The Impact of the Rise of Supermarkets on Household Urban Food Security: A Case Study of Accra, Ghana

by

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ABSTRACT

THE IMPACT OF THE RISE OF SUPERMARKETS ON HOUSEHOLD URBAN FOOD SECURITY: A CASE STUDY OF ACCRA, GHANA

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Over the course of the last decade, food security in sub-Saharan Africa has risen to the top of the international development agenda. Concerns of food insecurity in sub-Saharan African have heightened in the context of rapid urbanization. Since the 1990s, supermarkets have been expanding rapidly throughout Southern and Eastern Africa. More recently, supermarkets have spread to Western Africa, including Ghana. This rise in supermarkets, often referred to as the "supermarket revolution", is contributing to food supply systems changes in sub-Saharan Africa and is beginning to transform how urban consumers obtain sustenance. Although the expansion of supermarkets has been well documented, and many agree that this represents an important player in the urban food supply system, what the future food retail landscape will look like and how this will affect urban food security is not fully understood. This leads many scholars to question the ways in which the modernization of the food retail landscape may affect urban food security.

This thesis reviews the current state of knowledge about the growth of supermarkets and its impact on urban food security. The aim of this paper is to contribute to the literature exploring how the growth of supermarkets is shaping food systems and in turn urban food security in Western Africa. More specifically, the objectives of this research are: (1) to provide a description of food retail shopping behavior and determine what factors contribute to food retail outlet choice; (2) to evaluate how supermarkets have affected access to food and analyze potential differences according to various socioeconomic groups; and (3) to analyze the dietary changes associated to patronizing supermarkets. This thesis presents and analyses the significance of findings from data collected in 2015 in Accra, Ghana. Insights gathered through household surveys (126), focus groups (3) and expert interviews (2) illustrate that, although traditional food retailers remain the major source of food, more people, particularly wealthier, more educated households living within close proximity of supermarkets, are purchasing more of their food from supermarkets. Findings from this study reveal that this may have caused modest changes in food security but that any possible changes are linked to wealth. These changes are reflected in the increased convenience, and improved access to greater quality foods, and preferred foods offered by supermarkets. In addition, households have experienced increased access to, and consumption of, processed foods mainly due to the cheaper prices, convenience and locations offered by supermarkets. This may be particularly relevant for lower-income households living within close proximity to supermarkets. These dietary changes have the potential to lead to serious diet-related health concerns such as the dual burden of undernutrition and overnutrition and obesity. Thus, further research is needed to fully understand the impact of supermarkets on urban diets.

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HDDS	Household Dietary Diversity Score
HFIAS	Household Food Insecurity Access Scale
SADC	Southern African Development Community

CHAPTER ONE – INTRODUCTION

1.1 Research Context

Over the course of the last decade, food security in sub-Saharan Africa has risen to the top of the international development agenda (Godfray, 2010; Crush & Frayne, 2011). Concerns of food insecurity have been heightened in the context of accentuated socioeconomic and global environmental processes such as climate change, population growth and urbanization. All of these have been especially significant drivers of change in sub-Saharan Africa (Ericksen, 2008/2009; Devereux & Maxwell, 2001). Moreover, food security is a complex issue that is influenced by a host of other environmental, social, political and economic determinants. Here a common definition of food security is used, which is a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996). Urban food insecurity specifically, has emerged as an important challenge within rapidly urbanizing societies and has also been accentuated by urbanization. Today, more people live in urban areas than in rural areas everywhere in the world (World Urbanization Prospects, UN 2014). In 2014, 54% of the world's population resided in urban areas (World Urbanization Prospects, UN 2014). In fact, Africa and Asia are urbanizing at a faster rate than any other region in the world and by 2050 their urban population is predicted to rise to 56 and 64% respectively (World Urbanization Prospects, UN 2014; The 2014 African Retail Development Index). Thus, it is critical to explore urban food security in a world that is becoming increasingly urbanized.

The issue of food security in urban Africa, can be characterised by a problem of access as opposed to availability and production. This is because problems of food security in cities are often linked to the physical and economic accessibility to food (Crush & Frayne, 2010; Battersby, 2011). Access to food can be defined as "the ability of a unit to obtain access to the type, quality and quantity of food it requires" (Ericksen, 2008, p238). Accessibility to food in urban areas is primarily contingent on an individual or household's ability to buy food since urban households tend to purchase the majority of their household food (Battersby, 2011; Crush et al., 2012). For example, in Accra, Ghana, Maxwell et al. (2000) found that urban households bought 90% of the foodstuff they consumed. Most of the urban poor in developing countries spend approximately 40-

60% of their income per year on food (Teng et al., 2011). Thus, food access at a household level can be influenced by a number of factors, for instance household income (Crush et al., 2012), the price of food (Crush & Frayne, 2011), the location of food outlets (Ericksen, 2008, Battersby, 2011, Crush & Frayne, 2010) as well as preference.

Food systems, which are perceived as a series of activities extending from production to consumption, have also significantly impacted food security in sub-Saharan Africa. In fact today, both food security and food systems have experienced considerable social and economic change that has been characterized by the intensification of food production, the growth of processing and packaging food items, the concentration of corporate retailing and distribution, and the increasing influence of a rapidly rising urban population of consumers (Ericksen, 2008).

Concurrently, the food supply systems in Sub-Saharan African countries, particularly food retailers, have been experiencing remarkable transformations. Much of the change in the food retail structure and the food supply chain has been attributed to the rise of supermarkets, often referred to as the "supermarket revolution" (Reardon & Hopkins, 2006; Peyton et al., 2015; Humphrey, 2007; Weatherspoon & Reardon, 2003). African food systems are undergoing a change from small-scale and informal food supply chains to supply chains dominated by large multinational retail companies (Louw et al., 2008). The understanding of these changes is crucial as various retail environments are known to considerably influence lifestyle, consumption and everyday life.

Supermarkets are becoming increasingly important players in the food retail environment of various developing countries, and while the extent of supermarket penetration differs, trends of supermarket growth distinctly exhibit different phases of dispersion (Humphrey, 2007). The work of Reardon, one of the key authors on this topic, demonstrates a rapid spread of supermarkets in developing countries, which became particularly noticeable in the early to mid-1990s (Humphrey, 2007; Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003). The regions demonstrating the most advanced stages of this trend include South America, Mexico, East Asia, parts of Southeast Asia (e.g. Thailand), most of Central Europe as well as South Africa (Reardon & Hopkins, 2006). In these areas, supermarkets are already dominating the food retail sector (Reardon & Hopkins, 2006). For instance, in Thailand, South Korea, Taiwan, Mexico, Brazil, Hungary and Poland, the share of supermarkets in food retail is already 50% or greater. In

Argentina and Brazil, the share of supermarkets has already attained 60 to 70% (Reardon & Hopkins, 2006)

In sub-Saharan Africa, the movement towards increasing reliance on supermarkets is happening fastest in Southern African countries, particularly South Africa, and Eastern African countries such as Kenya (Neven & Reardon, 2004; D'Haese & Huylenbroeck, 2005; Weatherspoon & Reardon, 2003). In these countries, this change is mostly affecting larger and relatively wealthier, more urbanized markets (Weatherspoon & Reardon, 2003). For instance, the share of supermarkets in food retail is already 55% in South Africa (Weatherspoon & Reardon, 2003). A second wave of supermarket growth is occurring in other Southern African countries such as Zimbabwe, Zambia, Namibia, Botswana, and Swaziland. More recently, supermarkets have spread to other Southern African countries such as Madagascar; Mauritius, Angola, Mozambique, as well as some Eastern African countries such as Uganda, Ethiopia and Tanzania (Weatherspoon & Reardon, 2003; Nishiura, 2010). Most recently, some countries in Western Africa have experienced a growth of supermarkets; particularly Ghana and Nigeria (Weatherspoon & Reardon, 2003; Nishiura, 2010). In Accra, Ghana, a recent rapid growth in supermarkets is occurring and this trend is expected to continue to grow in the future (Meng et al., 2014).

In South Africa, this development has been led by several large and extremely competitive companies such as Shoprite, Spar, Pick n Pay and Woolworths (Crush & Frayne, 2011). In 2007, the sales of the top four supermarkets chains in South Africa were over USD$17 billion, with a market share of over 70% of the formal food and grocery retail market (Crush & Frayne, 2011). Shoprite, being the largest of these companies, has been expanding the most aggressively and rapidly outside South Africa since the 1990s (Crush & Frayne, 2011; Louw et al., 2008). Shoprite stores are now open in most Southern African Development Community (SADC) countries; even in Nigeria and Ghana. In 2003, the company counted over 600 stores and yearly sales of R25 billion (nearly 2 billion USD) (Crush & Frayne, 2011). Moreover, from 2003 to 2010, Shoprite nearly doubled their number of stores (1,150) and tripled its sales (R67 billion) (over 5 billion USD) (Crush & Frayne, 2011).

As a result of their rapid growth, supermarkets are contributing to the transformation of the urban food supply system in sub-Saharan Africa and are becoming an increasingly important

player in the urban food retail landscape (Crush, et al., 2012; Reardon et al., 2003; Battersby & Crush, 2014; Teng et al., 2011). This leads many scholars to question the ways in which this transition may affect food security (Meng et al., 2014; Battersby, 2012; Reardon & Gulati, 2008). For instance, does the increased reliance on supermarkets improve food security by providing people with access to a wider variety of food? Do supermarkets raise or lower food prices? Are poorer or better off households affected differently? The answers to these questions are only now just emerging and many scholars argue that while supermarkets will inevitably impact urban food security the specific ways in which food security is affected are currently unknown.

