediately making a spaza-facing smartphone app for ordering stock (BFA Global, 2023). A2Pay had to pivot to WhatsApp ordering after their front-end app was inaccessible to spaza owners. This shows how important it is to leverage the existing tools within these markets.

One of the biggest advances in the informal sector has been the introduction of electronic points of sales (EPOS) devices (see Image 3), allowing retailers with no bank accounts to take card payments. Devices such as Flash, Kazang and Shop2Shop create e-wallets for the business which can be topped up with cash by the informal seller and allow them to make cashless payments to suppliers (see Image 4). This has also allowed spaza shops to accept SA Social Security Agency (SASSA) grant cards, sell electricity, and enable people to pay their bills in store. During COVID-19 e-vouchers were issued to people suffering from food insecurity which formed a viable alternative to food parcel deliveries (CoCare, 2021). These e-vouchers could be redeemed with any spazas that had a Flash or Kazang machine and was an effective way of supporting both spazas and their communities and keeping spending inside townships These devices assist spaza shops in operating within a formal economy. However, this accelerated shift towards cashless and digitisation may further widen the divide between those capable of accessing such services, which may be inaccessible for migrants, non-English speakers and those with low educational levels (FAO, 2021b)

Image 3: Typical Epos device that spaza shops are using to transact with

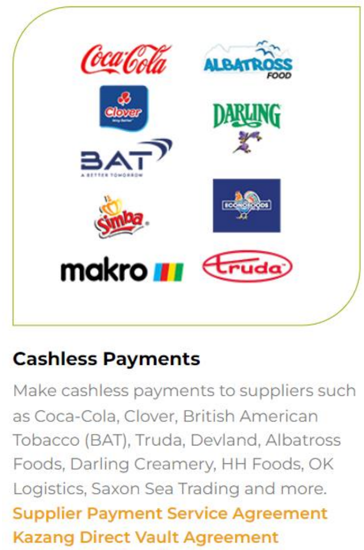

Image 4: Food suppliers that spaza shops can now pay through epos devices

2.5.3. Food Security

So, what does e-commerce mean for spazas, their food environments and food security? There is very little research available on this developing component of the food system, and this study aims to address this gap. How can spaza shops be supported to ensure their viability and growth within township food environments and how this will then benefit residents? The possible increase in price competition, streamlining of order and stock processes, and increasing availability and stability of products through using e-commerce could all have impacts on local food environments. It could bridge spatial divides, create entrepreneurship and job opportunities, and increase digital literacy promoting agency within communities (Cities Support Programme, 2018). Streamlining inefficiencies in the food system also provides greater food access and availability, protecting against disruptions to the system. E-commerce could be a step towards formalisation for spaza businesses, allowing them to access benefits, credit, and participate in the food value chain (Cities Support Programme, 2018). But can it increase nutritional outcomes, food sustainability and allow greater agency within low-income communities?

Looking internationally, research has found that corner shops have increased healthy food purchases and decreased obesogenic and unhealthy items such as cigarettes through digital platforms, where they have been connected to farmers for better bulk buying of produce, and through specials on a mobile application (app) that offer discounts on healthy products (Madlala *et al.*, 2023). Another study introduced various business models including EPOS sales systems, credit building and access to capital, to aid in sourcing healthy produce and improve business planning (Bentzel D. *et al.*, 2015; Haboush-Deloye *et al.*, 2023; Mantravadi and Srai, 2023). Many corner shops noted that increasing their recognition as suppliers of healthy products led to an increase in sales of healthy foods (Martin *et al.*, 2012). Research that has focused on first mile logistics has found waste has been reduced, inventory managements has improved with associated cost savings, yet note that excessive packaging and fast paced logistics may have negative environmental impacts (FAO, 2021a).

2.6. Conclusion

This chapter as examined the current literature to guide the research. It discussed the food insecurity crisis in South Africa, situating it as a specifically urban challenge, and particularly in low-income areas in the city. A food environment lens was used to understand the challenges surrounding food insecurity and how both macro and micro factors influence people’s food choices. It discussed people's food shopping strategies, and the external consolidated food environment which impact their food choices.

The food sourcing strategies of the poor particularly point to the key role of spaza shops. Their role within communities was examined and it was shown that they support food security through physical, financial, and social access. However, more clarity is needed on how they support the other dimensions: availability (due to the lack of healthy options and availability of obesogenic foods), utilisation and stability. The challenges that spazas face next were discussed and the complex relationships between wholesalers further up the value chain was examined, which has affected SA owned spaza shops and led to an increase in foreign national owners who can harness larger economies of scale through group buying power. This distinctly highlighted the relevance of researching an e-commerce wholesale supplier in townships, and how they may support food security in low-income food environments.

Although food security and e-commerce may seem disconnected this chapter has shown how e-commerce is creating a new element within the food system and may have multiple impacts on food security at different scales of the food system. It has shown the potential impact it could have in townships upon last-mile deliveries and supplying the spaza sector. Highlighting further that due to e-commerce being an emerging trend, especially in low-income neighbourhoods, that this is an important research topic. This literature review has discussed the current literature in the field to guide the research question “How can e-commerce support spaza shops in achieving the six dimensions of food security in a low-income area?” The next chapter will now discuss the methodology used to address this question.

3. Methodology

3.1. Introduction

The chapter presents the methodology used to address the research question and objectives. The chapter begins by discussing the research design and justifies why using a case study was the most appropriate method to address the question “How can e-commerce support spaza shops in achieving the six dimensions of food security in a low-income area?”. It presents the conceptual framework of the six dimensions of food security operating in a low-income environment. Next, it introduces that case study company and the setting for the research in Mitchells Plain, as well as mapping out the locations of the spazas interviewed.

The next section discusses the data collection methods (see Figure 7). The semi-structured interviews with YF and the spazas shops, and the field notes are discussed in turn through looking at the sampling approach, the interview design, and then discussing how the interviews were conducted. Sample interviews are provided in Appendix B-E. The next section discusses how the gathered data was analysed through a thematic research design, drawing on the work by Braun and Clarke (2006) (see Figure 8). The concluding section of this chapter discusses how permission and ethical clearance were received and it ends by discussing the limitations of the research.

This research uses complex systems thinking and inductive reasoning to understand how food security, spaza shops and e-commerce overlap and intersect to inform food security as shown below in *Figure 4* (FAO, 2018). FAO (2018) acknowledges that food security is a complex problem and it is essential to understand the interactions across multiple aspects of the food system to better understand food security in a holistic manner and be able to find multiple entry points within the system for solutions.

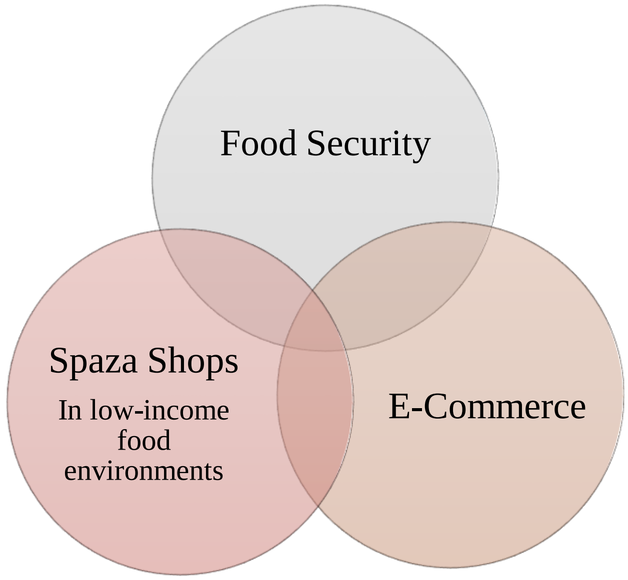

Figure 4: The Intersection of the research themes

3.2. Research Design

The thesis adopted a case study methodology which is well suited to investigate exploratory topics, and which allows the investigation of complex situations within their real-life setting, making it useful to understand food security in a low-income environment and how e-commerce may support or compromise this (Yin, 2014). Furthermore, as this is an emerging research area using a case study is particularly beneficial to address the research question and to meet the objectives (see: 1.2.). A case study uses qualitative research for an in-depth exploration and analysis of a specific phenomenon, which allows for the nuances and complexities of the experiences and behaviours of those involved to be captured. It can also assist in identifying emerging themes and patterns that may not have been previously considered (Rashid *et al.*, 2019).

Qualitative data has been highlighted as an under-used research methodology even though it has been shown to offer key benefits to the food security literature (Clapp *et al.*, 2021; HLPE, 2021; Turner *et al.*, 2018). Quantitative data cannot offer the same understandings of lived experiences and interrelationships to these complex questions that qualitive can (Clapp *et al.*, 2021; HLPE, 2021; Turner *et al.*, 2018). However, there are some concerns about the academic validity of case studies because they cannot provide scientific generalisation and the belief that they lack rigor (Yin, 2009). It is therefore essential to follow controlled research methods and rely on multiple sources of evidence to ensure credible findings. It is essential to make sure that data gathered, and interpretations thereof, are credible, dependable, and transferable. Braun and Clarke (2006) highlight the same issue, that for research to be able to be evaluated or synthesised and compared to other studies, one needs to understand how people went about analysing their data and what assumptions guided their research. Therefore, transparency around procedure and practice of method is vital (Braun and Clarke, 2006). To aid in this a conceptual framework was designed (Figure 5), to visually understand how the six dimensions of food security intersect in local food environments and the way food supply chains operate within them. Warehousing and large wholesalers are positioned at the top with the downward stream of informal retailers (spaza shops on the left) and formal supermarkets on the right, and households as the final point at the bottom.

3.2.1. Conceptual Framework

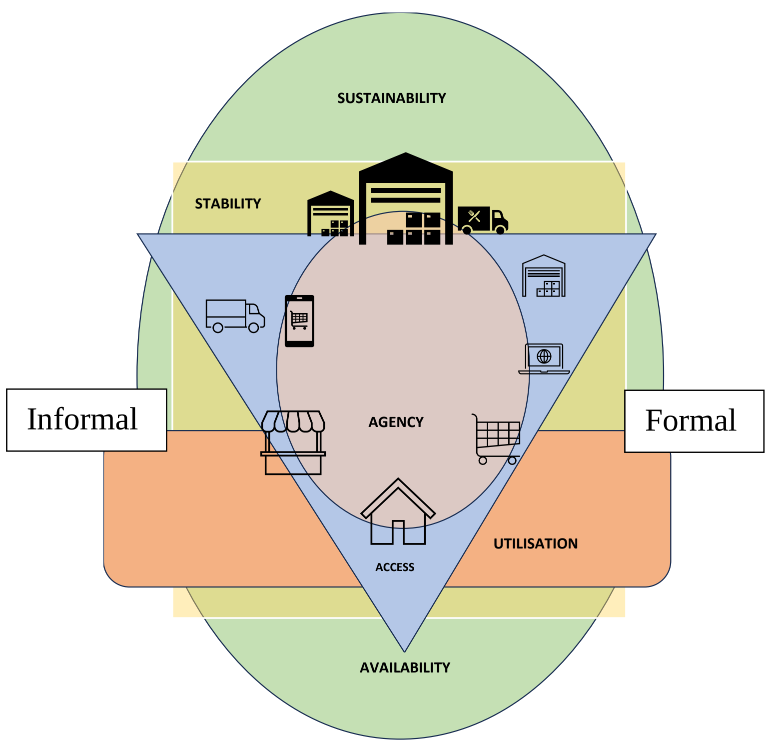

Figure 5: Conceptual Framework of The Six Dimensions of Food Security within A Local Food Environment Displaying Formal Food Supply Chains on the Right and Informal Supply Chains on the Left.

3.3. Case Study Description

This next section of this chapter introduces YF as the case study for the research. It is a township e-commerce business that has been operating since 2018. According to their website they service over 6000 businesses in over 25 townships in SA (YF, 2023) Their company aim "is to address the challenges and opportunities of food supply in SA's townships" (YF, 2023). They offer a tech-powered order-to-delivery solution to small businesses in townships in Gauteng and Cape Town (X, 2023)[1]. YF unlocks better buying terms from manufacturers and wholesalers through aggregating demand which translates into better prices and other promotional deals for a variety of goods for their end consumers (X, 2023; Y, 2022). YF uses local agents to recruit and visit spazas, and to capture their orders through mobile technology. Orders are then delivered within 24 hours to their doorstep and no delivery cost is charged for orders over R1,000.

YF was ideally positioned to collaborate on this research project as they are one of a few e-commerce operators in townships - their mission is to "bring food efficiently, cheaply and safely into townships" (Z, 2022). They aim to improve access to nutritious foods without people having to leave their neighbourhoods. Furthermore, supporting these environments through bringing "the power of ecommerce to township businesses" (V, 2023). YF grew rapidly during COVID-19 as they were ideally positioned to deliver food parcels and supplies to townships. They currently serve three client bases: community clients which include non-governmental organisations (NGOs) and early childhood developments (ECD) centres, family clients (Business to Consumer (B2C)), and township retail (Business to Business (B2B)) (See Figure 6). YF describes the spaza shop sector as their fastest growing market, despite initially starting out planning on mainly servicing home users.