Reardon argues that supermarkets will be positive players in the improvement of food security mainly due the cheaper prices, new locations, and the safe, healthier and higher quality foods they offer (Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003; Neven et al., 2006; Minten et al., 2010). By contrast, Battersby (2012) contends that although the price of food in supermarkets may be lower per unit, the minimum required unit size is often too great for the urban poor to afford. For instance, in her study "Finding ways to speak about urban food security in South Africa" Battersby (2012) notes that although supermarkets offered lower pricing for their items, respondents shopped more frequently at spazas, small shops and restaurants. This was in part due to the disconnect between the economic situation of the urban poor and the supermarket's retail strategies as mentioned above. Small shops often "bulk break" and offer items in smaller quantities. Although this is more expensive per unit, it is more affordable for the urban poor. Meng et al. (2014) add that the supermarket retail format only appeals to consumers with sufficient buying power and this may have detrimental effects on food access for lower-income groups. In terms of location, Peyton et al. (2015) and Crush and Frayne (2011) suggest that supermarkets have yet to reach the lowest income areas, and that currently supermarket penetration remains very uneven. As for diets and nutrition, Popkin (2006/2011) argues that supermarkets also sell a lot of processed and unhealthy foods. Lastly, Reardon as well as many other authors have revealed that the rise of supermarkets are causing a decline in traditional food retailers and this is a concern as urban consumers, particularly the poor, heavily rely on the traditional food sector not only as a source of employment and income, but also as a source for cheap food. Yet, Meng et al. (2014) claim that traditional food vendors have a great ability to adapt and thus some suggest that this decline may be overstated.

At present, therefore, the literature on the effect of supermarkets on food security in sub-Saharan Africa is conflicted. Although the expansion of supermarkets has been well documented, and many agree that this represents an important force in modifying the food supply chain (Reardon et al., 2003; Crush & Frayne, 2011; Humphrey, 2007), what the future food retail landscape will look like and how this will affect urban food security is not fully understood and in particular, questions remain about how the urban poor will access food under this new system. Debates remain concerning (1) the affordability of food in supermarkets; (2) the physical accessibility of supermarkets; (3) the quality of food and dietary implications of supermarkets, and finally; (4) the impact of supermarkets on traditional food retailers.

In sum, although the influence of supermarket growth has been explored from a number of different perspectives, there are few studies that have investigated changing food retail landscapes from the standpoint of how the new food retail landscape in sub-Saharan Arica is affecting food security from the perspective of the consumer (Meng et al., 2014). Researching these changes from a consumer viewpoint is vital to understanding consumer behavior, which is important when trying to develop any food or nutritional security initiative. Consumer behavior is complex because each consumer has different attitudes towards the purchasing and consumption of food. Understanding food retail changes and the impacts of these changes from a consumer viewpoint is crucial for policy makers who are involved in improving consumer diets (Meng et al., 2014). Research from a consumer standpoint can provide insights that can steer strategies by identifying the consumer profiles of different food retailers. Additionally, traditional food retailers can benefit from this information as it can provide recommendations on how to improve their products and services in order to remain economically viable. This can also offer thorough information on the food supply chain which can help supermarkets make decisions related to entering the market or expanding (Meng et al., 2014).

1.2 Research Aim and Objectives

The aim of this thesis is to contribute to the literature exploring how the growth of supermarkets is shaping food systems and, in turn, urban food security in Western Africa. In doing so, I ask: “How is the rise of supermarkets affecting urban food security in Accra, Ghana?” More specifically, the objectives of this research are:

(1) to provide a description of food retail shopping behavior and determine what factors contribute to food retail outlet choice;
(2) to evaluate how supermarkets have affected access to food and analyze potential differences according to various socioeconomic groups, and
(3) to analyze the dietary changes associated with patronizing supermarkets.

1.3 Thesis Outline

The thesis follows in four further chapters, one of which offers a stand-alone manuscript that summarizes the entirety of the research and is well suited to publishing. The next chapter reviews the literature concerning supermarketisation and the formalization of the food retail landscape; as well as its implications for urban food security. This detailed literature review helps to contextualize the research question especially with respect to additional theory that, due to length considerations, is not included in the manuscript. Chapter Three outlines the methodology and the primary data collection tools employed in this case study. Again this section presents information about the research methods that is not included in the manuscript, such as the regional context of the research, the particular research methods employed, the sampling strategies, the rationale for choosing these methods, the preparation of variables, and, lastly, the data analysis. Chapter 4 presents the manuscript, which is comprised of an introduction, literature review, methods section, results, discussion, and conclusion. Finally, the thesis finishes with some overall conclusions.

CHAPTER TWO – LITERATURE REVIEW

The purpose of the literature review is to first provide background to the rise of supermarkets in sub-Saharan Africa and then to explore what the research focusing on the development of supermarkets tells us about the possible impacts supermarkets may have on urban food security. Overall, the growth of supermarkets and their role in changing the food supply chain, as well as the impacts of this on rural development and smallholder farmers has been well documented. However, generally speaking, there is only a comparatively small literature addressing how the rise of supermarkets will affect urban food security. This is largely due to the fact that the rapid growth of supermarkets is a fairly new phenomenon that only really began to take-off in the early to mid 1990s. As will be revealed below, although there remains much debate surrounding this topic, broadly speaking there are five major themes in this literature: (1) the supermarket revolution, (2) the affordability of food, (3) the spatiality of supermarkets, (4) urban diets, and (5) implications for traditional food retailers. This section of the paper is divided into two major sections, the first covering the transformations of the food retailer sector, including: the expansion of supermarkets and the supermarket revolution; the determinants of supermarketisation, South African chains and the origin of supermarkets in sub-Saharan Africa, the recent supermarketisation in Western and Eastern Africa, as well as the format diversification and expansion of supermarkets to new markets. The second section will cover the impacts of supermarketisation on urban food security, including: urban food security in sub-Saharan Africa; supermarket prices and financial accessibility, spatiality of supermarkets and physical accessibility, changing urban dietary patterns and implications for traditional food retailers.

2.1 The Transformation of the Food Retail Sector

The development of supermarkets in sub-Saharan Africa has recently gained increased consideration in the literature, yet the existence of supermarkets in sub-Saharan Africa is not a modern phenomenon. Supermarkets have been present in sub-Saharan Africa since the late 1940s. In fact, OK Bazaars opened its first supermarket in South Africa in 1948 (Louw et al., 2008). Supermarkets in this context refer to all modern retail and are often defined as large self-service food shops which imply the ownership of a larger grocery store by an independent proprietor (Meng et al., 2014). This can include some large chain stores located in shopping centers. Neven and Reardon offer a similar definition, as they describe supermarkets as “self-service stores

handling predominantly food and drug fast moving consumer goods" (Neven & Reardon, 2004, p670). Many products sold in these supermarkets are imported. These supermarkets tend to offer a variety of food products such as dry goods, meats, bakery items, beverages, frozen foods, dairy products, and non-food goods; and they can also provide food processing services (Meng et al., 2014). As previously mentioned, the accentuation of several trends in the past few decades, particularly urbanization and the nutritional transition has contributed to promoting the development and spread of supermarkets throughout sub-Saharan Africa in more recent years.

2.1.1 The Expansion of Supermarkets: "The Supermarket Revolution"

Although supermarkets have been present in sub-Saharan Africa' s food retail structure for quite some time, particularly in South Africa, it was only recently, in the 1990s, that these experienced a rapid expansion; not only within South Africa, but also regionally and across new markets. This process has often been referred to as the "supermarket revolution" and one of the key scholars in this area is Reardon (e.g. see Reardon et al., 2003). Reardon's work on the rise of supermarkets extends to studies in Africa, Latin America and Asia and in this body of work Reardon explains that the rise of supermarkets has been occurring in many developing countries and can be categorized into three waves of supermarket diffusion (Reardon et al., 2003; Reardon & Berdegue, 2002; Humphrey, 2007; Traill, 2006). The first wave starting in the early 1990s covered much of South America, East Asia (outside China), and South Africa. The second wave began in the mid to late 1990s and covered regions such as Mexico, Central America and much of Southeast Asia. Finally, the third wave started in the late 1990s and early 2000s and covered countries such as China, India and Vietnam (Reardon & Gulati, 2008). Other countries in Eastern and Southern Africa, as well as other South Asian countries seem to be forming a fourth wave (Reardon & Hopkins, 2006). During this time, in much of South America and East Asia, it had been recorded that supermarkets' average share in retail sales grew from about 10% around the 1990s to about 50-60% by the mid-2000s (Reardon & Gulati, 2008). Similarly, in South Africa while the share of supermarkets in food retail was estimated around 50-60%, they still only accounted for 2% of the stores (Weatherspoon & Reardon, 2003).

According to Humphrey (2007), the supermarket revolution theory can be summarised into four arguments. First, supermarkets are becoming increasingly significant in various developing countries and although their degree of penetration varies, the trend clearly demonstrates waves of

diffusion. Crush and Frayne (2011) add that presently supermarket penetration remains very uneven. Second, supermarkets in developing countries are or will soon be in the process of expanding their sales of fresh fruits and vegetables. This is important as supermarket procurement systems have more significant implications on producers in the fresh food sector than for processed foods where the effects are mediated by the sourcing strategies of food processors (Humphrey, 2007). The third argument concerns the impact of modern supermarkets on food production and distribution. In fact, supermarketisation has drastically transformed the food supply chains (Reardon et al., 2003). Finally, the changes in the procurement strategy have had implications on farm production: the new requirements of these strategies represent considerable challenges for small farmers who find these difficult or impossible to meet (Humphrey, 2007). Ultimately, these four arguments connect the growth of supermarkets, their significance in food retailing, the particular traits of their procurement systems and the implications for small farmers.

2.1.2 Determinants of Supermarketisation

Before the 1990s, supermarkets expanded only very slowly and consisted of tiny niches found in the largest cities and areas often occupied by the richest domestic consumers and expatriates (Reardon & Hopkins, 2006). The rapid growth of these supermarkets was sparked by a range of factors including the rise of incomes and urbanisation that had been proceeding for several decades; the liberalisation of foreign direct investment (FDI) and so the influx of retail FDI into developing countries (Reardon & Hopkins, 2006). This spread has also been influenced by motorisation and increasing female employment (Humphrey, 2007). Numerous other authors have discussed other essential triggers that have led to this supermarketisation and these include the availability of electricity and refrigeration; increased transportation (D'Haese & Huylenbroeck, 2005), population growth, increased incomes and a rising middle class (Louw et al., 2008), changing diets and the ability of supermarkets to provide a greater selection of food (D'Haese & Huylenbroeck, 2005), economic growth, and finally, an increase in car sales (Meng et al., 2014). Some authors have also noted an important change in family structures and the development of democratic systems (Louw et al., 2008). Additionally, supermarkets have developed more effective and efficient management and procurement systems and so they are able to sell food products at much lower prices (D'Haese & Huylenbroeck, 2005). Finally, all of these processes as well as the competition, consolidation and multinationalization in the supermarket sector, and

domestic policies have created an ideal business context for the development of these supermarkets (Reardon & Gulati, 2008).

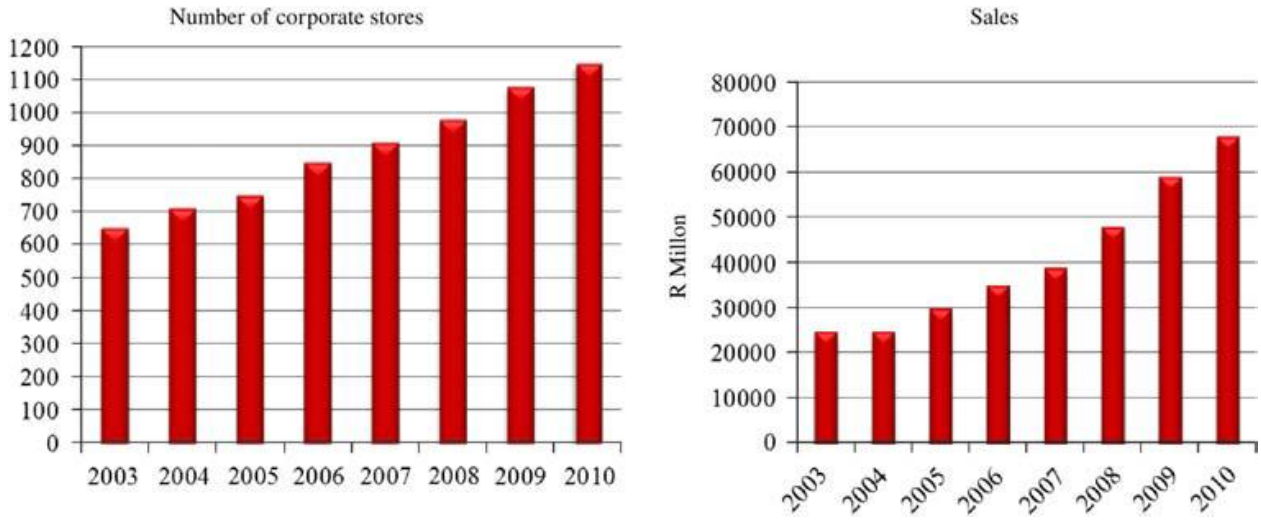
Battersby and Peyton (2014) categorize these determinants for expansion into supply-side and demand-side factors, taking a particular look at South Africa. They explain that supermarket expansion has been driven by both demand by consumers and various supply side determinants. Drivers of supermarket expansion on the demand side include the rapid urbanisation of developing countries, the increased participation of women in the work force and enhanced household storage capacity (Battersby & Peyton, 2014). As for the supply side, causes include structural changes such as institutional and regulatory reforms, a surge in retail foreign direct investment and the modernization of supermarket procurement strategies (Battersby & Peyton, 2014). Studies focusing on Kenya, have found similar causes which have contributed to the supermarketisation in this area (Neven et al., 2006; Neven & Reardon, 2004). All of these factors enable the rapid spread of the supermarket sector in sub-Saharan Africa by establishing more feasible retail business opportunities. As a result, supermarkets have quickly gained market dominance.

2.1.3 South African Chains: The Origin of Supermarketisation in sub-Saharan Africa

A significant part of the available literature discusses the general patterns of supermarket development in sub-Saharan Africa in the past decade with a specific focus on South African supermarkets and their investments in food retail in other regions of sub-Saharan Africa. This is mostly because South Africa consisted of one of the countries who first experienced supermarket development (a first wave country) and so it is mostly in this region that there has been the most significant expansion of supermarkets. The major South African supermarket chains include Shoprite, Woolworths, Spar, Pick n Pay, Metcash and Massmart (Crush & Frayne, 2011). Although there has been much discussion of the important level of competition between top retailers, each of these South African chains target different and specific market niches and socioeconomic groups. For instance, Woolworths targets the high-income market; Shoprite focuses usually on the lower end of the market, while Pick’n Pay and Spar target predominantly middle-income groups. They also differ in store format and size. Pick’n Pay has been associated with larger supermarkets (or hypermarkets), whereas Spar has generally had smaller stores (Battersby & Peyton, 2014). Other chains, for instance Metcash, have attempted to branch out their

available markets by expanding their own store formats as to target all socioeconomic groups (Louw et al., 2008). These chains have increased their market share in the region by buying other supermarkets, franchising and forging partnerships with other supermarket chains in host countries (Emongor & Kirsten, 2009).

Figure 1 - Expansion of Shoprite Holdings, 2003–2010. Source: Crush and Frayne, 2011, p.785.



In 2007, the sales of the top four supermarket chains in South Africa were over $17 billion USD and held a market share of over 70% of the formal food and groceries retail market (Crush & Frayne, 2011). Shoprite is by far the largest and most aggressively expanding South African supermarket. It started its operations in 1979 and has been rapidly expanding outside South Africa since the 1990s (Crush & Frayne, 2011). In 1995, Shoprite opened its first store outside South Africa and by the end of 2012 it had established 131 stores outside South Africa in 16 African countries (Battersby & Peyton, 2014). Today, this company has stores in most Southern African Development Community (SADC) countries and has even established some supermarkets as far as Nigeria and Ghana. Shoprite had established over 600 stores and gained R25 billion in annual sales (nearly 2 billion USD) by 2003. During the period between 2003 and 2010, Shoprite had almost doubled its number of stores and tripled its sales to R67 billion (over 5 billion USD) (Crush & Frayne, 2011).

2.1.4 Recent Supermarketisation in Western and Eastern Africa

In recent years, studies have shown how since 1994 many South African chains, particularly Shoprite, have started to aggressively spread to new countries and integrate into new

markets (Weatherspoon & Reardon, 2003). The first countries to experience this new development were neighbouring South African countries such as Botswana, Namibia, Zimbabwe, Zambia, and Mozambique (Louw et al., 2008). Although much of the literature discusses supermarket trends in South Africa, there has been more recent studies that have focused on these later countries, as supermarkets have penetrated their markets.

Very little research has been conducted in Western and Eastern Africa, although very recently the expansion of supermarkets has been observed in Eastern Africa and in some parts of Western Africa (Nishiura, 2010). What studies exist on this issue in Eastern Africa have emphasized the rise of supermarkets in Kenya. These have focused on the emergence of Uchumi and Nakumatt as the main supermarket chains in Kenya. While Uchumi stores target all socioeconomic classes, Nakumatt focuses on high-income consumers. Uchumi and Nakumatt together, possess almost 50% of the supermarket sector and 60% of sales (Neven & Reardon, 2004). Yet, other than studies conducted in Kenya, not much research has been done in other Eastern African countries. The few studies that have been conducted in Western Africa mainly focus on consumer food choices (Meng et al., 2014).

2.1.5 Format Diversification and Expansion to New Markets: "Supermarkets for the poor"

Not only have these supermarkets entered new markets in other countries, but they have also expanded their store formats as to reach new urban areas and target a new clientele. In fact, supermarkets have been spreading from city centers to more residential areas and are beginning to target all income-type households (Louw et al., 2008). In order for supermarkets to prosper, they have established themselves in areas that are highly populated, that are occupied by many households with a regular income, that are occupied by high consumption customers living within proximity (e.g. rich white farmers, major tourist resorts, etc), and where there is limited competition from other supermarkets (Neven & Reardon, 2004). Therefore initially, supermarket distribution was focused in wealthier city areas and targeted middle to higher-income households. This was a result of their spatial logic which was determined by their profit seeking behaviour; their will to pursue new markets at minimal risk, and to acquire an advantage over competitors (Battersby & Peyton, 2014). Large retailers were usually located in shopping malls and the

outskirts of cities, while the urban residential areas contained a wider range of smaller suppliers (Louw et al., 2008). Therefore, the distribution of supermarkets was considerably uneven.

Yet, the trends perpetuating the expansion of supermarkets, such as urbanization and mass markets, have created business opportunities which have encouraged supermarkets to expand to low-income countries and target low-income consumers. In fact much of the literature, particularly Reardon's work, has discussed an emerging trend where supermarkets have been rapidly penetrating new markets. Supermarkets have been spreading to food markets targeting lower-income populations which are well beyond their initial narrow market niche among the middle-income and elite groups (Neven & Reardon, 2004). To cater to lower-income households while maintaining profitability and maximizing their number of customers, supermarkets in low-income areas have often been established on major transport routes (Battersby, 2012). To successfully reach lower-income households supermarkets have had to diversify their store formats as to accommodate different consumers (Humphrey, 2007). These store format modifications concern the size of sales floors and the amount and type of amenities and services offered (Meyer-Ohle, 2003). These new stores have often been referred to by Reardon as "supermarkets for the poor" which represents a change from supermarkets being mere luxury top-end niches to being mass market merchandisers (Weatherspoon & Reardon, 2003, p333).

2. 2 The Impact of Supermarketisation on Urban Food Security

The major question that has not yet been assessed is how the rise in supermarkets will impact urban food security, and more specifically, the food security of the urban poor. Much of the earlier literature suggests that supermarkets provide urban households with a choice for cheaper and healthier food. Yet, very recent studies are challenging these assumptions and arguing that this isn't so simple. They raise concerns relating to the actual accessibility of food in terms of financial and spatial determinants, while also including some concerns for the impact supermarketisation will have on other food retailers which could thus impact consumers. In addition, the potential implications that supermarketisation has or will have on dietary changes has been greatly debated. Therefore, in this next section I will discuss what the existing literature has covered in terms of the implications of the expansion of supermarkets and the changing food retail structure on urban food security. However, first I will provide a brief explanation of the concepts of urban food security in the context of sub-Saharan Africa.

2.2.1 Urban Food Security in sub-Saharan Africa

The initial focus concerning food security has largely been on aspects of national food production and stocks (Devereux & Maxwell, 2001). There was a shift in focus in 1986 to food access and this was largely due to new theories focusing on the accessibility of food (Baro & Deubel, 2006). In 1981, Amartya Sen developed the entitlement approach. This theory argued that starvation occurs when a person does not have access to enough food, often despite the availability of food for those who can afford it (Sen, 1981). Thus, vulnerability to food insecurity is related to a household's level of entitlements. Entitlements can be defined as "a key set of alternative commodity bundles that a person can command in society using the totality of rights and opportunities that he or she faces" (Devereux, 2001, p246). The definition of food security has since grown to incorporate many different aspects, and in 1996 at the World Food Summit, a new definition of food security was created. This is a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996).