[1] Publications by YF and its members have been anonymised.

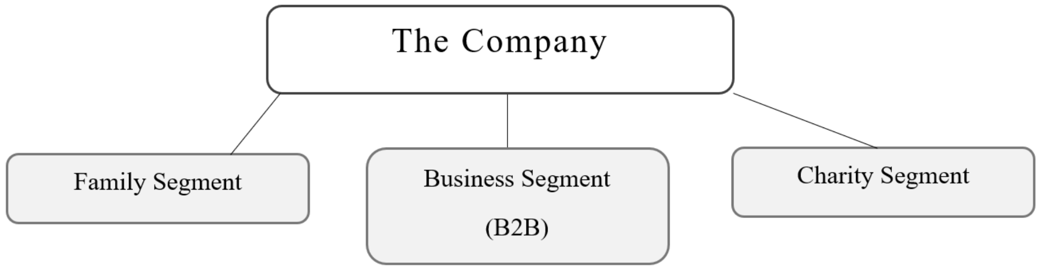

Figure 6: YF's Consumer Segments

YF identifies the benefits they offer to spaza shops as follows; offering direct deliveries, offering a wider range of products, and ensuring the marketing of the product is in alignment with the brand (V, 2023). They also offer "buy now pay later" terms for businesses that may not have access to formal loans (W, 2021). However, they note they have faced challenges trying to get the right products, pricing, and approach to serve spaza shops. The study area that they operate within that was chosen for the research was Mitchells Plain which is discussed next.

3.4. Research Setting: Mitchells Plain

Mitchells Plain is a large township located approximately 28 km away from the city centre of Cape Town (see Image 5). It was originally created by the apartheid government in 1974 to house coloured victims of forced removals. These people had a range of social economic backgrounds from middle-class to those of chronic poverty. Mitchells Plain was different to other townships in SA as the government aimed to use it as a 'model' suburb through creating a self-sustaining Coloured city on the outskirts of Cape Town (Ommundsen Pessoa, 2023). The planning of the area ensured control through one main road entering the township to force residents to develop a racialised community, and wide periphery open spaces to separate them from other suburbs and allowing for military access in case of unrest. Despite allowing some to become homeowners, the cost of living was significantly higher as travelling into the city was expensive, wages remained low, and shops charged higher prices as they had a monopoly in the area (Ommundsen Pessoa, 2023). Poverty was entrenched into the township and the social and economic consequences of that is still prevalent today.

Mitchells Plain has one of the highest crime rates in the country. It is afflicted with poverty, gang violence, crime, and a high level of drug usage (South African Police Service (SAPS), 2023). The areas with the most dangerous crimes are Eastridge (Ward 79), Tafelsig (Ward 82) and Beacon Valley (Ward 74) in the Southern suburbs (Tshwane, 2023). The latest census data estimated the population to be around 310,000 (Statistics South Africa Census 2011, 2011). Mitchells Plain is made up of several sub-sections reflecting the diverse class backgrounds of its residents. For this reason, a smaller subsection was decided on to be able to evaluate a localised food environment.

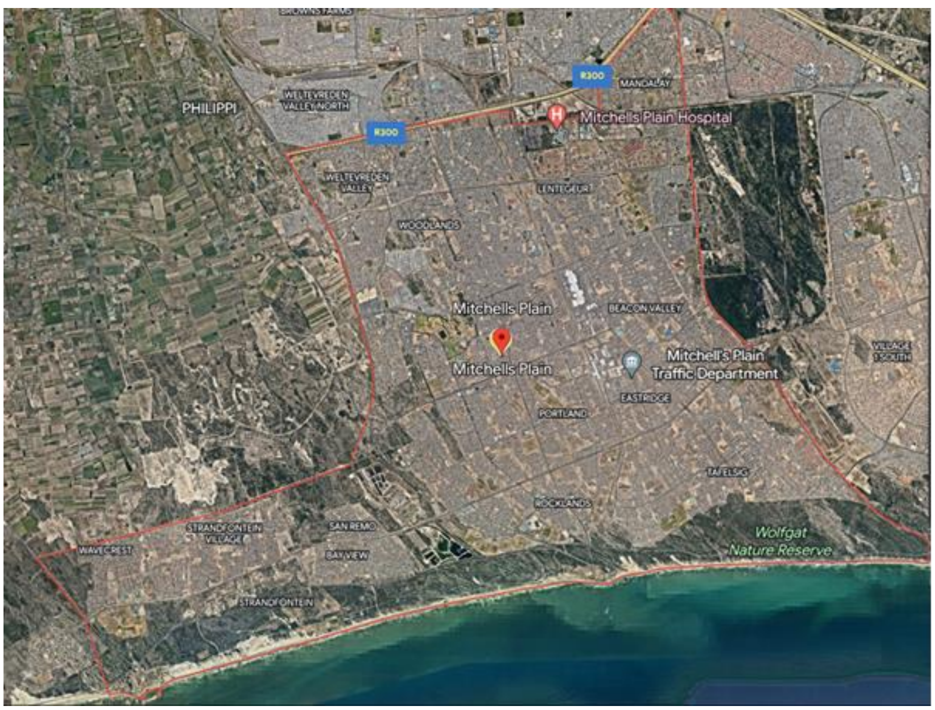

Image 5: Mitchells Plain township in Cape Town. Source: Google Maps.

The sub-area chosen was Ward 75 (see Image 6). The most recent census data from 2011 shows that it has a population of 36 876 and that 84% of residents live in formal dwellings (City of Cape Town, 2013). The unemployment rate then was 23.65% but it can be assumed that it has increased along with the rest of the country. Internet access figures were at 54.5%, with most people using their phones to go online. This data is nearly 12 years old and with the rapid technological advances that have been experienced over last ten years, these figures are likely much higher. The current nationwide statistics on internet access have increased significantly.

In 2019, smartphone subscriptions were as many as the total population numbers, and they increased by 19% from the previous year. Ward 75 has a higher average household income than the surrounding wards.

This area was chosen with YF for two reasons - firstly, YF supplies 186 stores in Mitchells Plain (over 6% of their total businesses in Cape Town are in Mitchells Plain), and they felt that they had strong relationships with spaza owners in the area who would be willing to take part in the research. Secondly, YF felt that Ward 75 was a safer area to conduct research and was more accessible, meaning that the research could be carried out without impacting YF's schedule.

Image 6: Ward 75 in Mitchells Plain highlighted in green. Source: (Statistics South Africa Census 2011, 2011)

3.5. Data Collection Methods

The data was collected through interviews and field notes as shown in Figure 7 below. Three semi-structured interviews were conducted with two Company employees – two interviews (N=2) with one person in senior management (referred to as SM) and one interview (N=1) with a sales representative (referred to as SR). There were two interviews done with SM, an initial interview and a follow up interview after the spaza shop interviews to discuss some of the findings and themes that had arisen.

Nine interviews (N = 9) with B2B customers of YF were conducted. These were all foreign owned spaza shops in Ward 75.

Field notes were taken during an initial spaza site visit with YF, during two meetings at YF's distribution warehouse and when conducting the interviews This. combination of multiple sources of empirical material in a case study method is best understood as a strategy to add rigor, breadth, complexity, richness, and depth to the study (Yin, 2009). These methods will each be discussed in turn in the preceding section.

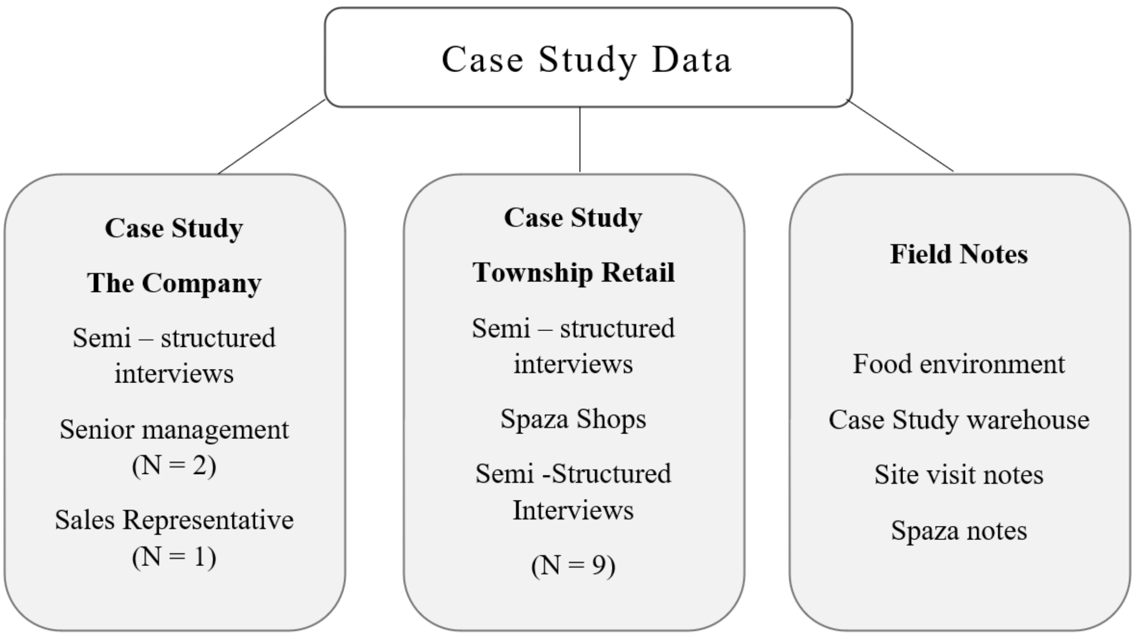

Figure 7: Research Data Sample

3.5.1. Interviews with YF

Firstly, an in-depth study of YF was undertaken to ensure familiarity with YF before embarking on any interviews. This was done by reading news articles, taking part in a visit to the distribution warehouse, meeting employees, and conducting the first interview with SM.

The first interview with SM took place at a coffee shop close to YF’s offices. The interview lasted around one hour and was recorded, and later transcribed (SM, 16/03/23). A copy of the sample interview questions can be seen in Appendix B. The second interview with SM was conducted towards the end of the research to discuss themes that had arisen from the spaza shops and to get clarification on some of the challenges that were identified by spaza shopkeepers (SM, 30/06/23). This interview took place at the same venue, was also recorded, and transcribed, and took under 45 minutes. These interview questions can be seen in Appendix C.

The interview with the SR took place in Mitchells Plain in a restaurant. Again, the interview last around an hour, it was recorded and later transcribed. Sample interview questions can be seen in Appendix D. This interview was done after all spaza shop interviews and allowed for an open and in-depth discussion on some of the findings from the spaza interviews.

It was valuable to have the two perspectives of these respondents from different angles of YF. The again added depth to the study by hearing the experiences of someone that is on the ground daily working with spazas (SR) and the insight of someone that understands and is guiding YF's vision (SM).

3.5.2. Interview with Spazas

YF was essential to connect the researcher with respondents for the spaza segment. Several researchers have identified the difficulty in interviewing this sector. The key to making these connections was a site visit to spaza shops with YF which served to introduce myself to spaza shop owners. During this meeting they were asked whether they would be happy to take part in the research, to which all agreed. A suitable time was then arranged to come back alone to interview them so as not hold up the rest of the site visits. The locations of the spazas which are represented by red dot, can be seen in Image 7. They were situated in quiet residential roads, on busy main roads and alongside petrol stations or malls (see Table 1). There was a good mix of size businesses, to accurately reflect the diversity in these businesses in the sector, from small house shops that people live at the back to more formalised mini grocers (see Table 1 descriptions).

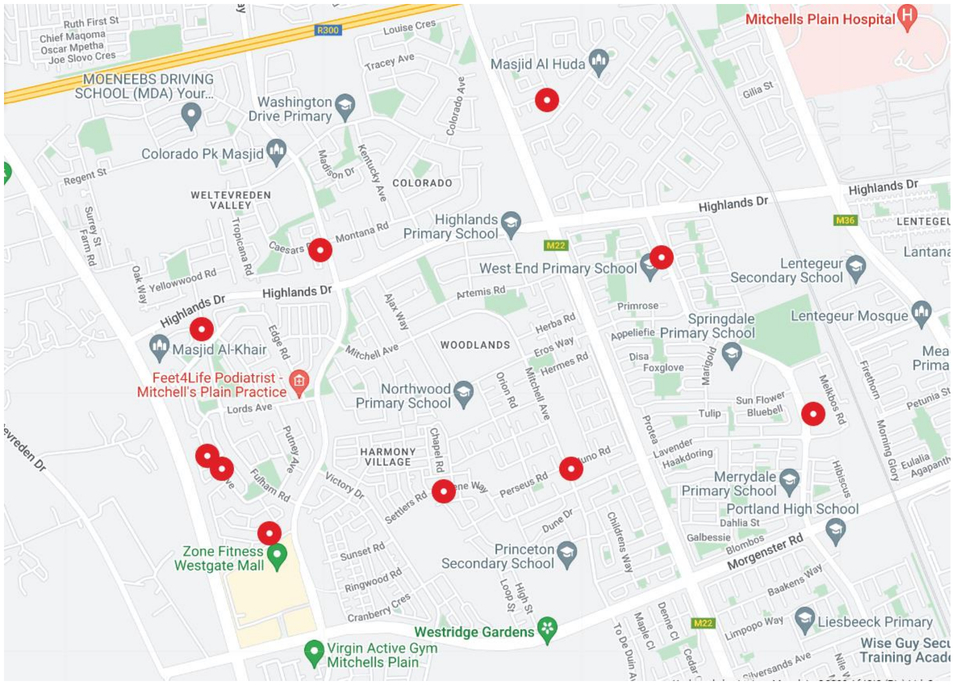

Image 7: Location of the spazas interviewed in Mitchells Plain Ward 75. Created on What3Words.