Today, food security is considered to be a multidimensional phenomenon encompassing a multitude of components or outcomes. According to Ericksen (2008), these can be classified into 3 categories. The first is food availability which consists of issues of production, distribution and exchange; food availability concerns the amount, type and quality of food a household has at its disposition to consume. The second is access to food which refers to the capability of a household to attain access to the type, quality and quantity of food it needs; this includes affordability, allocation and preference. Finally, the third category is utilization which incorporates nutritional value, social value and food safety; this concerns an individual's or household's ability to consume and benefit from food (Ericksen, 2008). Moreover, stability of food supplies and access has recently been considered as a fourth category of food security (Ericksen, 2009; Stamoulis & Zezza, 2003). This means that to be food secure a population, household or individual must have access to food at all times, even during periods of economic or climactic shock or during cyclical periods (e.g.seasonality) (Stamoulis & Zezza, 2003). The fulfillment of all of these categories contributes to food security.

Many environmental, social, political and economic determinants influence these 3 categories, and some are more relevant in certain contexts then others. In sub-Saharan Africa, climate change, population growth and urbanization tend to be the predominant ones (Ericksen, 2008). However, there are numerous other determinants that play a role in food security and the interactions among these drivers, activities and outcomes are very complex (Ericksen, 2008). The issue of food security in urban sub-Saharan Africa can be characterised by a problem of access and this can be defined by the ability of people to turn their various financial, political, and other assets into food, either purchased or produced (Ericksen, 2008). Accessibility to food can be influenced by household income, the price of food and the location of food outlets. Furthermore, rapid urbanization has also contributed to an increasing focus on access and incomes in terms of food security, as a decreasing number of people grow their own food (Ericksen, 2008).

2.2.2 Supermarket Prices and Financial Accessibility

As a result of store format changes, increased competition and improved procurement strategies, one of Reardon's main conclusions is that supermarkets are positive players in the improvement of food security, as they increase the availability of cheaper food for the urban poor (Reardon & Gulati, 2008). They argue that supermarkets offer lower prices as compared to other food retailers and thus, provide lower-income households with an important alternative food source. This is supported by similar studies conducted by Emongor and Kirsten (2009) and D'Haese and Huylenbroeck (2005) who found that consumers benefit from the supermarkets' trading activities and improved procurement systems as it allows them to sell food at much lower prices. For instance, in their case study in Nairobi, Kenya, Neven et al. (2006) found that their focus groups and consumer surveys demonstrated that the urban poor were drawn to supermarkets due to the cheaper processed and staple foods they offered as compared to other traditional retailers. However, the results for fresh food were mixed. Minten and Reardon (2008) and Minten et al. (2010) found similar results in Madagascar and New Delhi, India respectively.

Nevertheless, some disagree with these conclusions and argue that although the price of food in supermarkets may be lower per unit, the minimum required unit size is often too great for the urban poor to afford (Crush & Frayne, 2011; Battersby, 2012). Battersby has explained how smaller retailers, for instance Spaza shops (a type of informal retail store in South Africa), "bulk break" (Battersby, 2012, p152). This is when they buy products in bulk from supermarkets, divide

them into smaller quantities and then sell the products in smaller packages. Although this becomes more expensive per unit, these smaller quantities or packages of food are more affordable for the urban poor (Crush & Frayne, 2011; Battersby, 2012). The challenge of buying in bulk for the urban poor could originate from various sources. For instance, this could in part be caused by a lack of storage or refrigeration capacity, which is particularly relevant to those living in informal housing (Battersby, 2012). This could also be linked to unreliable income, lack of employment and the frequency of their paycheck. Consequently, some suggest that the supermarket food retail format appeals to consumers with adequate buying power (Meng and al., 2014). As a result, many disagree that the presence of supermarkets improves the accessibility to food for the urban poor, since they often lack financial access to food items sold in supermarkets.

2.2.3 Spatiality of Supermarkets and Physical Accessibility

The literature in the sub-Saharan African context has mostly focused on the price of food and the financial accessibility to food while neglecting the role of the geography of supermarkets. Physical access also plays an important role in the accessibility to food. Battersby has been one of the few to discuss the potential influential role of supermarket location on food security in Africa. She states that the analysis of the spatiality of supermarket expansion has been widely ignored in the African context (Battersby & Peyton, 2014). She insists that despite supermarkets changing their store formats to reach lower-income groups, these stores have yet to reach the lowest income areas, as the stores' strategy is based on efficiency not social responsibility; she uses Usave in South Africa as an example (Battersby & Peyton, 2014). Thus, many have argued that the distribution of supermarkets among all income-type areas is still very unequal.

In some cases supermarkets have been put in low-income areas, but these are often in high transit areas as to ensure the maximization of customers and profit. Yet, major transport routes have been associated with high opportunistic crime and so people often feel unsafe going to these locations and using supermarkets in these areas (Battersby, 2012; Battersby & Peyton, 2014). This can be linked to the fact that people going to supermarkets are usually buying in bulk, therefore it is assumed that they are carrying large amounts of cash; thus, these individuals are targeted by muggers (Battersby, 2012). Therefore, the location of supermarkets often deters people from shopping at these locations. Additionally, the location of supermarkets often deter people from shopping in those areas due to the other costs involved, for instance travel and time costs (Rashid

et al., 2010). Battersby has argued that the location of supermarkets has made supermarkets an unpopular source of food as it is often too costly for the urban poor to travel to them frequently (Battersby, 2012). Therefore, food accessibility from various food retailers is not uniform as households face different transaction costs (Barrett, 2008).

Although Battersby and Peyton are some of the few who have taken a closer look at the spatiality of supermarkets and its implications regarding food access in sub-Saharan Africa, many other authors have discussed this in other regions and contexts. For instance, in their research in British Columbia, Bader et al. (2010) have come to some similar conclusions. They found that high crime rates in North America near supermarkets also deter consumers from shopping at local stores, which they explained shrinks the retail environment. Furthermore, a lack of means of transportation, the frequency of public transit and a lack of access to resources also reduces the retail environment accessible for some consumers (Black et al., 2011; Bader et al., 2010). Thus, some argue that there are important disparities in the food environment and that these have significant implications for health (Beaulac et al., 2009). Disparities in the food environment create differences in food access, in which poorer areas usually bear most of the costs. As a result, many conclude that food access impacts dietary intake (Bader et al., 2010).

2.2.4 Changing Urban Dietary Patterns

An entirely different way of looking at the impact of supermarkets on food security is to consider how food retail and food access impact dietary intake (Bader et al., 2010). Many argue that the food retail landscape highly affects consumer's diet-related health and nutrition by the prices and products retailers offer (Meng et al., 2014). Since supermarkets are becoming an increasingly important part of the food environment, many argue that supermarkets have contributed considerably to changing urban diets (Crush & Frayne, 2011). Moreover, it is widely recognised that developing countries, such as the ones in sub-Saharan Africa, are experiencing a nutrition transition that can be characterised by shifts towards diets high in saturated fats, sugar, salt and low-fibre-refined foods coupled with lower levels of activity (Battersby & Peyton, 2014; Popkin & Gordon-Larsen, 2004). Many agree that supermarkets will have an impact on dietary intake, however there is debate surrounding whether or not this change will have positive or negative implications for health and nutrition.

Reardon (2003), and several other authors, argue that supermarkets offer safer and higher quality foods due to their procurement systems (D'Haese & Huylenbroeck, 2005). For example, Popkin (2006) contends that supermarkets have been instrumental in providing a safe source of milk, establishing food safety standards and offering higher-quality produce. Moreover, in their study on consumer's food shopping choice in Ghana, Meng et al. (2014) found that in comparison to supermarkets, food sold by traditional food retailers are subject to food safety dangers such as microbial contamination. Nevertheless, various authors argue that although this might be the case, there are important disparities in the food retail landscape and these have significant health implications. For instance, Battersby and Peyton (2014) who have analysed the spatiality of supermarkets, argue that supermarkets in lower-income areas carry fewer healthy foods in their stores and generally stock a more limited variety of products. Therefore, some have argued that this will accelerate the nutritional transition.

Moreover, Popkin et al. (2011) offer a different position by discussing the harmful diet related impacts of supermarkets. Although his work's main focus is on the nutritional transition, he highlights how supermarkets are an important player in modifying diets in low and middle-income countries. Since supermarkets sell large amounts of processed foods higher in fat, salt and added-sugar, he argues that urbanization and the cheaper prices offered by supermarkets have promoted the increased consumption of these foods (Popkin, 2006). Similarly, Neven et al. (2006) found that urban consumers in Kenya tend to buy processed and staple foods mostly from supermarkets and fresh produce mainly from traditional retailers. Popkin further notes that the consumer demand for processed food is growing in developing countries and thus, argues that supermarkets play a role in accelerating the nutritional transition (Popkin, 2006).

2.2.5 Implications for Traditional Food Retailers

Moreover, income, particularly for the urban poor, derives from informal sources of employment, for instance the traditional food sector (Lugalla, 1997). Jamison (2003) defines the informal or traditional sector or economy as consisting of activities which are untaxed, uncounted and unregulated by government agents. Traditional markets can be characterised as marketplace activities and transactions that take place outside the State's role as overseer of the economy (Jamison, 2003). Traditional marketing systems include traditional markets, street traders or hawkers, food vendors and spazas (Crush & Frayne, 2011). Hawkers can be described as people

selling goods by traveling through towns and neighborhoods, while spazas are defined as informal or hidden shops (D'Haese & Huylenbroeck, 2005; Meng et al., 2014; Terblanche, 1991).

The traditional food sector plays an important role in providing employment for many urban households (Crush & Frayne, 2011). Furthermore, individuals with inadequate marketable skills and employment can often gain income from hawking (Meng et al., 2014). In fact, income deriving from these types of activities has a considerable impact on the livelihoods of households and many informal traders employ people in their businesses. For instance, in Nigeria many marketplaces still represent an important source of employment and income for thousands of traders (Ikioda, 2013). Furthermore, trade is dominated by women and so it remains an important activity which provides them with an important source of economic independence (Crush & Frayne, 2011). This also allows women to ease their workload as they can effectively combine both family and household responsibilities with these types of activities (Ikioda, 2013). Even South Africa, one of the most prospering sub-Saharan African countries, has an informal economy which has created significant employment (Crush & Frayne, 2011). Nevertheless, it has been experiencing many challenges and threats.

Some of these challenges can be attributed to the rise of supermarkets. In fact, Crush and Frayne (2011) argue that one of the major threats has been the spread of supermarkets into areas that have been historically used by traditional markets. Consequently, the informal economy has experienced considerable losses in market share due to supermarkets (Crush & Frayne, 2011). As discussed, supermarketisation has contributed to changing the food retail structure and this includes the impacts these have had on traditional food retailers and the informal sector. As supermarkets are aggressively searching for new markets in urban areas, this can create a context of increased competition between different retail formats. Reardon and Hopkins (2006) raise three important points of competition or conflict, including: (1) Price War; (2) Convenience War; and (3) Quality and safety war. Firstly, supermarkets are able to offer lower prices (per unit) due to economies of scale, good retail logistics, centralized procurement, consolidated distribution and better inventory management (D'Haese & Huylenbroeck, 2005). Thus, it can be very difficult for other smaller retailers to compete in terms of prices with supermarkets. Secondly, the term "convenience war" refers to all the transaction costs inferred in the purchasing process of the total food basket price, for instance the cost of transportation. It is argued that supermarkets hold certain

advantages as they have multiple store formats and they offer longer hours of operation and a greater variety of food; therefore, supermarkets become a one stop shop (Reardon & Hopkins, 2006). Thirdly, smaller traditional food retailers have had difficulties competing with supermarkets in regards to the quality and safety of their food products as large chains are subject to liability laws, product expiry regulations and other regulations which is commonly signalled to consumers (Reardon & Hopkins, 2006).

Numerous authors have agreed that the spread of supermarkets has led to a decline in the traditional food retail sector as the existing competition has led to the closure of many smaller retailers (Louw et al., 2008; Battersby, 2012; Emongor & Kirsten, 2009; Reardon & Hopkins, 2006; Reardon & Gulati, 2008; Battersby & Peyton, 2014). Likewise, Crush and Frayne argue that the expansion of supermarkets can have implications concerning the operations and profitability of smaller traditional food vendors and smaller local independent grocery stores as they compete for a greater market share of food purchases (Crush & Frayne, 2011). They also add that in general shopping in the informal food economy was higher in cities where supermarkets were less present. Nevertheless, it has also been argued that the decline of traditional retailers varies over the type of product, the locations and the type of store (Reardon & Gulati, 2008; Crush & Frayne, 2011). Ultimately, the reduction in the traditional food retail sector will inevitably lead to a loss of jobs in the informal sector. This will particularly impact the urban poor who often work in this sector. Thus, the decline in work will lead to limited incomes. Since income is a major determinant of food accessibility; a decrease or loss of income will impact the food security of the urban poor (Ericksen, 2008; Crush & Frayne, 2011).

Not only does the traditional food sector provide an important source of employment and income for the urban poor, but it is also a very important source of food. In fact, the traditional food sector plays a crucial role in providing food and making it available for low-income households in urban areas (Crush &Frayne, 2011; Porter et al., 2007). Crush and Frayne state that not only do traditional food retailers play a significant role in the provisioning of food, but urban consumers are heavily dependent on these. For example in Nigeria, where 47% of its population lives in urban areas, the majority of the needs in terms of food are supplied mainly by a range of street vendors or hawkers; small traders, retailers and wholesalers which operate in a variety of traditional marketplaces; not supermarkets or multinational food chains (Ikioda, 2013).

Furthermore, traditional food suppliers increase the accessibility of a product by buying in bulk and selling products in smaller quantities. For example in Maputo, Mozambique, traditional vendors repackaged chips and candy and sold them in reduced portions in plastic bags (Crush & Frayne, 2011). Therefore, considering what many have argued about the decline of the traditional food retail sector due to supermarketisation; the changes in the food retail structure caused by supermarkets might be reducing the sources of food for the urban poor and so harming their accessibility to food. Ultimately, this will have adverse consequences for the food security of the urban poor. In fact, Crush and Frayne argue that a common criticism of supermarketisation has been that supermarkets have considerable negative effects on the availability of food for the urban poor. This is because supermarkets eliminate smaller retailers and local markets which are an important source of food for poor consumers and they promote an increased dependence on these larger retailers in terms of food (Crush & Frayne, 2011).

CHAPTER THREE - METHODOLOGY

Given the conflicting perspectives in the literature just reviewed about the role of supermarkets on household food insecurity, this study adopted a mixed-method approach comprising qualitative and quantitative methods. This approach was taken to provide a descriptive analysis of the role supermarkets may be playing in changing the food shopping behaviors of urban consumers, altering the accessibility to food, as well as shaping urban dietary patterns. In this way, this research offers a more comprehensive explanatory framework that leads to preliminary insights into the trends associated with supermarkets and urban food security. The findings from this case study derived from household surveys, focus groups, and expert interviews completed in 2015. Using qualitative and quantitative methodologies together added breadth and depth to the research data and analysis, and contributed to a greater understanding of the experiences of individuals by analyzing the issue from multiple angles. Although surveys, focus groups and interviews can be used as stand-alone methods, they can also be used as a supplement to other methods or as a means for triangulation. Triangulation refers to drawing on numerous different perspectives or sources, the cross-checking of results, which maximizes the understanding of a research question (Clifford et al., 2010; Hay, 2010). The analysis of this study aimed to provide an empirical understanding of the role of supermarkets in urban food security, particularly in Accra, Ghana.

3.1 Regional Context for the Research

The focus of this research was on Ghana's largest urban city, Accra, which is the capital of the Greater Accra Region (larger metropolitan area) in Western Africa. According to the World Bank, Ghana is a lower-middle-income level country. It was recorded that, in 2015, Ghana had a population of 27.41 million with a GDP of $37.86 billion (World Bank, 2015). It was estimated that in 2012, 24.2% of the population composed the poverty headcount according to national poverty lines (World Bank, 2015). The Greater Accra Region occupies a total land surface of 3,245 square kilometers or 1.4 per cent of the total land area of Ghana (Government of Ghana, 2015). As for the population of the Greater Accra Region, it is the second most populated region with a population of about 4 million in 2010, which accounts for 15.4 per cent of Ghana's total population (Government of Ghana, 2015). Accra, specifically, had a total population of about 2.27 million in

2015 (UN Data, 2015). See figure 2 in appendix for a map of the study area, the urban centre of the Greater Accra region.

Ghana was chosen as the study site for several reasons. First, most of the existing research on supermarketisation has focused on Southern African countries. Recently, studies on supermarketisation have begun to explore areas in Eastern Africa and a few in Western Africa; however there remains a critical lack of research on supermarketisation and urban food security in Western Africa. Moreover, the urban context in Ghana is not fully understood; most studies conducted in Ghana focus on northern parts of Ghana. Second, Ghana has been experiencing high rates of rapid urbanization and economic growth for the past several years. For instance, according to the United Nations' 2014 World Urbanization Prospects report, Ghana has an urban population of about 14.11 million representing 53% of the total population, and the proportion of population living in urban areas is projected to rise to 70% by 2050. This has been accompanied by a growth of supermarkets. In recent years, retail sales have grown 10% per year in Ghana and the GDP growth rate has been nearly 8% annually (The 2014 African Retail Development Index). Domestic supermarkets such as Melcom, Kwatsons and Palace Hypermarket, as well as foreign-owned supermarkets including GNC, Shoprite, Total and Massmart are growing and entering Ghana's markets (The 2014 African Retail Development Index).

Accra was chosen not only because it is a large growing urban center, but also because this city has experienced and is continuing to express the greatest development of supermarkets in Ghana. Although no recent literature has precisely identified and located all the existing supermarkets in Accra today, a careful review of recent local news articles, as well as food retailer websites and Google maps, indicates that new supermarkets have penetrated the market and have established themselves in Accra. Similar analysis of other cities within Ghana suggests that comparable supermarket development is not as significant. According to expert interviews, the expansion of supermarkets within Accra has been particularly noticeable in the past 5-10 years. Stores such as Shoprite, Game, Maxmart, Koala, Palace, Melcom and Marina Supermarket have developed in Accra. These stores are typically located in busy urban areas such as the major transport nodes and high population density areas and perform both retail and wholesale functions. Throughout this paper, the term supermarket is used as shorthand for various segments of large-format 'modern retail' stores (i.e. supermarkets, large discount stores/superstores and

hypermarkets). Supermarkets can be defined as large self-service food stores handling largely food and fast moving consumer goods, which suggest the ownership of a larger grocery shop by an independent owner (Meng and al., 2014; Neven & Reardon, 2004). These supermarkets tend to offer a variety of food products such as dry goods, meats, bakery items, beverages, frozen foods, dairy products, and non-food items, as well as food processing services (Meng and al., 2014). Although a multi-city comparison was considered due to the potential benefits produced through contrasting, limiting this research to Accra ensured that the fieldwork was manageable and allowed to obtain greater depth.

Another reason for choosing Ghana is that the food retail landscape is very complex and diverse, and contains an array of different food access points. Ghana is well known for its thriving traditional open-air markets and this strong presence of traditional food retailers which will make this context ever more important to observe. There were over 8 different types of food retailers identified in this study, and they vary in terms of location, structure and size, products sold, food quantities, prices, hours of operation, patronage, sourcing, ownership and so on. There was also immense variety within each food retailer type. Research participants identified the following food retailers as the major sources of household food: traditional food retail outlets such as hawkers, street vendors, small shops, local markets, and modern food retail outlets, such as small local supermarkets, large foreign supermarkets, as well as wholesalers and restaurants. All in all, Ghana was an optimal choice as it embodies the major trends and similar demographic traits that are typical of Western African countries.