The following week, I returned mid-morning and visited the five spazas that we had been to. One interview was unsuccessful due to language barriers, but the other four were successful. Interviews were conducted in English, were recorded, and took no longer than 30 minutes. The interviews took place inside the spazas with whoever was there working at the time, sometimes two people took part which created an informal discussion. The interviews were paused when customers came in to buy something and resumed when they were done. During the interview notes and observations were taken to ensure nothing was missed and to support field notes (Rashid *et al.*, 2019). The next set of five interviews were done with the sales representative a few weeks later. I accompanied her in the field to observe her taking orders from spaza shops and while we were there conducted interviews. The same format was followed as above, and four spazas were interviewed.

To build rapport with spaza owners, I used an Islamic greeting "As Salaam Alaikum" on meeting them. I explained what I was studying and why and always kept a polite and respectful demeanour. I made sure not to interrupt their answers and I let the shopkeepers know that we could pause and stop the interview at any time so as not to get in there way. How the interview was designed is discussed next.

Spaza Shop Interview Design.

This section discusses how the interviews were designed. To be able to find indicators of food security being met, a visual mapping technique was used to brainstorm what key words could indicate each of the dimensions. Questions were then built around these concepts. Interview questions for the spaza shops can be seen in Appendix E. Interviews were piloted with fellow researchers beforehand and feedback was given on flow and order of questions. After the first set of interviews in the field, some questions were grouped together in a more succinct manner to reduce repetition and to make the language used more accessible. The interview questions were open ended to encourage rich answers.

The questions were created with the six dimensions of food security in mind, to probe whether these dimensions were being fulfilled. For example, spaza owners were asked "what do you do if the cost of an item has gone up too much?", which would speak to availability, access and stability. Another example was a question surrounding loadshedding that aimed to provide key information around utilisation and stability. Businesses were also asked what their top selling food items were to ascertain whether they were highly processed obesogenic foods contributing toward the triple burden of malnutrition as an indicator of utilisation, access and availability. Questions surrounding size and price of products sold were designed as indicators of access. Furthermore, questions on where they shop and how the source products were essential to understand the impact of YF and therefore e-commerce.

3.5.3. Field Notes

The final data collection method was field notes that were taken at each spaza and worked as a checklist of items to look for at each site, and any additional details that were recorded in my notebook (Appendix F). This data then contributed towards data gathered in Table 1. After the data was gathered, the data analysis stage happened, discussed in the next section.

Table 1: Descriptions of Spaza Shops

Spaza	Description	Size	Owners	Employees	Generator	Top selling items	fresh produce	Transport	Credit Offered	E-wallet/ EPOS	Signage	Buy Now, Pay Later
1	Situated on the corner of a busy road opposite a garage. Four aisles and six fridges. Meat slicer for polony, sell half loaves of bread, and small quantities of staples.	Large	Foreign	7	Yes	Chips, soft drinks, noodles, bread, milk	Yes	Own Vehicle	Yes	Yes	Own & Coca-Cola	No
2	Shop situated in between houses. It has two aisles, two fridges and deep freezers. Broad selection of fresh produce bought from Bakkie Boys.	Medium	Foreign	4	No	Bread, cigarettes, soft drinks	Yes	Own Vehicle	Yes	Yes	Coca-Cola	Yes
3	Hole in the wall shop “house shop” where owners sleep at the back, in quiet residential street. Orders are placed from outside and items passed through metal bars. Small quantities sold of staples. Two fridges. Essential items. Small selection of fresh produce bought from Bakkie Boys.	Small	Foreign	2	No	Soft drinks, bread, chips	Yes	Own Vehicle	Yes	Yes	Flash & Coca -Cola	No
4	Situated next to a petrol station, inside a busy shopping complex. Five aisles, wide selection of products. Small amount of fresh produce bought from Bakkie Boys, as there was supermarket in the same complex.	Large	Foreign	5	No	Soft drinks, cigarettes, chips	Yes	Own Vehicle	Yes	Yes	Coca-Cola	No
5	Situated in residential street. Burglar bars around the front, which you can slide open during the day to go inside the shop. Three aisles. Broad selection of fresh produce, bought from the market and topped up from Bakkie Boys.	Medium	Foreign	3	No	Chocolates, chips, soft drinks	Yes	Own Vehicle	No	Yes	Coca-Cola	No

6	Situated in a residential area, sleeping quarters attached to the shop. Five aisles, shopping baskets and a cashier teller. Broad selection of fresh produce, also frozen meats. Wide product selection. Smaller quantities sold. A lot of packet noodles.	Large	Foreign	7	Yes	Groceries	Yes	Own Vehicle	Yes	Yes	Coca-Cola	Yes
7	Next to a petrol station, busy residential road. People order through burglar bars for safety and are not allowed into the shop. Sleeping quarters out back. Smaller quantities sold, of anything. Wide selection of products. Broad selection of fresh produce.	Medium	Foreign	3	No	Soft drinks, ice lollies, chips, basic food stuff, sugar, pies	Yes	Own Vehicle	Yes	Yes	Coca-Cola	No
8	Shop was in a busy shopping centre car park. Two long aisles, and shopping baskets. Had not bought from YF in a while, because the shopkeeper who used to order went away so they were not receiving catalogues. No fresh produce and there were three informal sellers outside, and a Shoprite in the centre.	Large	Foreign	4	No	Bread, soft drinks, cigarettes	No	Own Vehicle	No	Yes	Albany Bread	No
9	Shop on busy road. Four aisles, shopping baskets and a Muslim butcher. Wide selection of products and broad selection of products.	Medium	Foreign	4	No	Bread, groceries, meat	Yes	Own Vehicle	Yes	Yes	None	Yes

3.6. Data Analysis

Empirical Material Interpretation and Analysis

The qualitative data was analysed using Thematic Analysis which is an inductive approach grounded in the participants' views (Braun and Clarke, 2006). This provided rich and detailed, yet complex accounts of the data (Braun and Clarke, 2006). It is not allied to a specific theoretical framework and therefore provides a flexible approach to investigating a range of issues. Figure 8, on page 48 shows the thematic analysis phases with descriptions for this research.

3.7. Ethical Considerations

Ethical clearance was granted by the University of Cape Town's Science Faculty research ethics committee (**FSREC 005 – 2023)** and a copy of the approval letter can be viewed in Appendix A. Approval was also granted from YF to conduct a case study with them.

The study then followed three main ethical research guidelines; informed consent, protection of identities, and the option to terminate involvement. Participants were informed of the purpose of the research and were not coerced in any way to participate. Nor were offered any compensation for participating. An informed consent form was signed by all participants at the start of the interview.

Confidentiality of all participants and their businesses was maintained. A data management plan was completed before the research. The interviews and transcripts were kept on One Drive cloud software under password protection, with aliases. The interviews were conducted in a way that did not disrupt the participants' time and were respectful. Furthermore, participants were reminded they could stop the interview at any time and did not have to answer any questions if they felt uncomfortable – this was reiterated before any personal or difficult questions were asked.

The researcher aimed to conduct the research without any preconceptions and acknowledged that personal biases could affect the research outcome. To minimise this, the researcher employed continuous reflexivity and presented the research objectively throughout the study and when analysing and interpreting respondents accounts.

Phase One: Familiarising Oneself with the Data

- To gain familiarity the interviews were manually transcriped into Word, despite it being time consuming. It was an active process and done the same day of interviews to ensure accuracy.
- The transcripts ensured the verbal and nonverbal clues were included, punctuation was correct, and they were true to the interview. They were listened to and checked multiple times.

Phase Two: Generating Initial Codes

- Initial codes were theory driven around indicators of the six dimensions.
- Multiple initial codes were made, the surrounding data was kept around the excerpts so as not to lose context, and some data sets were coded into multiple codes. Uncoded data was checked for lack of relevance and bias.
- These decisions were made by keeping the research question and objectives and six dimensions of food security framework firmly in mind.

Phase Three: Searching for Themes

- All the initital codes were collated into one Word document, with each initial code higlighted in different colours.
- A brainstorming process on the relationship between codes was done and themes began to be grouped together.
- This was the beginning of the interpretive analysis of the data began and the findings' narrative began to take shape.

Phase Four: Reviewing Themes

- Themes were refined. Some data did not have enough data to support them, some themes were merged together.
- Awareness of personal bias was very important in this stage, because although some of the themes contained rich account of food experiences, but they were not relevant in answering the research question. This meant that no matter how interesting a theme was, a critical stand point was needed.

Phase Five: Defining and Naming Themes

- Detailed analysis was written on each theme, with sub-themes identified to tell the narrative of each finding.
- Over arching themes to pull together two sides of the findings were found.
- Relationships between themes were reworked to ensure conciseness.

Phase Six: Final Analysis and Write-Up

- The final analysis including data extracts to provide a coherent, logical, and interesting report of the findings.
- Sufficient evidence and extracts provided of the themes was essential.

Figure 8: Descriptions of the Phases of Thematical Analysis for the Thesis. Adapted from Braun and Clarke (2006)

3.8.Limitations

One possible limitation of the research was the setting of the research. Mitchells Plain has a high level of urban planning and infrastructure as opposed to townships like Khayelitsha where 23% of YF's businesses are based. This means that logistics are significantly easier in Mitchells Plain than other areas. This may mean that some of the data is not transferrable. However, little research has taken place in the area, and the area still faces high levels of food insecurity (Swanepoel & van Niekerk, 2018).

Secondly, the spaza shop respondents were all foreign nationals (See Table 1). This is not necessarily a limitation but may impact how transferable the findings are to South African owned spazas, as they often have distinctly different characteristics, so this must be considered when discussing the findings.

Furthermore, English was not the first language of any of the respondents, and some questions had to be rephrased after the first set of interviews to improve clarity and overcome the language barriers. For example, healthy food was often misunderstood as their health and safety practices, so instead examples of nutritious food were given and asked about the sales of these items.

Another factor that may have influenced the data, is the fact that I was often seen as an extension of YF, and this may have affected the answers from respondents. However, as the shopkeepers went into detail on the issues they experienced with YF, I feel this is negligible.

It would also have been beneficial to have had to opportunity to investigate the cash and carry's and the wholesalers that are supplying the spazas, however due to time and scale constraints this was not possible. It would have also been beneficial to have been able to conduct a price comparison of key items, again due to scale and scope this was not possible.

Lastly, YF's move to cashless was after the last interviews had taken place, so I was unable to get the spaza shop's opinion on this. However, I did interview the SR who had firsthand experience dealing with the change and experiences of the spazas after they had gone cashless, and then also conducted the second interview with the SM for their perspective.

3.9. Conclusion

In summary the methodology chapter has presented the stages of the research and the systems that have been put in place to ensure rigidity and validity of this study. A case study methodology was used and YF under study, along with the research site (Ward 75 Mitchells Plain) were introduced. Rich, qualitative data was collected through semi-structured interviews with nine spaza shops, one interview with SR, and two with SM and field notes were taken. This ensured data triangulation and that themes were correctly identified, which were analysed through manual transcription, and organised thematically. All ethical guidelines were followed throughout the research. The study's limitations were discussed, which again was important to ensure the data gathered is valid. The next chapter will now introduce the findings on how spaza shops support food security in their local food environments.

4. Spaza Shops Role in Local Food Environments

This section presents the findings on spaza shops role in local food environments and how they inform the six dimensions of food security. It incorporates the findings from respondents' answers and field notes that illustrate the fulfilment of these dimensions. Spazas were found to play a vital role in Mitchells Plain, demonstrating a profound understanding of their community's needs and offering products tailored to their local customer base. Their unique ability to meet the specific food shopping strategies of their communities sets them apart from supermarkets. Spaza shops provide a diverse range of products, encompassing staples and fresh produce, but also processed foods. The crucial role they play in fulfilling the needs of their communities was seen throughout the research. The majority of spaza shops noted that their customers were regulars, while only one interviewed spaza shop reported a significant proportion of ad hoc customers, attributed to its location in a bustling mall with high foot traffic. This sustained patronage has fostered strong bonds between spaza shops and their communities.

The summarised findings are presented in Table 2. Spaza shops play an important role in residents' food sourcing strategies and are responsive to their economic limitations, however many of the foods identified as the most frequently purchased are obesogenic (see Table 1). Therefore, it is crucial to understand the extent to which spaza shops contribute to the dimensions of food security. It is important to note that these dimensions are interconnected and can either support or undermine the achievement of food security, as indicated in the conceptual framework. One of the challenges encountered in this research lies in comprehensively capturing the entirety of these dimensions and determining the extent or prevalence of each dimension. It is also important to ascertain whether food security is being supported if one dimension is being facilitated while others are potentially undermined.