3.2 Research Methods and Sampling Strategy

To explore the impact of supermarkets on household food security, a mixed-methods approach was adopted based on household surveys, focus groups and expert interviews. These methods addressed and aimed to provide a more in-depth understanding of the role of supermarkets in household food shopping behaviours, food access and dietary patterns. The household surveys, focus groups and expert interviews were conducted by the researcher in collaboration with a local research assistant. The local research assistant was trained to collect data prior to the field work which consisted of reviewing the survey and focus group questionnaires. The local research assistant tested these methods with close acquaintances in order to become more familiar with these methods and test the understanding and interpretation of the questionnaires. In some cases,

the data collection tools were carried out with the use of translation by the research assistant, such as many of the surveys with lower-income groups and the two of the focus group discussions conducted with lower-income respondents. The findings from this case study were completed in 2015 and are based on the following:

(1) **Household Surveys**

Household surveys were the main method used to gather data for this research. Questionnaire survey research is a research method whereby a standardized set of questions are carried out for a sample of individuals in order to collect information about the characteristics, behaviors and/or attitudes of a population (Clifford et al., 2010). Surveys are also a tool for collecting information about the lives of individuals that is not available from published sources (i.e. diet) (Clifford et al., 2010). Thus, the household survey was constructed to capture information on: (1) household demographics, (2) food purchasing behaviour, (3) factors affecting food retailer choice, (4) food access, (5) dietary patterns, (6) food security levels and (7) how supermarkets may be affecting each of these categories.

As mentioned above, to evaluate diets the Household Dietary Diversity Score (HDDS) was used in the survey. Findings of the HDDS helped develop a picture of what people are eating and their preferences. The HDDS is based on an index of 12 food groups; each group representing a few different foodstuffs based on local dietary context (Legwegoh & Riley, 2014). This dietary diversity questionnaire required participants to state whether or not they or anyone else in their household had eaten any food items listed in the 12 food groups listed below. The household dietary diversity score comprises values between 0 and 12 which represent the total number of food groups consumed by household members within the past 24 hour recall period. The 12 food groups were developed by the Food and Nutrition Technical Assistance Project of the United States Agency of International Development. The food categories include:

1) Cereals (bread, rice noodles, biscuits or foods made from millet, sorghum, maize, rice, wheat)

2) Tuber or roots (potatoes, yams, manioc, cassava)

3) Vegetables

4) Fruits

5) Meat (beef, pork, lamb, goat, rabbit, game, chicken, duck, other birds, offal)

6) Eggs

7) Fish/shellfish

8) Pulses/legumes/nuts (beans, peas, lentils, or other nuts)

9) Milk (and milk products)

10) Oil/fat (foods made with oil, fat, or butter)

11) Sugar/ honey

12) Condiments, coffee and tea

Survey questions then addressed whether the respondents had experienced any changes in their diet since the development of supermarkets.

Subsequently, The Household Food Insecurity Access Scale (HFIAS) was used to assess households' food security levels. The HFIAS is a subjective assessment of food security and a popular method of assessment, particularly in poor urban context where it is difficult and expensive to measure every food that is consumed as well as the quality of diets in nutritional metrics (Legwegoh & Riley, 2014). The HFIAS includes questions regarding people's perception of the insufficient quality of their food which includes elements of dietary diversity, nutritional adequacy, and preference (Legwegoh & Riley, 2014). The following 9 questions consist of the HFIAS score:

(1) In the past four weeks, did you worry that your household would not have enough food?
(2) In the past four weeks were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
(3) In the past four weeks did you or any household member have to eat a limited variety of foods due to a lack of resources?
(4) In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?

(5) In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?
(6) In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?
(7) In the past four weeks, was there ever no food to eat of any kind in your household because of a lack of resources to get food?
(8) In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?
(9) In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

Each of the questions were asked with a recall period of four weeks (30 days). First, the respondent was asked whether the condition in the question happened at all in the past four weeks (yes or no). If the respondent answered "yes" to a question, then a second question was asked about the frequency of which this occurred to determine whether the condition happened rarely (once or twice) coded with a response code of 1, sometimes (three to ten times) coded with a response code of 2 or often (more than ten times) coded with a response code of 3, in the past four weeks. The responses from the HFIAS measure were entered into an SPSS statistical software.

The HFIAS score is a continuous measure of the degree of food insecurity in terms of access in the household. First, I calculated the HFIAS score variable for each respondent's household by summing the codes for each question addressing the frequency of occurrence. The maximum score for a respondent was 27 (if the respondent's response to all 9 questions addressing the frequency of occurrence was "often", coded with a response code of 3); the minimum score is 0 (the household responded "no" to all occurrence questions). A higher score indicated that a household experienced more food insecurity (access), while a lower score indicated that a household experienced less food insecurity.

The HFIA Prevalence (HFIAP) indicator is a categorical indicator of Food Insecurity Status. The HFIAP indicator categorizes households into four levels of household food insecurity in terms of access: food secure, mildly food secure, moderately food secure and severely food

insecure. See table 1 below for a description of each food security level category according to Coates et al. (2007).

Table 1 – Description of the food security level categories of the HFIAP indicator according to Coates et al. (2007).

Description of food security level categories of the HFIAP indicator	
Food Secure	A food secure household experiences none of the food insecurity (access) conditions, or just experiences worry, but rarely.
Mildly Food Secure	A mildly food insecure (access) household worries about not having enough food sometimes or often, and/or is unable to eat preferred foods, and/or eats a more monotonous diet than desired and/or some foods considered undesirable, but only rarely. But it does not cut back on quantity nor experience any of three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating).
Moderately Food Secure	A moderately food insecure household sacrifices quality more frequently, by eating a monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity by reducing the size of meals or number of meals, rarely or sometimes. But it does not experience any of the three most severe conditions.
Severely Food Insecure	A severely food insecure household has graduated to cutting back on meal size or number of meals often, and/or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating), even as infrequently as rarely. In other words, any household that experiences one of these three conditions even once in the last four weeks (30 days) is considered severely food insecure.

Thus, respondents were categorized as more food insecure as they answered yes to more severe conditions and/or experienced those conditions more frequently.

Measuring whether households feel food secure as an indicator of food security, although more feasible, means that it is very context-specific. Although this method has its limits, this subjective measure is useful in offering a realistic picture of the existence of food insecurity as a phenomenon being experienced by the surveyed population (Legwegoh & Riley, 2014). A greater understanding of households' experiences with food security helped further develop household profiles and analyze any correlations or links between various variables. The purpose of collecting this information was to evaluate household food insecurity levels, and to use this data as a basis to assess whether changes in certain elements of this scale had occurred at a household level on account of the development of supermarkets. This was done using follow-up qualitative questions and responses. Moreover, respondents' food security levels were tested for correlations between household demographic characteristics (i.e. wealth), purchasing trends, urban dietary patterns and whether or not supermarkets had affected any of these categories.

The survey was divided into several sections. The first included questions addressing demographic traits such as age, gender, marital status, level of education, occupation and work status. This section helped me create a socioeconomic profile for each respondent which was used to identify the income-level of households and identify various links between income-level and other variables such as food shopping behaviours, food access and urban diets. The second section included questions concerning the household's food purchasing behaviours such as where households purchase their food, the frequency of food shopping for various food retailers and their preferred food retail outlet. The third section of the survey addressed the factors influencing these food shopping behaviors, for example, why they preferred certain food retail outlets, as well as some determinants affecting food access. The fourth section consisted of evaluating urban diets by using the Household Dietary Diversity Score (HDDS) to record the household's dietary patterns over the course of the past 24 hours. In the fifth section, the Household Food Insecurity Access Scale (HFIAS) was used to help evaluate the respondent and respondents' household food security levels (linked to access). Finally, throughout the survey, we asked respondents how supermarkets had affected these different areas.

The survey was conducted face-to-face and contained fixed and open-ended questions. Fixed questions seek quantitative information about participant behavior and traits where respondents select defined categories or rank items for example (Hay, 2010). They offer a guide to respondents, and as a result the responses are easier to analyze and interpret which is an important benefit when you have a large number of surveys (Clifford et al., 2010; Hay, 2010). In open-ended questions participants are not constrained in answering questions; therefore, they seek qualitative information (Clifford et al., 2010). Thus, participants can express understandings, experiences and opinions in their own words which increase the potential to yield in-depth responses (Hay, 2010). Surveys administered in person allowed for the inclusion of complex questions; longer surveys, the clarification of vague responses and in open-ended question, probe to reveal hidden meanings (Clifford et al., 2010). Furthermore, personal contact produced a greater response rate and led to more meaningful answers (Clifford et al., 2010). When administering the in-person survey, we asked the head of the household to respond to the questions in the survey or

to appoint another household member knowledgeable of household socioeconomic status, food shopping behavior, and dietary patterns to respond to the questions.

The general population studied were urban residents in Accra, Ghana. A stratified population sampling strategy was employed which consisted of spatial delineation. Within the stratified sample we surveyed a random sample of participants. More specifically, participants were selected according to their proximity and distance from supermarkets. Using a local modern map of Accra, Ghana, we located and mapped the major supermarkets in the Greater Accra Region (total of 9) (See Figure 2 in Appendix). These were identified by experts and a research assistant. The store locations were then confirmed using google maps. Survey respondents later confirmed that the supermarkets identified were in fact the major supermarkets as they were the most popular and patronized supermarkets in Accra. The majority of supermarkets were found in the central business district located in the Southeast part of the city, as well as the Northeast residential and business neighborhoods. Specifically, supermarkets in the Northeastern part of Accra included two supermarkets in East Legon (i.e. Maxmart and Melcom), two between East Legon and Airport area (i.e. Shoprite and Game), and one in Airport Hills (Palace). Supermarkets in the South part of Accra included two in OSU (i.e. Shoprite and Koala) and one in Cantonments (i.e. Maxmart).

To distinguish between respondents living within close proximity and those residing at a considerable distance from supermarkets we started walking from the identified supermarkets above to the nearest residential neighborhoods, always staying within a 2 kilometer radius in every direction. Whenever possible we tried to survey households in a systematic way by surveying every fourth house on the street. However, this was not a simple task as often houses were clustered in an unorganized fashion. To reach households residing at a considerable distance from supermarkets, we used our map to target the areas farthest from supermarkets which far exceeded a 2 kilometer radius. These areas were in the Western and Northern parts of the city, including the following districts:

- Madina;
- Abeka;
- Adabraka;
- CFC Estates;

- Achimota; and
- Apenkwa.