4.1. Spaza Shops and the Six Dimensions of Food Security

Availability

Spaza shops contribute to the availability dimension (whether food is available within the system) of food security by supplying a range of food products in low-income areas, influenced by consumers demands and broader supply chains. The shopkeepers in the research ensure the availability of stock by using their own transport to shop at wholesalers or cash and carry stores. A few suppliers were found to offer delivery, including Coca-Cola, Clover, Albany, Simba, and YF. Shopkeepers emphasise the importance of maintaining fully stocked shops to retain customers, as one explained:"

> "…I must make sure the shop is full always, if some stock gets short then it's problem… customers won't come back. Problem! So, I must make it full." Spaza Two (22/03/23).

Price is a key consideration when purchasing stock, and the spazas engage in searching for deals and specials, which ultimately determines where they buy from. Having their own transport (see Table 1) was key to being able to do this, thereby ensuring the availability of produce in their shops at a price that is accessible. One shop owner explained:

> "We go to wholesale, we need also wholesale price… Sometimes it's cheaper, but sometimes your (referring to YF) price are cheaper than wholesale price... most of the time we buy from Makro. Every month we buy wholesale and special... it depends if Makro good price then we buy there. If you have good price, we buy your one" Spaza Six (18/05/23).

The spaza shops offer a diverse range of products, including processed snacks, beverages, canned goods, and staple items such as bread, milk, eggs, oil, rice, pasta, maize, and sugar (See Image 8). All the shops sell fresh produce obtained from Epping Market and "Bakkie Boys" (see terminology), except for one as there were three informal fruit and vegetable sellers located outside his shop. Fresh produce is consistently stocked and frequently replenished and Image 9 below illustrates the typical availability. None of the shops refrigerated any of the fresh produce, but none noted any wastage either. Despite the prevalence of obesogenic foods amongst the top-selling items in the spazas identified (see Table 1), there was a large availability of essential items and healthy produce, with one spaza noting that they sold lentils and canned fish daily, and all noting that they sold groceries daily. Through accessing a wide variety of produce through various supply chains spaza shops were found to meet the availability dimension of food security in their local food environment.

Image 8: Packed shelves of legumes, grains, pastas at Spaza Four (22/03/23)

Image 9: Fresh produce on display at the entrance to Spaza Two that is sold loose. (22/03/23)

Access

Access encompasses the physical, economic, and social dimensions a household needs to be able to access food. Physical access is facilitated by the strategic locations and extended operating hours of spaza shops. These shops are situated in strategically important areas like busy roads, shopping centres, and concentrated residential streets. They open early in the morning and close late at night, providing access beyond supermarket hours which is particularly important for residents who have long commutes to the city centre for work. One shop owner emphasised the significance of extended hours:

> "This is the only shop around... Most shops - Shoprite, Pick n Pay - closing 5 o'clock. Our customers come here after that... we are open until 8/9pm." Spaza Seven (18/05/23)

Next, economic access is ensured through competitive pricing achieved by bulk purchases and taking advantage of specials. Spaza shops have lower overhead costs compared to formal shops, and all identify as family-run businesses with some owners residing on-site. While this study does not explore employment structures in detail, it acknowledges the presence of claims regarding illegal working practices in the spaza sector (see: Peterson *et al.*, 2019). All the shops had EPOS machines (see 2.5.2), which allows them to accept cards and SASSA grant cards. Spaza shops also aim to cater to the diverse needs of their community, ensuring that even those with limited financial resources can access essential items. One shop owner emphasised their commitment to serving all customers, including those in difficult financial situations.

> "We try to have something for everyone. We don't say no, we don't say 'no we don't sell the R1', if you want it I give you. We are very important... I try to serve all customers... (If) I don't have R1 sugar or R1 coffee, I'm going to make it and sell it..." Spaza Six (18/05/23)

While not all spaza shops offer bulk breaking or small quantities of produce, those that do respond to the specific needs of their neighbourhoods. This flexibility allows residents to buy small quantities of items that they would be unable to purchase from formal retailers.

Lastly, social access is met through the provision of credit to customers, the findings revealed that seven out of nine spazas offered small amounts of credit to regular customers (see Table 1). This is seen as a way of helping and supporting the community, and it allows customers to buy essentials when they have limited or no funds. One shop owner explained,

> "Sometimes people they say 'please, I have got only this money.' So it's all about love, and we just do favour for them. Ok, because you are our customer, we cannot allows you to starve in your life so we have to help you in this way and this way...we knows them, and we have been with them for the longest time… so we can't just let them be in trouble like that…. We have to just understand them" Spaza Seven (18/05/23)

The social contract between spaza shops and their communities was a strong indicator of fulfilling the access dimension with another shop saying:

> "We helping them, because what must we do? We support them... when they have money, they support us. They like us because sometimes when they don't have money, we help them." Spaza Two (22/03/23)

In summary, this section demonstrates how spazas support food security through fully meeting the access dimension. This may allow their customers to meet their dietary needs, however, it is equally important to ensure that the types of foods sold do not contribute to malnutrition, as seen in the availability dimension and this is further explored in the utilisation dimension next.

Utilisation

The utilisation dimension of food security involves consuming an adequate and nutritious diet, considering both the availability of healthy foods and non-food factors that affect consumption. Spaza shops offer both nutritious and obesogenic foods, with the latter being their top-selling items (see Table 1). Coca-Cola had a strong presence in the shops, providing signage, fridges, and weekly deliveries (Table 1). Additionally, energy drinks were prevalent. Spaza shops also supplied non-food items such as electricity and cleaning products to support household food utilisation. However, the electricity crisis in South Africa, resulting in load shedding, has severely impacted both consumers and spazas. One shopkeeper explained, which is a sentiment shared by all the businesses interviewed: "Terrible, terrible, terrible… (we) suffer a lot…" Spaza One (22/03/23).

Power outages have led to food wastage, difficulties in maintaining proper temperatures in fridges and freezers, and equipment damage. One explained: "…'cause especially those in the fridge can be sour. It can be damaged" (Spaza Three, 22/03/23). Shop owners further expressed their struggles and financial losses due to load shedding;

> "Very bad.... Because of the business. You see the frozen stuff here... Chicken, ice, we sell ice creams, that kind of thing. And you see, last time I lose 4,000

> (Rand) for them to fix my fridge. Because of load shedding…" Spaza Four (22/03/23)

These challenges can have significant implications for local food security, compromising the storage of foods and potentially affecting food safety. The same shop owner when asked if he had to throw away food because of load shedding said:

> "Yeah… especially the pies, that kind of thing. Yeah. Yeah. Customer they bring back, so I have to throw it. And I give them money or new one. The polony and this kind of thing also..." Spaza Four (22/03/23)

Maintaining cleanliness and good food handling practices is crucial, although some spazas lacked commitment in this area and the enforcement of health and safety regulations in unregistered businesses can be challenging.

As no residents were interviewed, the study cannot say if they are relying on local spazas more for ready to eat meals or for topping up fresh and frozen produce more regularly like the literature suggested and this should be a topic for further research (Rogerwilco and Survey54, 2023). Spaza owners did note however that they had less clients during load shedding due to safety concerns, and this could impact their sustainability. Load shedding has also caused production delays and shortages of staple items in the supply chain, affecting the consistent availability and stability of products, which is discussed next.

Stability

The dimension of stability ensures that people and communities always have access to adequate food. This means having food resilience from economic or climatic shocks and that they have reliable access and availability throughout the whole year. With a national food inflation rate of 13.9% (Stats SA, 2023), spazas struggle to preserve their small profit margins. The coping strategies employed by spaza shops to manage price increases serve as a response to economic shocks, highlighting their efforts to maintain stability. Shop owners adopt various approaches to navigate rising costs while keeping their products affordable. As one shop owner explained, they buy in bulk and search for the best prices, which was common amongst all respondents: Spaza eight explained this by saying:

> "Which one I noticing going up by R1, I buy in bulk, maybe I see R1 going price up, I don't put more. Just keep it that price. Yeah, just to make sure customers come in." Spaza Eight, (18/05/23)

These strategies demonstrate the price sensitivity of consumers and the shop owners' awareness of the potential impact of even small price increases on their customers. Moreover, they acknowledge that these price increases are beyond their control, stating:

> "This is the fault for the many (emphasized) sources... if they increase the price, we too, we have to do the same thing mos..." (Spaza Seven, 18/05/23).

So, while spazas try to absorb some of the price increases they cannot fully, so these are still passed on to the customers. However, as the findings showed in the access dimension, bulk breaking and credit can be additional safety nets offered by spazas for customers facing economic shocks.

Spaza shops therefore play a crucial role in supporting food security through consistently offering small portions, small amounts of credit, competitive prices, and convenient locations. As a result, customers can top up on essential items when they have available funds. This relationship empowers low-income communities within the food system. The ability of spaza shops to adapt to price shocks and maintain affordability contributes to the dimension of stability by ensuring continued access to essential items for the community, despite economic challenges.

Agency

The dimension of agency in food security encompasses the ability of individuals or groups to exert control over their interactions with the food system and address inequalities and power imbalances. While measuring agency can be challenging, in essence it lies in ensuring the right to food and empowering people to have a voice in the food system. Spaza shops demonstrate their contribution to this dimension at a neighbourhood level by being responsive to the needs of their marginalised communities. The research revealed how spaza shops cater to the diverse demands of their neighbourhoods, offering smaller portion sizes, credit and accepting SASSA grant cards. Spaza Seven explained what items they help their community with when they did not have enough money:

> "It's like sugar, fish oil, it's like small, small things, that they always need, as a human being, without sugar, salt, you can't survive, its actually about the foods that they need." Spaza Seven (18/05/23)

This approach upholds the dignity of the community and reduces the fear of going hungry. However, the ability of spaza shops to influence the broader food system is limited. While they do provide essential services and products tailored to community needs, their capacity to exert significant agency within the food system is constrained. Spaza shops, as small independent retailers, primarily respond to consumer demand by offering credit, smaller portion sizes, and low-cost products. Their influence is mostly indirect, operating through market mechanisms. They do not significantly challenge the concentrated power of large food retailers in SA. Instead, they adapt to the market by generating demand for affordable products in accessible locations, rather than actively reshaping the food system.

Furthermore, while promoting agency involves providing users with access to information that empowers them to make informed decisions, the presence of unhealthy foods advertised outside the spazas and sweets displayed at the counter may influence consumers, particularly children, to make poor nutritional choices. This indicates that while spaza shops are vital in meeting immediate community needs, they are also part of a larger food system that often perpetuates unhealthy eating habits driven by economic constraints.

Sustainability

The sustainability dimension of food security ensures that present and future food needs are met while preserving environmental, social, and economic systems. It encompasses practices that support long-term regeneration and the interconnections between ecosystems, livelihoods, society, and the political economy. In the case of spaza shops, this dimension is relevant to the sale of highly processed industrial foods in low-income environments. These products are often linked to transnational corporations and unsustainable practices, posing risks to the future health of the nation and local food environments. It is widely recognised in the literature that the dominant industrial model of food production is environmentally unsustainable.

Interestingly, none of the spaza shop owners expressed concern about the source of their food, and when asked about the use of local farms, none reported such practices, despite their proximity to the Phillipi Horticultural Area. However, due to their location within neighbourhoods may reduce the environmental costs associated with longer distance transport. Furthermore, they often buy Grade B fruits and vegetables from the market to save costs which may otherwise go to waste. It was also widely noted that Coca-Cola has moved back to stocking glass bottles that can be returned.

4.2. Conclusion

In conclusion, spaza shops play a crucial role in addressing the six dimensions of food security. They contribute to the availability dimension by providing a wide range of food products, including staple items and fresh produce, that they source from a range of suppliers to ensure availability, stability, and affordability of produce in their neighbourhoods. Spaza shops demonstrate their commitment to accessibility by being positioned in convenient locations, opening for long hours, offering competitive pricing, providing credit to people they know, and bulk breaking. Spaza shops also contribute to the utilisation dimension by supplying both nutritious food and essential non-food items, thereby supporting their communities in achieving food security. However, there is a need to address the prevalence of unhealthy, highly processed foods in spaza shops, as this poses a challenge to achieving a balanced and nutritious diet. When it comes to stability, spaza shops exhibit resilience in the face of shocks such as load shedding and price increases. They employ strategies like buying in bulk and shopping around for the best prices. Additionally, their ability to sell smaller portions and to break down products caters to the diverse needs of their communities, promoting affordability and reducing the fear of going hungry. Spaza shops demonstrate agency by being responsive to their communities' needs. As independent retailers, they have the flexibility to make decisions based on local demand, contributing to a sense of dignity and empowerment within their communities. However, concentrated power in the food retail sector and entrenched dietary behaviours still limit their community’s agency. Regarding sustainability, there is a need to address the prevalence of highly processed and unsustainable food products in spaza shops. Balancing the environmental impact and long-term regeneration of food systems is crucial for ensuring the availability and quality of food for present and future generations. Overall, while spaza shops make significant contributions to food security in their communities, there are areas for improvement and consideration of sustainable practices. Collaborative efforts between spaza shop owners, policymakers, and other stakeholders can enhance the role of spaza shops in achieving comprehensive and sustainable food security for all.

Table 2: Indicators of the Six Dimensions of Food Security Being Supported or Undermined

	Supports	*Undermines*
Availability	Fully stocked shops. Products predominantly sourced from wholesalers. Fresh produce all bought from Epping Market & Bakkie Boys. Wide selection of products. Stock staple foods. Fresh fruit and vegetables stocked. Healthy food equally present.	High levels of obesogenic foods sold.
Access	Physical location in neighbourhood. Long opening hours. Competitive pricing. Bulk breaking of staples. Small amounts of credit offered. Social contract. Accept SASSA grant cards.	
Utilisation	Sale of electricity, water, cooking oil. People buy smaller amounts more regularly due to economic, social circumstances and load shedding.	Advertising of unhealthy products. Inconsistent food safety standards. Cases of wastage and food being off due to load shedding.
Stability	Buy products from a wide range of sources. Absorb small cost increases. Own transport. Buy in bulk. Buy specials.	Limited credit afforded with suppliers.
Agency	Independent retailers receptive to community needs. Give dignity to people who cannot shop in supermarkets.	Operating within a wider monopolised food system. Advertising of unhealthy foods.
Sustainability	Walking distance to their customers. Buy B-grade fruit and vegetables. Minimal food waste. Glass bottles and returns.	High level of obesogenic foods sold. Low concern by shopkeepers on product sustainability and sourcing.

5. The Strengths and Limitations of E-commerce in Supplying Spazas

The chapter discusses the findings surrounding the capacity of an e-commerce company to support spazas in meeting food security needs. YF recognises the significant role of spaza shops as the lifeblood of the community and sees the importance of “spazas being physically in communities and understanding their communities” (SM, 16/03/23). By actively supporting spaza shops, YF aims to preserve their vital role within townships, ensuring the availability and accessibility of food to this segment of the population. YF aims to address some of the perceived limitations identified in the literature such as transport, price and time, associated with the dimensions of availability and access. The key findings in this section highlight the advantages of deliveries, payment terms and cost saving opportunities. However, there were challenges surrounding the price and range of products sold, going cashless, technology and unhealthy and non-food items sold. The findings show that e-commerce faces several challenges in serving a low-income market and that in the studied spaza shops their needs were not fully met. Additionally, it situates these limitations within the context of wider issues of power and concentration in the food system.

Cost Saving

E-commerce can pass on deals to spaza shops that lack the same buying power by eliminating a step in the supply chain, (SM, 16/03/23). YF highlights the core benefits they offer as pricing and cost saving, which are particularly crucial in a context of rising food and living costs and high levels of income poverty in SA (SM, 16/03/23). However, YF faces challenges in harnessing large buying power in comparison to wholesalers and supermarkets, who dominate the sector. They state,

> "Pricing is tricky because we are not at the scale of the supermarket and the wholesalers... But we are committed to pricing as well and getting the deals and passing those on" (SM, 16/03/23)

They further explain the struggle to secure the same deals enjoyed by larger players, highlighting the existing monopoly and its detrimental impact on consumers:

> "We just invest in pricing and try and get past it. But, to get the super deals that the supermarkets and everyone else gets from the producers is hard, they are protected… and that doesn't serve the consumer" (SM, 16/03/23).

During interviews and visits to spaza shops, it became evident that many businesses found YF to be more expensive compared to wholesalers. Spaza six and Spaza nine mention the need for YF to compete with local wholesalers such as Jumbo Cash and Carry and Makro, both subsidiaries of Massmart. In another instance a shopkeeper wanted to know the price of sugars. The rep checked the prices of both Akila 2kg and Hullets 1 kg and the shop owner worked out the price per item. The shop owner said "Yoh expensive, why your company very expensive everything? You see if I buy Cash and Carry I get it R17 something?" (Spaza Nine, 09/06/23). The owner explained that he has a Cash and Carry in walking distance where he could buy Huletts for R2 less and that Akila did not sell as well as Huletts, plus he already had enough of that sugar. The shopkeeper proceeded to then try order milk and toilet paper which were out of stock at the time. This meant he did not have enough money for the minimum order of R1000 and the sales representative decided to come back later in the week when everything was in stock again.

Despite these challenges, YF strives to offer competitive pricing and savings. They try to provide the lowest possible prices and even offer specials on items like milk or noodles to attract businesses. The sales representative explains;

> "We deal with competitive pricing as well within the market... They want cheap pricing, they don't want anything expensive, and it's very (emphasized) competitive" (SR, 09/06/23).

While they aim for below market prices, there may be instances where they are slightly higher. However, the delivery service offered still provides convenience and time-saving benefits, ultimately saving spaza shops money. As one spaza shop owner puts it:

> "If I see something like a price a little bit, not too different from the market, maybe say an extra R2 different, (I order from YF), because they deliver..." Spaza Two (22/03/23)

However, all the spazas interviewed had access to transport, allowing them to shop around for the best deals, and have already considered transport costs. YF acknowledges that due to their "tight-knit social and community buying practices" foreign-owned spaza shops may not experience the same benefits that they can offer locally owned spaza shops (SM, 30/06/23). Furthermore, they explained that foreign owned spazas potentially have the buying power to negotiate better deals with wholesalers.

> "Yeah, wholesalers hold the power in the market. They set the price, they get the rebates, all of that from the suppliers. If you've got weight to be able to squeeze them on price, then you're potentially going to get more value or you've got more ability to negotiate. So, the locals (SA spazas) potentially, can access better value or a broader value across multiple ranges (from YF)" (SM, 30/06/23)

This evidences the tension that exists with trying to compete as a new company entering the highly concentrated food system in SA, and the different business structures in foreign owned and SA owned spazas. The Case of Sugar is expanded below to evidence this further.

The Case of Sugar

I sat down for a second interview with the SM of YF to discuss some of the themes that had come up in the research. The significant challenge that YF faces in competing with wholesalers on price and brand was discussed and the following situation with sugar was highlighted:

> "Like sugar at the moment, you have got to buy 35 tonnes of sugar to access the price. There was just a 15% increase of sugar in June, and all the wholesalers bought up all the stock, as soon as you hear there is a price increase, they just buy everything… you can't get it…" (SM, 30/06/23)

SM then explained how the sugar was bought by “Massmart and the other wholesalers, they will just buy everything the producers have and then they have stock at that low price for the next six months. You cannot compete with that…” (SM, 30/06/23). They further explained the increase in price was due to load shedding, fuel costs and some weather issues that had affected sugar production. This has further impact on the size of sugar the producer's package; “If there is a shortage in sugar then they are going to pack for the big retailers” but the informal sector buys and sell smaller sugar packages of 250g or 500g, “large retailers and the main lines get priority” (SM, 30/06/23). This example demonstrates how consolidation in the retail environment in SA is creating anticompetitive behaviour and the challenges faced by a start-up entering the market.

Table 3: The Case of Sugar

"Buy Now, Pay Later"

The "Buy Now, Pay Later" option support spazas in stocking their shops and ensuring availability of produce in their neighbourhoods. This payment flexibility enables spaza shops to purchase goods upfront and defer payment for a week (SM, 16/03/23). YF highlights this benefit during the interview, explaining that it allows shop owners to order based on projected demand and helps manage cash flow; they state, "...it's basically payment terms. So, you can buy now, pay later… And that helps with cash on hand, you can order before your busiest times so that you are ramping up for the weekend or end of the month" (SM, 16/03/23).

For many informal businesses, especially those lacking access to formal loans or credit, this payment arrangement is beneficial. Three of the spazas that were interviewed use this service and the SR emphasises its significance by stating that offering customers R1500 "credit" assists the shopkeepers and boosts sales (SR, 09/06/23). However, one spaza owner expresses dissatisfaction with the credit amount, deeming it insufficient to cover their average order. They express the need for higher credit limits:

> "You see before you give me full amount of credit...now you make it for fifteen hundred credit... I'm not happy like that... we need more than that... If you give me 3000 credit or 4000 credit...most of the time I put order 4000, then most of every week I buy the stock..." Spaza Six (18/05/23)

YF faces risks in extending larger sums of credit, especially to those with outstanding balances (SM, 30/06/23; SR, 09/06/23). They do however have a tiered system allowing businesses that order regularly and pay back on time to access more credit (SM, 30/06/23). Additionally, YF has a minimum order requirement of R1000 to cover their operational costs. Some spaza shops may struggle to meet this minimum order if they only need to replenish a few items, and as a result it may be more financially viable for them to visit shops where they can purchase smaller quantities at the same or sometimes lower prices.

In summary, the "Buy Now, Pay Later" option provides spaza shops with payment flexibility, enabling them to order goods based on projected demand and manage cash flow. This thereby supports the local food environment. While it serves as a valuable support system for many informal businesses, there are limitations regarding credit amounts and minimum order requirements.

Streamlined Ordering Processes

The e-commerce shop of YF is currently only available on their website for home-users. However, sales representatives have access to live prices through a mobile app and send weekly brochures via WhatsApp to businesses for placing orders (See images 10 and 11). While YF aims to develop self-service options, they currently rely on agents to facilitate wholesale orders and rely on widely used digital platform WhatsApp to facilitate e-commerce. The SR observes the time constraints and language barriers faced by spaza shop owners in adopting online ordering: "It's going to be a difficult situation... they just want to pick up the phone or send a quick WhatsApp... not everyone understands English" (SR, 09/06/23). The representative further emphasises the importance of personal relationships and cultural understanding in building trust with customers, and how important the human element is, saying;

“They depend on me a lot, if I don’t come, they want to know where I am, they say “sister where are you, we need you we need you” … they want to be looked after. They just can’t work from an app, and I don’t think it’s ever going to change” (SR, 09/06/23).

To combat this, YF plans to provide businesses with more support, including training and software tools, to enhance digital literacy within the sector (SM, 16/03/23). The rise of e-commerce and the existence of the digital divide in low-income areas highlights the need for companies to focus on improving business support, training, and education. However, most funding to support this is for SA owned spaza shops (SM, 30/06/23). Improving digital literacy and digital skills could allow people to make more informed decisions about their food and this could be a significant step towards increasing agency within low-income communities.

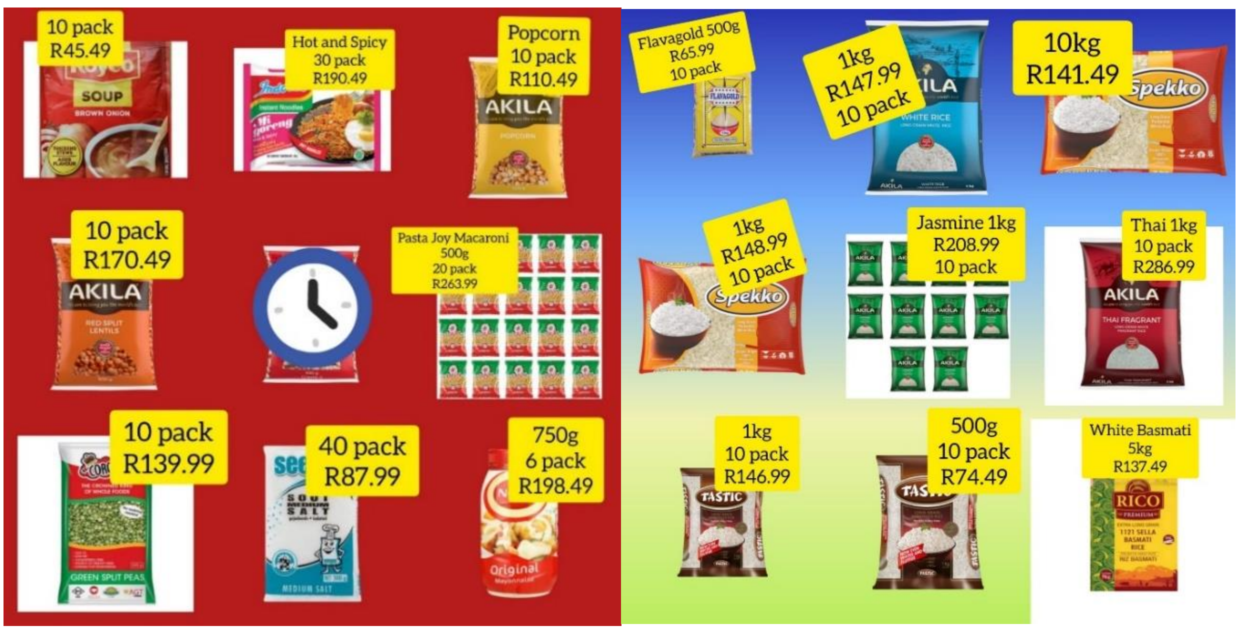

Image 10 & 11: A sample of the WhatsApp Brochure that the SR sends to spaza clients, highlighting the special deals they have available that week.