After having identified these various neighborhoods and collected the data, the population was divided into sub-groups (i.e. lower-income, middle-lower income, middle-income and upper-income households). To help identify the economic status of households and develop a socioeconomic profile, several variables from a material index such as the primary materials of the walls and roof of the dwelling; employment status and dwelling ownership were measured. Details will be provided below in the section 'Preparation of Variables'.

Overall, the survey sampled 126 households. To remain consistent with the literature we aimed to conduct 150-200 surveys in order to reach a point of saturation in survey responses (Teddlie & Yu, 2007). However, due to time constraints our sample consisted of 126 households. Of the 126 survey respondents, an overwhelming majority were female (96), while only 30 were male. This was likely because women were more accessible throughout the day as they were often working from home or within close proximity to their household. The men also often suggested for us to speak to their female counterparts due to their greater knowledge of household food shopping and meal preparation. Additional information on respondents' socioeconomic distribution is characterized in table 2 below.

Table 2 – Distribution of respondents according to socioeconomic profiles, including income, education, distance from supermarket, gender and age.

Respondent Socioeconomic Status	**Frequency**	**Percent**	**Valid Percent**
Income			
Lower	21	16.7	21.4
Middle-lower	31	24.6	31.6
Middle	35	27.8	35.7
Upper	11	8.7	11.2
Total	98	77.8	100.0
Missing	28	22.2	

Total	126	100.0	
Education			
No formal schooling	12	9.5	9.5
Some primary	4	3.2	3.2
Primary completed	2	1.6	1.6
Some high school	36	28.6	28.6
High school completed	34	27.0	27.0
Post secondary qualifications not university	10	7.9	7.9
Some university	4	3.2	3.2
University completed	19	15.1	15.1
Post-graduate	5	4.0	4.0
Total	126	100.0	100.0
Distance from Supermarket			
Close	51	40.5	40.8
Far	74	58.7	59.2
Total	125	99.2	100.0
Missing	1	.8	
Total	126	100.0	
Gender			
Male	30	23.8	23.8
Female	96	76.2	76.2
Total	126	100.0	100.0
Age			
18-24 years old	9	7.1	7.1

25-34 years old	42	33.3	33.3
35-44 years old	34	27.0	27.0
45-54 years old	23	18.3	18.3
55-64 years old	12	9.5	9.5
65 years or older	6	4.8	4.8
Total	126	100.0	100.0

In terms of the distribution of respondents' household dietary diversity, data show that 2.4% of respondents have low dietary diversity, while 36.0% of respondents have medium dietary diversity and 61.6% of respondents have high dietary diversity. Overall, the data indicated that on average our respondents had a Household Dietary Diversity Score (HDDS) of 8.98. In terms of the distribution of respondents' food security levels, data revealed that 42.65% of respondents are food secure, while 8.2% of respondents are mildly food insecure; 24.6% of respondents are moderately food insecure and 24.6% of respondents are severely food insecure. Overall, the data indicated that on average our respondents had a Household Food Insecurity Access Scale (HFIAS) score of 4.96. See table 3 below for full details.

Table 3 – Distribution of respondents' food security levels according to HDDS and HFIAP scores.

HDDS	**High**	**Medium**	**Low**	
Count	77	45	3	
Valid Percent	61.6	36.0	2.4	
HFIAS	**Food Secure**	**Mild Food Insecure**	**Moderately Food Insecure**	**Severely Food Insecure**
Count	52	10	30	30
Valid Percent	42.6	8.2	24.6	24.6

(2) Focus Groups

To add depth and focus on the specific impacts that urban residents had experienced with the development of supermarkets, several focus groups were conducted. A focus group is a method in which a small group of individuals sit facing each other and discuss a topic or issue defined by a researcher (Hay, 2010). Focus groups helped make sense of these complex processes and offered individuals a chance to voice their opinions in their own words and elaborate on their personal

experiences; participants raised important topics not covered in the survey and allowed me to better interpret survey results (Hay, 2010). The interaction between individuals also sparked some new points of views and helped us rationalize what at times seemed illogical. Finally, while the household survey helped to understand what people think and do, the focus groups helped to understand why people think and behave as they do in terms of their shopping and consumption patterns (Hay, 2010). Thus, the topics of discussion included the changes participants have felt as individuals and as a community since the development of supermarkets; this included discussions about food shopping behaviour and changes in purchasing trends, food access and dietary patterns.

The focus groups were a mix between group interviews, where participants were each asked to answer the same question (i.e. where they do their household food shopping), and in-depth focus groups where interaction was encouraged and participants at times influenced the topics of discussion. Focus group participants were recruited by asking survey respondents at the end of the household survey if they would like to participate in a focus group. From there a snowball sample was used to recruit more participants: if survey respondents agreed to participate in a focus group they were also asked if they knew anyone else that would be interested in participating. This strategy was chosen as it led to having participants of similar socioeconomic backgrounds and a more cohesive group of people. Having a more homogenous group improved the interaction between members of the group which is a key characteristic of focus groups (Clifford et al., 2010; Hay, 2010).

A total of three focus groups were conducted: two with lower-income respondents and one with middle-income respondents. These focus groups consisted of 6-12 participants and lasted approximately 30-60 minutes. While too few members can reduce discussion, too many can restrict the time each member has to contribute (Hay, 2010). Focus group discussions were recorded using an audio recorder and notes were taken by the researchers when possible. Data from the focus group discussions was transcribed in Word and analysed thematically through content-analysis.

(3) Expert Interviews

In-depth interviews were conducted with academics in the field. An interview is a method that can be defined as a spoken exchange of information (Hay, 2010). The expert interviews

covered similar topics of discussion as the focus groups. However, experts were asked to discuss changes linked to supermarkets that they had observed in the community (e.g. purchasing trends, food access, and diet) and discuss differences for various socioeconomic groups. The aim in interviewing experts was to discuss some of the preliminary findings and contextualize these topics; expand on the findings, and review certain elements that may not have been discussed in the surveys or focus groups. The purpose of conducting these interviews was to attempt to fill knowledge gaps that the other methods could not bridge efficiently (Hay, 2010). This allowed for an investigation of complex behaviours and motivations identified in the surveys. These interviews helped to interpret some of the respondent's responses and identify important areas that respondents did not mention in the surveys or focus groups, such as the social drivers contributing to supermarket shopping. Moreover, this offered the interviewee an opportunity to specify whether any questions were misplaced as well as to check, verify and scrutinize our own opinions and tentative conclusions (Hay, 2010). This also allowed for the suggestion of new issues or topics not previously identified or the option to elaborate on any issues that could have been misunderstood (Hay, 2010).

Semi-structured interviews were employed. This type of interview contains some element of pre-determined order; however it maintains a degree of flexibility in terms of the issues that are addressed by the interviewee (Hay, 2010). The questions included in the interview guide focused on content. The interview guide included primary questions (i.e. opening questions to begin the discussion on a new topic or issue) and secondary questions (i.e. prompts to encourage the interviewee to expand on a topic or issue discussed) (Hay, 2010). The interview guide was comprised of a mix of primary question types including descriptive (knowledge on events, places, people and experiences), storytelling (identifying players/factors and causal links), opinion-based (impressions and feelings) and contrasting (comparing experiences according to place, time, income, etc) questions. The secondary questions were non-formal questions which were not listed in the interview guide. Experts were recruited due to their academic background, research and expertise in the field of food retail, consumer behaviour and urban food security, and/or for their personal experience living and shopping for food at various food retailers in Accra. They were reached by email and interviewed in person. Expert interviews were recorded using an audio recorder. Data from the expert interviews was transcribed in Word and analysed thematically

through content-analysis. A total of two in-depth interviews were conducted with experts in the academic field and each interview lasted approximately 60 minutes. These experts were selected based on their expertise in urban food security, the food retail environment, and food shopping and consumption behaviours in Accra as well as their personal experience with household food shopping and the food retailers. One was a professor and local resident, whereas the other had been residing and teaching in Accra for over a year.

3.4 Preparation of Variables

Although most of the data were collected in a way that could be analyzed directly, one variable needed to be converted into an index. A wealth rank was designed by employing the results of two questions from the household survey, as well as two household material observations. The first question concerned the respondent's work status and respondents were scored accordingly: those not working and not looking for employment scored 0; those not working but looking for employment scored 0.25, those working part-time or casually scored 0.50, and those working full time scored 1.0. The second question related to the ownership of the dwelling: those living in a temporary dwelling scored 0; those using a dwelling without paying rent scored a 0.25, those renting a dwelling scored 0.5, and those owning the dwelling scored 1.0. In addition, the materials of the walls and roof of the house were accounted for. The scoring for the material of the walls of the house was measured in the following manner: an unfinished house was worth a score of 0; a house constructed mainly of wood scored 0.25, a house constructed mainly with cement score 0.50, and a house constructed mostly with brick scored 1.0. As for the materials of the roof of the house, households with aluminium roofing sheets scored a 0, while households with roofing tiles scored a 1.0. The final wealth score constructed was calculated by adding the four scores and ranking households according to the following score: 0-0.75 equals lower-income; 1.00-2.00 equals lower-middle income; 2.25-2.75 equals middle-income, and 3.00-3.75 equals upper-income. To verify the wealth index a linear regression test was conducted in SPSS among the score (wealth ranking) as a continuous variable in relation to the HDDS scores and the HFIAS score, and a strong correlation between these variables was found.

3.5 Data Analysis

The qualitative textual data generated from the surveys, focus groups, and interviews was transcribed from audio recordings. The transcripts were manually analysed thematically through content analysis. This involved coding; a process of identifying and organizing themes (Hay, 2010). There were two types of codes: descriptive and analytic. Descriptive codes reflected patterns or themes that were stated explicitly by the respondents or were apparent on the surface (Hay, 2010). These included category labels that answered questions such as who, what, where, when and how. For this section, descriptive codes emerging directly from the statements of respondents were used. Analytic codes are more thematic; theoretical and often arise from descriptive codes. Analytic codes were used to code text which echoed a theme of interest or of importance for the research. Analytic codes helped elaborate on the context and processes of actions or phrases (Hay, 2010). This helped to capture the complexities of meanings within the qualitative data set, and identify and describe both implicit and explicit ideas and notions. Finally, coded findings were subjected to standard statistical analysis to establish frequencies.