Product Range

The findings revealed that the case study faced limitations in offering the full range of products that spaza shops require. One shopkeeper expressed the impact of this and the need to visit traditional shops for certain items, stating:

> "But the problem you see, they can't have all this stuff… like the butter and the cheese you need, it's necessary to go (to) the shop. If they have all this stuff and also the same price with the market… we don't worry. I buy from them (YF), yes. Yeah, but they don't sell the cooldrink... but it's a must. You must go, you must go to the shop. It's a must…" Spaza Three (22/03/23)

Another spaza shop owner mentioned,

> "They (YF) don't have certain stuff. So, if I buy from them, whatever I need, whatever I can get… But most of the product they don't have… They have certain brands like Akila (a brand of rice and sugar, see Image 10) and stuff. But stuff they don't have... Most products they're selling like one type of product, you know what I'm saying? I don't need that brand. I don't sell that brand. Okay. So, I have to go to the market to buy that brand." Spaza Two (22/03/23)

When asked about their willingness to use unfamiliar brands, shopkeepers emphasised that their customers prefer well-known and trusted brands. One explained; "I buy the ones we most selling, and that customers are buying" (Spaza Five, 18/05/23). However, the sales representative noted a shift in consumer demand, stating,

> "What I've actually picked up, is that it used to be brand loyal, but it's no longer anymore because people are buying things that are cheaper, because the economy is so bad, people are trying to save and trying to buy where they can score and pay less. There are certain parts of Mitchells Plain that are brand loyal. It varies, some areas are poor, but they are still brand loyal… Some of the middle-class parts of Mitchells Plain are actually not brand loyal." (SR, 09/06/23)

The question of brand loyalty was then posed to SM to determine if this was a theme that they were seeing company wide, and they explained:

> "We have noticed over the last six to eight months that there's been almost a tipping point in 'B' brands getting more traction, that can be because they've had a longer run of route to market campaigns. They've been quite aggressive at getting their brands into the market - so they've had time to change habits. It could also be that the kind of financial struggle has gone on for longer, and so

> people are now forced to make changes and try other things, because they just cannot afford their regular brands… and with the conflict in Ukraine, the rand price, and fuel costs going up all of the brands have gotten more expensive" (SM, 30/06/23).

This shows how the compounding crises of load shedding, fuel increases and cost of living is hitting consumers and how consumption of lesser-known brands is slowly changing. However, as seen earlier when the shopkeeper only wanted to buy Huletts sugar brand loyalty is still important, particularly in poor neighbourhoods and YF is unable to match the product range or price of well-known brands in the way wholesalers are. Consequently, many spaza shops still need to visit wholesalers to procure the specific products they require. The SM explained;

> "So they might just have specific brands that they buy regularly and in good quantity from us. But it's the ones that they don't have deals on already. So, they then use that power to go elsewhere, buy the other items… We'll never crack into that… maybe we will one day, who knows, but they've already got very clearly defined value chains and they'll know where we fit in it. Whereas to someone that's got no bargaining power, is a very small or more informal or unorganised business, they are going be able to gain more value from the service." (SM, 30/06/23)

This shows how YF sees how they can offer greater value for typically SA owned spazas, that have a greater level of informality than the ones researched for this study. The products that YF sells the most of in Mitchells Plain can be seen in Figure 9. The most popular product sold to spazas is pet food as they can offer a better price on it than other wholesalers, and this acts as a catalyst for other orders from spaza shops. Figure 9 also shows the sales of key staples such as maize, milk, cooking oil and rice and unhealthy items like sugar, energy drinks and instant noodles.

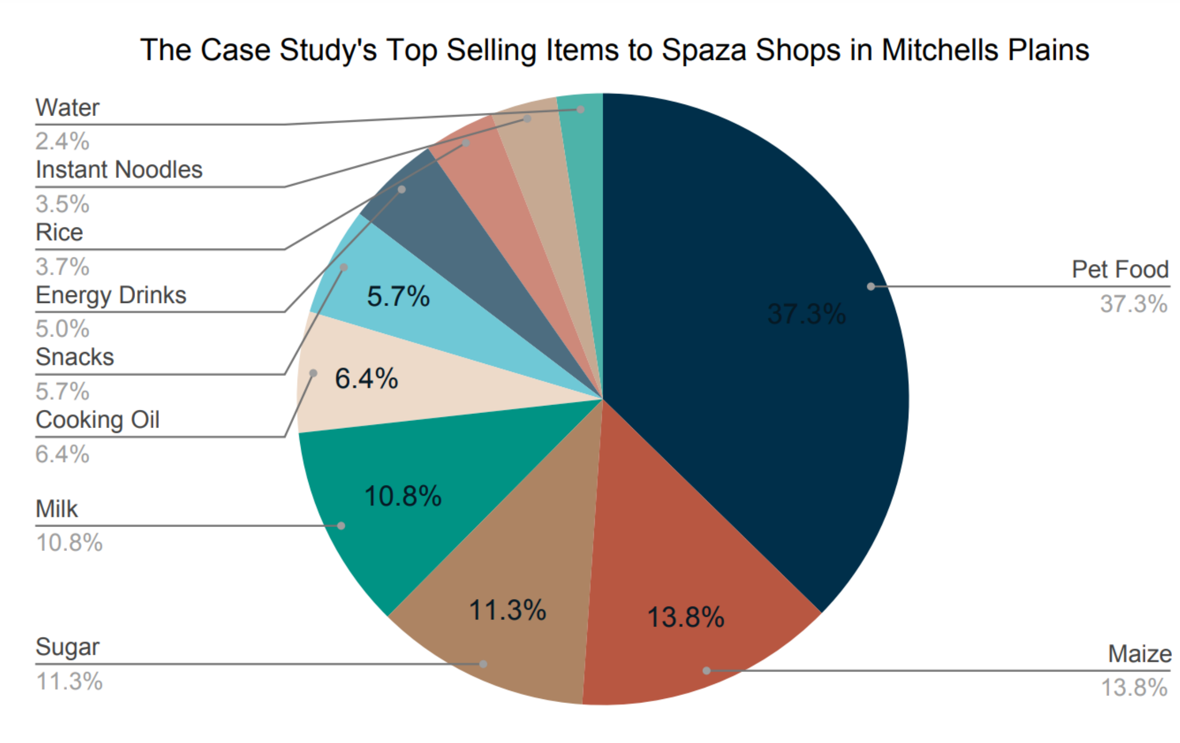

Figure 9: YF's Top Selling Items by volume to Spaza Shops in all of Mitchells Plain. Source: SM, 30/06/23

Going Cashless

YF made the decision to go cashless in June, the final month of the research, out of concern for their drivers' safety after several incidents of crime. Going cashless is also safer for spaza business owners who are targets for criminals. This transition poses a significant challenge for these informal businesses that are accustomed to working in a cash-based economy - as the agent explained, "A lot of them don't believe in bank accounts" (SR, 09/06/23).

To address this challenge YF now takes payment through the spazas e-wallet machines (see 2.5.2), which every spaza had in place before YF went cashless. However, since most customers still pay in cash, spaza owners need to physically deposit cash into their e-wallets to make payments to suppliers. Many of them are unwilling to do this, and the sales representative explained that when the drivers arrive and the spaza does not have funds on their e-wallet terminals the order is returned; "We take it back, it's very bad, they are actually getting to the point where they are not buying from us, they are going to the market, where they can pay cash" (SR, 09/06/23).

All the spazas interviewed used their e-wallet machines to pay major suppliers like Coca-Cola and Clover, and these companies appear to receive priority. The sales representative mentioned that she checks if her clients have funds on their machine when taking their order. However, in one case, a large order arrived the next day, and the funds were gone, resulting in the order being returned. The SR explained that "It's out of our hands once the order gets placed… you physically see the money on his machine, and he tells you that the money will still be there, but now maybe he paid Coke R500 and Clover R500, and now the money's gone" (09/06/23).

Going cashless especially impacts the cash-on-delivery (COD) customers that are not yet eligible for “Buy Now, Pay Later”, but in most instances credit does not cover the entire order, so it affects all spaza clients. The returns of orders are causing breakdowns in understanding and upsetting customers who have the cash to pay (SR, 09/06/23).

YF explained that it was a challenging time for them, and that going cashless was impacting sales and their sales team (SM, 30/06/23). However, it was an important business decision that they view as a step toward bringing about change and moving the sector in a cashless direction, and towards a new sense of formalisation. YF faced high costs of banking cash and emphasised the importance of keeping their staff safe. Additionally, they highlighted the benefit for informal traders, even those who are unbanked, of being able to record their earnings digitally to access credit based on their settlement rates (SM, 30/06/23). These digital transaction lists can promote growth within the sector. YF is trying to support them through this transition and said:

> "We help them a lot, so our agents will informally train them, but it's in our best interests and it's good for client relations. We will help them with the change management of that." (SM, 30/06/23)

However, there has been a drastic decrease in sales from the agents due to the non-acceptance of cash. The sales representative expressed concern, saying, "I don't know if we are even going to have a job next month with the way things are going on now… not that we are not going to have a job but you hope it doesn't get to the point where they have to cut staff" (SR, 09/06/23).

In summary these findings have shown the challenges being faced with going cashless in the informal sector but that the long-term goals of this will support spaza sector growth and sustainability, which in turn will uphold food environments. As Figure 3 showed, crime was a major concern for all spaza shops, along with competition from both other informal traders and formal shops. Digitalisation and the move to cashless has been shown to support businesses with these challenges. The rapid growth of digitalisation globally will mean the informal trajectory will be towards digital economies as seen in the Township Reports, despite their current businesses working on a cash-based model that allows tax and legal avoidance benefits. It is therefore crucial to address the challenges of limited accessibility, infrastructure dependency, and trust issues to ensure that the transition to a cashless system does not inadvertently exclude or disadvantage vulnerable populations, and that it effectively supports food security efforts.

Conclusion

In conclusion this section has highlighted the challenges in trying to meet the spaza shop's needs. YF aims to offer cost saving advantages through competitive pricing and deliveries, however all the shops had access to their own transport and large wholesaler where they could buy in bulk or search for specials. YF aimed to try and ensure stability in supply but because of wider inequality in the food system this significantly impacts their ability to do this. Spazas aim to protect their price sensitive consumers from even small cost increases, and need a supplier that can meet these needs. Spazas also need to be protected from shocks and ensure a steadily availability of food in their local food environments, and one method that YF uses to meet their needs is the "Buy now, Pay Later" option which was not widely available to the spazas in this study, and often did not cover their orders. The business decision to move to cashless is also significantly affecting their spaza clients as not enough consumers are using cards to pay, meaning that they do not have funds on their EPOS to pay YF. YF highlighted that their perceived benefits are more beneficial for SA owned spazas who are less formalised in nature. The Case of Sugar highlighted the consolidation and power dynamics in SA's food system and how challenging it is for a small operator to compete within it. The following chapter will discuss this further and situate the findings within the context of literature review.

6. Discussion

Introduction

This chapter discusses how the findings inform the research question, “How can e-commerce support spaza shops towards achieving the six dimensions of food security in a low-income area?” The findings showed how the barriers to improved food security through e-commerce are multifaceted with wider systemic issues being faced. The discussion firstly situates the findings within the literature on food security and highlights the importance of focussing on all six dimensions, beyond the traditional focus of availability and economic access. A brief discussion of the key findings and how they differ from the literature is done, showing how spazas meet the six dimensions of food security, but that certain dimensions could be improved upon and supported further, particularly utilisation, stability, agency and sustainability (see Table 2).

The second section of the discussion focuses on Chapter Five and discuss the challenges faced by the e-commerce supply model and their ability to support spazas meeting the six dimensions. The key points of discussion will be on competing on price and the products sold. It will highlight the concentration of power in the food system in SA, and how this is prohibiting them from being able to meet some of the challenges spaza shops face.

Situating the Findings in the Current Understanding of Food Security Literature

The approach to examining the role of spaza shops through the six dimension of food security framework adds to the body of research in this field (Clapp *et al.*, 2021). This method addresses the gaps in literature on the utilisation, stability, sustainability, and agency dimensions that Clapp *et al.* (2021), Katre and Raddatz (2023) and Manikas *et al.* (2023) identify. Additionally, the focus specifically on spazas shops in the thesis contributes to gaps in research that were identified by Joassart-Marcelli *et al.*, (2017) that small convenience stores are left out of the understanding of everyday food geographies of the poor, despite being essential sites of the poor’s food shopping strategies. The findings support Battersby (2011) and Battersby and Crush’s (2014) findings that food desert literature is ill matched to African urban areas and demonstrate the importance of the informal sector in food security research. The findings reflect the current understanding that the spaza sector is predominantly foreign owned, as none of the spaza owners interviewed were SA nationals (Peterson *et al.*, 2019). Despite their important role in food environments, which was seen in Chapter Four, foreign owned spaza shops are consistently left out of policy and planning and are susceptible to shocks that may affect food environments because of this. This marginalisation is significant and as Peterson *et al.* (2019) argue all spaza should be supported whether they are local or foreign.

Spaza Shops Support Food Security

Spazas shops are important pillars in their communities and support food security, particularly for the most food insecure residents, as previous research has shown (Battersby *et al.*, 2016; Petersen and Charman, 2018; Peyton *et al.*, 2015; Skinner and Haysom, 2016). The thesis findings, as seen in Table 2, confirm that foreign owned spaza shops meet all six dimensions of food security, albeit to varying degrees.

Notably, the findings showed that the spazas meet multiple dimensions of access, beyond only economic access, which as Battersby (2011) argues is key to addressing food insecurity. Particularly the finding on credit (social access) being widely offered to customers is noteworthy: it disputes Charman *et al.'s* (2019) argument that credit is seldom available, and instead indicates that spazas continue to offer small amounts of credit and have strong social contracts with their communities, concurring with the findings of Battersby *et al.* (2016) and Peyton *et al.* (2015). The findings on access re-iterate the practice of bulk breaking and selling smaller quantities to customers, which is reflective of which neighbourhoods and residents need this service (Battersby and Peyton, 2014; Battersby *et al.*, 2016). The finding that consumers are becoming less brand loyal, shown by data from YF's employees, concurs with the recent Township Report by Rogerwilco and Survey54 (2023). Despite agency being a particularly hard dimension to measure, credit and bulk breaking offered some agency to consumers with the least power in the food system (Clapp *et al.*, 2021; Joassart-Marcelli *et al.*, 2017; HLPE, 2020).

Unlike Peterson *et al.* (2019) the findings consistently found a diverse range of fresh, healthy produce available. However, the research also highlighted the tension that spazas also support the availability and accessibility of highly processed foods (Battersby *et al.*, 2016). This was seen both through the advertising of unhealthy products and the sale of obesogenic food products (Table 1) which are key drivers of the triple burden of malnutrition (FAO, European Union, *et al.*, 2022; Peterson *et al.*, 2019). This is symptomatic of the wider food environment and the nutrition transition to highly processed, pre-packaged foods that is happening in urban areas (Battersby, 2016; Turner *et al.*, 2018). This has wider sustainability implications due to the processes used to make these foods, and shopkeepers had little concern over where their produce was from or the prevalence of low nutrient foods, suggesting that education on sustainable and healthy foods is low in these areas. The findings overall concurred with Battersby (2011) and Petersen and Charman (2018) that spazas are ideally situated for local environmental interventions and dietary diversity promotion; whether these could be supported by e-commerce is discussed next.

Does e-commerce support spazas in achieving the six dimensions further?

YF aimed to support foreign owned shops in ensuring accessibility and stability through the "Buy now, Pay Later" benefit. In the research this support was offered to a third of the spazas interviewed (Table 1). Despite this supporting some businesses in ordering stock before busy periods and helping with cash flow, it was shown to not sufficiently meet their needs as the payment terms did not cover minimum orders. Although "Buy Now, Pay Later" has the potential to support businesses unable to access traditional credit systems, it may be ill matched to foreign business's needs. Spaza Five (16/05/23) explained "No, I don't like any credit, credit is not good!" Furthermore, as the CCSA showed in Figure 3 accessing credit or financial services was not listed as a major challenge, and these businesses may have informal networks for accessing credit support, but this needs further investigation. This study found these payment terms ineffective in supporting the availability, access, or stability dimension of food security further because it was not widely adopted, nor sufficient to meet business needs.

Secondly, YF offered the benefits of streamlining ordering and delivery services to alleviate the time and economic costs incurred by spaza owners having to leave their businesses to source stock. This can be understood as enhancing the availability and physical and economic accessibility dimensions for the businesses, which would then be passed onto their consumers. Although transport was listed as a challenge in the literature by Battersby *et al.,* (2016) and a way in which to improve the supply of fresh produce by Katre and Raddatz (2023) the foreign owned spazas interviewed all had access to their own transport, allowing them to buy at the most competitive prices (Battersby *et al.*, 2016). Access to transport also allowed them to buy in bulk, which was common practice, and to access economies of scale, essentially accessing more competitive prices than YF could offer. As Battersby *et al.* (2016) note, price is the primary factor determining spaza sourcing. The findings therefore significantly impact the perceived benefits of cost savings seen in Chapter Five and show that e-commerce did not support the dimensions of economic access and availability for foreign owned spazas further.

Thirdly, the research found that YF did not sell fresh produce to the spazas. These needs were sufficiently met by the spazas accessing Epping Market and using the Bakkie Boys (Table 1); these procurement strategies concur with the work of Battersby *et al.* (2016). There was no evidence of YF promoting nutritional baskets, which was recognised as an entry point to improve food environments in 2.3.4 and 2.5.3. Nutritional baskets were however offered by YF to some of their community clients, so it could be a possible option in the future to introduce healthy hampers into spazas (SM, 16/03/23). The findings on YF's top selling items show that some of their fastest-moving products to the spazas are unhealthy foods such as snacks, energy drinks and sugar, and also non-food items (See Figure 9). These items also have a high environmental impact, and do not support the dimension of sustainability. The other big sellers are dietary staples that again offer little nutritional value, but are essential items for residents in these food environments. This means, when analysing whether e-commerce supports food security according to the six dimensions, that YF does not currently promote the dimensions of availability, access, and utilisation further.

It is interesting to note that the Bakkie Boys are an essential component of the local food environment and are often people from within the community; this keeps economic value within local economy of townships which does contribute towards wider food environment (Joassart-Marcelli *et al.*, 2017). YF is not contributing to the demise of these entrepreneurs, unlike supermarkets which have been found to harmfully impact local food environments (CCSA, 2019).

Fourthly, YF could not consistently offer the availability or accessibility of food products at the prices that the spazas needed, which in turn affects their ability to support stability (HLPE, 2020). Spazas work on small margins and price was consistently the most crucial factor when buying products (Battersby and Marshak, 2013). YF's inability to access deals that the large retailers can on key products shows how the current food system does not serve consumers. As FAO, European Union, *et al.* (2022) note, the high barrier to entry in the SA market affects underserved communities the most and that large retailers control the food environment through influencing what is produced, how it is branded and how it is priced (as seen in the case of sugar throughout the findings and specifically in Table 3). This evidences how the grocery retail sector gives preferential treatment to larger suppliers and risks anticompetitive behaviours (CCSA, 2019). Furthermore, it substantiates HLPE's (2020) argument that corporate concentration influences food environments by controlling prices and increasing the proportion of highly processed foods on offer, limiting the food choices and agency of individual consumers.

The findings concur that these vertical relationship with wholesalers have not been well documented and that the industry deserves further attention, and that government policies need to address multinational corporations in the food system (Charman *et al.*, 2019; Peyton *et al.*, 2015). However, as the FAO, European Union, *et al.* (2022) note these multinationals may be beyond the reach of regulatory power, as seen through the mergers of companies such as Massmart (CCSA, 2019). Overall, the findings show that due to wider food system issues, YF cannot access economies of scale to benefit foreign owned spazas and ensure competitive accessibility, availability, and stability. This alludes to complex power structures in the food systems, that a company in its infancy cannot by themselves improve food environment, as HLPE (2020) argue.

The fifth discussion point is around adoption of technology within the spaza sector. Technology adoption is a key way to fully utilise the benefits of e-commerce, but as the literature showed there are number of barriers to entry for low-income areas such as the lack of digital literacy, low trust in financial institutions, the prevalence of cash in the informal sector, and data costs (BFA Global, 2023; Mburu and Winiecki, 2022; Rogerwilco *et al.*, 2022; Vries and

Engelbrecht, 2021). The SR in the findings highlighted the issues that YF has with trying get spazas to use online ordering, and showed how using WhatsApp was the most viable alternative due to its wide penetration, which concurred with the findings by BFA Global (BFA Global, 2023). The distributed WhatsApp brochures (Image 10 and 11) shows promoting healthy products is not a core e-commerce focus, and this channel is not being used to promote healthful diets as it has been done internationally, therefore e-commerce is not currently supporting the utilisation dimension further.

This study found that most of the spazas had access to smartphones, unlike the findings by BFA (2023), meaning that technology adoption is on the increase as recent townships reports have shown (Rogerwilco and Survey54, 2023; Vries and Engelbrecht, 2021). Every spaza had an EPOS machine to take card payments and to pay suppliers (See Table 1). Although outside the scope of this research to investigate how these e-wallets are supporting spazas, findings indicate that the machines support the move to formality through transactional history, but that the majority of the spazas' customers still pay in cash which concurs with the Township Reports (Rogerwilco *et al.*, 2021, 2022). These technological solutions can improve accessibility for SASSA grant card holders, and for e-voucher interventions as seen during COVID-19, and with digital supplier payments as seen in this research. Furthermore, these digital platforms have the possibility to increase the availability of nutritious foods through wider supply networks. However, there was no evidence found during the research of this, and findings were inconclusive.

The move to cashless by YF happened at the end of the study so longer-term analysis is needed. However, it uncovered issues of digital literacy, language barriers, competition with the multinational corporation for the spaza's digital currency and has resulted in loss of business for YF as seen in Chapter Five. This has directly affected their ability to serve spazas and meet the six dimensions of food security. However, YF argues that the benefits of digital records and business growth this could mean for spazas businesses in the future presents significant benefits for dimensions of availability, access, and utilisation. Furthermore, moving to cashless payments addresses the issue of crime which is a significant challenge for businesses (see: Figure 3) (CCSA, 2019). Digital literacy and informal sector growth is a key areas of Cape Town's mandates for future resilience (City of Cape Town, 2019). Without training and education on technology, such as ordering online instead of WhatsApp, cashless transactions, or improving trust in financial services, the digital divide may become more entrenched and may affect agency within these communities. (Mburu and Winiecki, 2022; Rogerwilco *et al.*, 2022; Vries and Engelbrecht, 2021). The findings with the SR show spazas did not seem to recognise longer-term benefits, and instead were choosing to go to the market where they could pay cash, or having their orders returned when they did not have money on their e-wallets to pay. This hesitation of spazas to adopt digital transactions could also speak to the findings by Peterson *et al.*, (2019) that these businesses are informal by choice.

Are the Benefits of E-Commerce Better Suited to the South African Spaza Sector?

As the research did not interview any locally owned spazas, this research cannot speak to whether SA spazas currently meet all the dimensions of food security in the way the foreign owned businesses were found to. However, through the data gathered from YF they believed that SA owned spazas would benefit more from e-commerce than foreign owned businesses as they are unable to harness the same buying power with wholesalers and do not use the same tactics (such as bulk buying, shopping around for specials, having their own transport to be able to access a wide range of shops) that foreign owned shops do, which has been shown in previous studies by (Petersen and Charman (2018) and Peyton *et al.* (2015). This may mean that locally owned shops do not meet the dimensions of availability and accessibility in the way that foreign owned shops do and should be investigated in future research, particularly giving the governments focus on township economies through the Township Bill in Gauteng and SEFA (Njilo, 2022; SEFA, 2023).

Recommendations

Though the exploratory nature of this research has not produced any “hard” interventions, it does however point to areas of departure for future research. The growing focus on SA owned spaza shops may severely impact foreign owned spazas and the food environments they operate within, and due to their significance in the market this should be a focus not only for future research, but for business development. Further marginalisation may push these businesses into more informal and perhaps illegal business mechanisms, however finding support mechanisms will allow for further growth and opportunity in low-income areas (City of Cape Town, 2019;

Vries and Engelbrecht, 2021; Western Cape Government, 2022). On the other hand, research into how SA owned spazas support food security and how e-commerce can improve their impact is needed.

As Kroll *et al.* (2019) argue, without the decrease of costs of fresh and whole foods, the supply and demand of obesogenic foods with continue; therefore, the promotion of healthy diets through spaza shops should be a societal focus. Methods of intervention could include incentivising the informal sector to access better deals on fruit and vegetables at Epping Market, private sector partnerships offering "healthful hampers" at spazas, harnessing e-commerce to promote specials, and advertising nutritious meals (Battersby *et al.*, 2016; Joassart-Marcelli *et al.*, 2017; Martin *et al.*, 2012). Lastly, the relationships between wholesalers and spaza shops need further exploration (Charman *et al.*, 2019; Skinner and Haysom, 2016).

This chapter has discussed how the findings have aligned with current research in the field of food insecurity in low-income areas of Cape Town and the understanding of how spaza shops support food security for the poorest in these areas. It addressed the research question as to how e-commerce can support spaza shops in addressing the six dimensions of food security through discussing each of the objectives, firstly discussing how spaza shops meet the six dimensions of food security, and then the advantages and disadvantages of e-commerce was shown. This evidenced how the form of e-commerce under investigation failed to support the dimensions further. Finally, the objective of drawing conclusions on the application of e-commerce to support food security in low-income areas was discussed under recommendations.

7. Conclusion

This final chapter summarises they key points of the thesis which has explored how e-commerce can be used to support spaza shops in achieving the six dimensions of food security. Firstly, it discusses the key literature that guided the research – the six dimensions of food security, the food environment in low-income areas, how spaza shops contribute towards food security, and e-commerce in townships. It outlines the case study methodology used and how data was gathered through semi-structured interviews. It then summarises the key findings of the research, discusses its relevance, while highlighting the limitations of the study. It ends by overviewing the research question and aims and how these were met.

The literature was reviewed in Chapter Two, which discussed the urban food insecurity crisis in the SA and introduced the framework of the six dimensions of food security that was used to guide the research. It showed how the food shopping strategies of the poor often do not match traditional retail environments and the importance of the spaza sector for poor households. It evidenced the role spazas play in supporting food environments but also found that they supply obesogenic foods which have severe health impacts. The emergence of e-commerce in townships was shown and the possible linkages for it to be able to support all six dimensions of food security was discussed as a critical area for research. The literature situated the research question within these contexts, and the methodology of how the data would be gathered was discussed next.

A case study with an e-commerce supplier in townships was undertaken to gather qualitative data through semi-structured interviews with nine spaza shops in Ward 75 Mitchells Plain, with two of YF's employees on multiple occasions and through field notes to investigate e-commerce as an emerging component of the food system. A case study approach was specifically useful to gain access to respondents through YF's customer base, which would have been challenging without this connection. After being manually transcribed, the data was analysed thematically. Data from field notes and interviews were used to create Table 1, which gives an overview of the key characteristics of the spazas. The research was granted ethical approval and ensured informed consent, protection of identities, and the option to terminate involvement.

The findings showed that spazas play a vital role in their local food environments, demonstrating a profound understanding of their community's needs and offering tailored products to their local customers. Spaza shops provide a diverse range of products, encompassing staples and fresh produce, but also unhealthy, processed foods. Notable findings include the spazas meeting the physical, economic, and social access needs of the poorest consumers which in turn generates agency within food environments and creates dignity. The spazas meet the six dimensions (as seen in Table 2) and the research investigated whether e-commerce could support these dimensions further.

The findings in Chapter Five evidenced how wider systemic issues and power within the food system created challenges to YF to meet spazas needs. Key findings showed how they were unable to access the same deals that wholesalers can, and that they could not offer the range of products, the brands or prices that spazas required. The benefits that YF perceived they could offer spazas, such as delivery, training, stock management, and cost savings were less effective than expected due to the spazas' formalised links with wholesalers and their ability to access significant economies of scale and having their own transport.

Chapter Six situated the research within the literature and the current understanding of food security, the spaza sector and e-commerce. It showed how the research contributed to the current understanding of the role of spaza shops, and how YF did not support these businesses in further meeting the six dimensions of food security. As e-commerce is still an emerging component of the food system, it will be essential to monitor it and see how it can be harnessed to promote food security in low-income areas. Focussing on SA owned spazas and how e-commerce can support them was recommended for future studies, along with investigating competition within the wholesale retail sector and the relationships between spazas and wholesalers.

The limitations of study were laid out in 3.8. and in summary were that the findings may not be transferable to other townships due to Mitchells Plains' level of infrastructure and the sample being only foreign owned spazas. The study did not compare pricing of the cost of essential items, healthy food baskets, or fresh produce between a spaza and a formal food retail which would have been beneficial to understand the economic access dimension better.

Despite these limitations, the research questions were effectively answered, and the objectives met. This research has explored how e-commerce can support spaza shops in achieving the six dimensions of food security in low-income areas, focusing on Mitchells Plain and the role of Yebo Fresh (YF). The key findings indicate that spaza shops play a critical role in their local food environments by providing a diverse range of products that meet the physical, economic, and social access needs of their communities. Despite the prevalent sale of highly processed foods, spaza shops contribute to food security by offering tailored products and fostering strong community relationships.

However, the current impact of e-commerce, on enhancing food security through spaza shops remains minimal. Challenges such as intense competition in the wholesale market, limited access to economies of scale, and the inability to match the product range and pricing of larger wholesalers hinders e-commerce effectiveness. One of the challenges is moving to cashless which deserves further research to understand how ready these cash-based businesses are to move to more formalised trade and if this would work with their business models. E-commerce providers should therfore continue to develop and promote digital tools that can help spaza shops manage inventory, streamline ordering processes, and access financial solutions, to make e-commerce viable and beneficial for them

The research clearly showed that policymakers and stakeholders should address broader systemic issues in the food system, such as improving access to economies of scale and reducing market competition barriers for smaller e-commerce providers.

In summary, while e-commerce presents a promising avenue for supporting spaza shops and enhancing food security, significant challenges must be addressed to realise its full potential. Continued research and targeted interventions are essential to harness the benefits of e-commerce in low-income areas and ensure that spaza shops can effectively contribute to a sustainable and secure urban food system.

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9. Appendixes

9.1. Appendix A: Ethics Approval

UNIVERSITY OF CAPE TOWN
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8 February 2023

Jade Konz
Department of Environmental and Geographical sciences

The Role of E-Commerce in Township Food Environments

Dear Jade Konz

I am pleased to inform you that the Faculty of Science Research Ethics Committee has approved the above-named application for research ethics clearance, subject to the conditions listed below.

- Applicant should edit the informed consent form to include the department name in the upper left.
- Restrictions on involving human participants in research must be adhered to, given current concerns about the spread of Covid-19. Please ensure that you are aware of and comply with UCT policy on this, as communicated by management.
- Implement the measures described in your application to ensure that the process of your research is ethically sound; and
- Uphold ethical principles throughout all stages of the research, responding appropriately to unanticipated issues: please contact me if you need advice on ethical issues that arise.

Your approval code is: **FSREC 005 – 2023**

I wish you success in your research.

Yours sincerely

A/Prof Melissa Densmore
Chair: Faculty of Science Research Ethics Committee

9.2. Appendix B: Interview Questions: YF, SM, Interview One

Interview One: Date: 16/03/2023

YF – Senior Manager

Can you tell me…

- Can you tell me about YF's mission and how it started?
- About your role at YF?
- How many people work at YF?
- What are your operating days?
- What are some of your biggest challenges that YF faces?
- What has been some of the biggest successes?
- Which areas do you currently service?

In Cape Town....

- How many business users p/month? Or with accounts?

E-commerce

- How do your home customers place orders with YF, and business customers?
- (prompt: how often, when, when do you they receive the goods, how do they pay?
- What benefits do you perceive there are there for spaza shops of using YF?
- What barriers do you think there are for people using e-commerce in townships?
- (prompt: tech/ Wi-Fi/ cash?)
- How do you support small businesses?
- How do you compete with supermarkets? And spaza shops?

6 Dimensions

Availability:

- How do you source your products?
- How do you decide what products to stock?
- How often do you deliver to each suburb? And how long does it take for orders to get there?
- How have you helped spaza shops in sourcing food and getting deliveries?

Access:

- How do you price your products?
- How do you make your products accessible to low-income residents in the community?
- Do you offer any credit or payment plans for customers who may have trouble paying upfront?
- How many people pay back their credit?
- How do you compete with supermarkets and wholesalers to give customers the best price?
- What has supplying food to spaza shops meant for them and for their community?
- How do you attract customers?

Utilisation:

- Do you provide any nutritional information to customers?

- Do you have any products or services that cater to specific dietary needs?
- How do you ensure food safety during storage, and during delivery?

Stability:

- What do you do if items ordered by customers are out of stock?
- What do you do to adapt to price increases?
- Do you have a plan if there is a disruption, and you cannot get stock? (Like protests, covid, floods etc)
- What do you do if some items are too expensive or unavailable?
- How is your business being affected by load shedding?

Agency:

- How do you ensure that the food products you sell are culturally appropriate for the community?
- What food or products would you like to stock and cannot? Why is this?
- Are there any channels for customers to ask for specific items or give feedback on the food and products they receive?
- How do you see your value/ importance in supplying food in townships?

Sustainability:

- Does it matter where your products come from?
- Why does or doesn't it matter?
- Do you use any small farmers or local farmers?
- Do you have any environmental concerns at the moment or for the future?
- Do you have any wastage? Why and what?

9.3. Appendix C: Interview Questions: YF SM, Interview Two

Interview Two: **Date: 30/06/2023**

YF – Senior Manager

- Confirm the term for each customer segment.
- What is the split between of each segment?
- Brand loyalty:
    - Are you seeing spazas move onto less prominent brands?
    - Top selling products?
- Discuss high portion of non-food products sold.
- Is business straining only for SA spazas?
- Is there any business support for foreign owned spazas?
- Have you seen a decrease in sales from going cashless?
-
    - How are you responding to these challenges?
- Payment terms/ stock boost?
    - Who can access this?
    - Is it enough to cover orders?
    - Why can you only offer this amount?
- Stability of products that you can sell?
- How do you perceive the benefits that you can offer foreign businesses versus local?
    - And how do you see the difference?
    - Can you discuss more about the supply chains of foreign owned spazas and their sourcing strategies?

9.4. Appendix D: Interview Questions: YF Sales Representative

Date: 18/05/2023

Interview Questions

YF - Sales representative

- How do you get spaza shops to order from you?

- What do you see as the benefits for businesses?
- What are some of the most popular items you sell?
    - And why do you think these are big sellers?
- Why do you not sell a lot of fresh produce to your shops?

    How many of your clients buy fresh fruit and vegetables from you?
- How many South African owned shops do you work with?
- How are they different to the foreign owned shops?
- What do you think is YF biggest selling point to businesses?
- What are some of the issues that you have faced with selling to spazas?
- Why do you think it is hard to compete with wholesalers?
- What is the most difficult part of your job?
- Can you tell me about the tech adoption?
- Going cashless?
    - Are all spazas able to get credit? Does everyone pay this off?

Tell me about the brands you stock?

Why is that?

What if a normal brand is out of stock?

Do you feel that spazas and customers are brand loyal? And why?

Do you sell any products close to expiry date?

9.5. Appendix E: Interview Questions: Spaza

Signed Informed Consent and agreement to be recorded. Intro blurb, a little about me, what I am studying, why, thanks for taking part etc.

Great so can we just start with your name and how long you've worked here/had the shop, and how many people work here?

First, I'm going to ask you some questions about TC:

1. Were you happy with your order from TC? (prompt: why, times, price, quality, delivery?)
2. Is there anything you were unhappy about?
2. What did you order?
3. How did you place your order?
3. Why did you decide to buy from TC?
4. What are the benefits of shopping online? (Using TC?)
5. Would you use TC again?
6. How else do you buy food products? (How often?)

A. Do you buy anything else online? Or anything else that is delivered? What?
B. Who are your customers?
C. Do you offer credit to customers? (Prompt: Why? How they decide, do they get repaid?)
D. What are your biggest selling products?
E. How much of the food you sell is processed/unhealthy versus healthy? Why do you think this is?
F. Do you sell small quantities of produce? If so, why?
G. What technology do you use in your business? (wifi, stock management, flash etc?)

    If yes, How have these things benefitted the business/you?

E. How has load shedding affected your business and what you buy?
F. How do you ensure food safety during storage?
G. What do you do if the cost of an item has gone up too much?
H. Do you think it is important where your food/products comes from or who you buy it from?

There are only 4 questions left and if you do not feel comfortable you don't have to answer

- In the past month, did you have worries about not having enough food to stock the shop?

- Is there anything you would like to change about how you shop and what you buy?
- Do you have any concerns about competition from supermarkets or home deliveries?
- What are some of the biggest challenges running your business?

- Why do you think shops like yours are important for the community?

E-commerce

- Why did you start to use TC?
- How often do you order?
- How do you pay?
- Do you order online from any other companies?
- Do you think there are benefits from using CT? And if so, what are they?
- Do they help with any technology in your business, like Wi-Fi, phones, payment platforms?
- Do you have any issues with using WhatsApp to order?
- Do you prefer to use a rep/salesperson or order online/WhatsApp?
- Do you accept cards?
- What do your customers use mostly to pay?

6 Dimensions:

Availability:

- Where do you buy stock from?
- Why?
- Do any other companies deliver to you?
- How do you get stock? (transport?)
- Can you tell me some of the most popular food items you stock?
- How do you decide what products to stock?
- How often do you restock?
- How often do you place orders with YF?
- How do you think their products compare to wholesalers and supermarkets?

Access:

- How do you price your products?
- Are you more expensive, the same or less than supermarkets?
- Do you sell small quantities or make smaller bags of products for customers?
- Did you have problems accessing and getting food for the shop?
- Do you feel you have many places or options to buy food from?
- Do you offer any credit to customers?
- How do you decide who to give credit to?
- How many people pay back their credit?

Utilisation:

- Do you think healthy food is important to stock? And why?
- How do you make sure the food is safe?
- Do you make any readymade foods to sell?

- Do you get paid or any benefits from advertising certain products?

Stability:

- How do you make sure you always have stock for customers?
- What do you do to adapt to price increases?
- What do you do if some items are too expensive or unavailable?
- How is your business being affected by load shedding?

Sustainability:

- Does it matter where your products come from?
- Why does or does not it matter?
- Do you use any local farmers?
- Do you have any wastage? Why and what?

Agency:

- How do you see your value/ importance in supplying food in your neighbourhood?
- Do you buy on credit? …has this helped your business?
- How do you contribute to the local economy?
- How do you support the local community?

9.6. Appendix F: Field Notes Checklist

Field Note Checklist:

Quick description of the shop?

Quick description of the neighbourhood and it's position?

Did they sell fruit and vegetables?

Biggest selling items?

How many staff members?

What signage was outside?

Were there shopping baskets available?

How many aisles?