The quantitative data generated from the surveys were first inputted into an excel sheet and then transferred over into IBM SPSS Statistics version 23. Once data were reviewed and any missing data were verified, descriptive statistics and frequencies were calculated to analyze the data. This allowed to describe, show and summarize the data, as well as present the data in a more meaningful way: allowing for a simpler interpretation of the data and identifying emerging patterns (Hay, 2010). In addition, inferential statistic tools were used. These techniques allowed using the sample to make generalizations concerning the population from which the sample had been drawn and make conclusions that extended the immediate data (Bryman et al., 2012). Different tests were conducted such as Chi-Square tests, T-Tests and linear regressions.

CHAPTER FOUR - MANUSCRIPT

What follows is a complete, stand-alone manuscript summarizing the main results. In accordance with department norms and standards it has been prepared in such a way as to be suitable for submission to the Journal of Hunger and Environmental Nutrition.

The impact of the rise of supermarkets on household urban food security: A case study of Accra, Ghana

4.1 Introduction

Over the course of the last decade, food security in sub-Saharan Africa has risen to the top of the international development agenda (Godfray, 2010; Crush & Frayne, 2011). Concerns of food insecurity have heightened in the context of accentuated socioeconomic and global environmental challenges such as climate change, population growth and urbanization. Concurrently, the food supply systems in Sub-Saharan African countries have been experiencing striking transformations and in particular, the rise of supermarkets, often referred to as the "supermarket revolution" is beginning to transform how urban citizens in sub-Saharan Africa obtain sustenance (Reardon & Hopkins, 2006; Peyton et al., 2015; Humphrey, 2007; Weatherspoon & Reardon, 2003; Battersby & Crush, 2014). In short, many scholars have observed that African food systems are undergoing a change from small-scale and informal food supply chains to supply chains dominated by large multinational retail companies (Louw et al., 2008).

As a result of their rapid growth, supermarkets are contributing to the transformation of the urban food supply system in sub-Saharan Africa and are becoming an increasingly important player in the urban food retail landscape (Crush, et al., 2012; Reardon et al., 2003; Battersby & Crush, 2014; Teng et al., 2011). This leads many scholars to question the ways in which this transition may affect food security (Meng et al., 2014; Battersby, 2012; Reardon & Gulati, 2008). For instance, does the increased reliance on supermarkets provide people with access to different types of food? Do supermarkets raise or lower food prices? Are poorer or better off households affected differently? The answers to these questions are only now just emerging and many scholars argue that while supermarkets will inevitably impact urban food security, the specific ways in which food security is affected are currently unknown.

The current literature on the effect of supermarkets on food security in sub-Saharan Africa is conflicted. Although the expansion of supermarkets has been well documented, and many agree that this represents an important force in modifying the food supply chain (Reardon et al., 2003; Crush & Frayne, 2011; Humphrey, 2007), what the future food retail landscape will look like and how this will affect urban food security is not fully understood. In particular, questions remain about how the urban poor will access food under this new system. Remaining debates concern (1) the affordability of food in supermarkets; (2) the physical accessibility of supermarkets, and finally; (3) the quality of food and dietary implications of supermarkets.

Reardon argues that supermarkets will be positive players in the improvement of food security mainly due to the cheaper prices, new locations, and the safe and higher quality foods offered (Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003; Neven et al., 2006; Minten et al., 2010). By contrast, Battersby (2012) contends that although the price of food in supermarkets may be lower per unit, the minimum required unit size is often too great for the urban poor to afford. For instance, in her study Battersby (2012) notes that although supermarkets offered lower pricing for their items, respondents shopped more frequently at spazas (a type of informal retail store in South Africa), small shops and restaurants, where packages are often broken up to offer items in smaller quantities. Although more expensive per unit, it is more affordable for the urban poor. Meng et al. (2014) add that the supermarket retail format only appeals to consumers with sufficient buying power, which may have detrimental effects on food access for lower-income groups. In terms of physical accessibility of supermarkets, Peyton et al. (2015) and Crush and Frayne (2011) suggest that supermarkets have yet to reach the lowest income areas, and supermarket penetration remains very uneven. Lastly, as for diets and nutrition, Popkin (2006/2011) argues that supermarkets also sell a lot of processed and unhealthy foods.

Overall, therefore, although the influence of supermarket growth has been explored from a number of different perspectives, few studies have investigated how the new food retail landscape in sub-Saharan Africa is affecting food security from the perspective of the consumer (Meng et al., 2014). Research from a consumer standpoint provides insights that can steer strategies in the development of food and nutritional security initiatives by identifying the consumer profiles of different food retailers. Understanding food retail changes and their impacts from a consumer viewpoint is crucial for policy makers who are involved in improving consumer

diets (Meng et al., 2014). Additionally, traditional food retailers can benefit from this information as it can provide recommendations on how to improve their products and services in order to remain economically viable. Such an analysis can also offer thorough information on the food supply chain that can help supermarkets make decisions related to entering the market or expansion.

Thus, the aim of this paper is to contribute to the literature exploring how the growth of supermarkets is shaping food systems and in turn urban food insecurity in Western Africa. In doing so, we ask: "How is the rise of supermarkets affecting urban food security in Accra, Ghana?" More specifically, this paper seeks to: (1) provide a description of food retail shopping behavior and determine what factors contribute to food retail outlet choice; (2) evaluate how supermarkets have affected access to food and analyze potential differences according to various socioeconomic groups, and (3) analyze the dietary changes associated with patronizing supermarkets.

All in all, the main result from the data is that supermarkets in Accra, Ghana have not had a significant an impact on food security across various socioeconomic groups. However, they have allowed respondents to have greater access to, and an increased consumption of more processed foods, which is a risk factor for obesity and other diet-related diseases. This trend may be increasingly relevant for lower-income households residing within close proximity to supermarkets, since the price of food, convenience and distance are important determinants of food choice and supermarkets have made these processed foods more affordable, convenient and physically accessible. Thus, this manuscript contributes to the literature on supermarkets and urban food security by highlighting how some of the claims concerning the impacts of supermarkets on urban food security may be overstated, particularly in the initial stages of supermarket penetration in the Western African context. Specifically, healthy foods sold at supermarkets do not seem to be economically accessible. It also raises concerns for the dietary and health implications of increased processed food consumption linked to supermarkets which has not often been discussed in the literature on supermarkets and urban food security.

This chapter follows in six sections. The next section reviews and summarizes the literature concerning supermarketisation and the formalisation of the food retail landscape; as well as its implications for urban food security. Section 4.3 outlines and summarizes the methodology

and the primary data collection tools employed in this case study. Section 4.4 presents the main research findings of this case study and section 4.5 comprises a discussion of the main research findings. Finally, the manuscript finishes with some overall conclusions in section 4.6.

4.2. Literature Review

This section reviews the rise of supermarkets in sub-Saharan Africa as recently documented in scholarship, and then explores what research on their development tells us about the possible impacts they may have on urban food security in terms of the affordability of food, the spatiality of supermarkets and the urban dietary implications.

4.2.1 The Rise of Supermarkets

The first theme in the literature is the rapid growth of supermarkets, often referred to as the 'supermarket revolution'. One of the key scholars in this area is Reardon and his work on the rise of supermarkets extends to studies in Africa, Latin America and Asia (Reardon et al., 2003; Readon & Berdegue, 2002; Humphrey, 2007; Traill, 2006). Out of Reardon's work comes the overarching conclusion that supermarkets are becoming increasingly important players in food distribution in a number of developing countries, and while the extent of supermarket penetration differs regionally, trends of supermarket growth distinctly exhibit different phases of dispersion throughout the world (Humphrey, 2007; Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003). The first wave began in the early 1990s and covered much of South America, East Asia (outside China), and South Africa. The second wave began in the mid to late 1990s and covered Mexico, Central America and much of Southeast Asia. Finally, the third wave started in the late 1990s and early 2000s and covered China, India and Vietnam (Reardon & Gulati, 2008). Other countries in Eastern and Southern Africa, and other South Asian countries seem to be forming a fourth wave (Reardon & Hopkins, 2006). The regions demonstrating the most advanced stages of this trend include South America, Mexico, East Asia, parts of Southeast Asia (e.g. Thailand), most of Central Europe as well as South Africa (Reardon & Hopkins, 2006).

In these areas, supermarkets are already dominating food distribution and retail (Reardon & Hopkins, 2006). For instance, in Thailand, South Korea, Taiwan, Mexico, Brazil, Hungary and Poland, the share of supermarkets in food retail is already 50% or greater. In Argentina and Brazil,

the share of supermarkets has already attained 60 to 70% (Reardon & Hopkins, 2006). Overall, it has been recorded that supermarkets' average share in retail sales grew from about 10% (circa 1990) to ~50-60% by the mid-2000s (Reardon & Gulati, 2008). Meanwhile, they still only account for 2% of the stores (D'Haese & Huylenbroeck, 2005). Therefore, although their degree of penetration remains uneven, supermarkets are becoming increasingly significant in retail in various developing countries (Humphrey, 2007; Crush & Frayne, 2011).

In sub-Saharan Africa, increasing reliance on supermarkets is happening fastest in Southern Africa and Kenya (Neven & Reardon, 2004; D'Haese & Huylenbroeck, 2005; Weatherspoon & Reardon, 2003). In these countries, this change is mostly affecting larger and relatively wealthier, more urbanized markets (Weatherspoon & Reardon, 2003). For instance, the share of supermarkets in food retail is already 55% in South Africa (Weatherspoon & Reardon, 2003). A second wave of supermarket growth is occurring in other Southern African countries such as Zimbabwe, Zambia, Namibia, Botswana, and Swaziland. More recently, supermarkets have spread to other South African countries such as Madagascar; Mauritius, Angola, Mozambique, and some Eastern African countries such as Uganda, Ethiopia and Tanzania (Weatherspoon & Reardon, 2003; Nishiura, 2010). Most recently, some countries in Western Africa have experienced a growth of supermarkets; particularly Ghana and Nigeria (Weatherspoon & Reardon, 2003; Nishiura, 2010). In Accra, Ghana a recent rapid growth in supermarkets is occurring, a trend that is expected to continue to grow in the future (Meng et al., 2014).

In South Africa, several large and extremely competitive companies such as Shoprite, Spar, Pick n Pay and Woolworths are leading the expansion (Crush & Frayne, 2011). In 2007, the sales of the top four supermarkets chains in South Africa were over USD$17 billion, with a market share of over 70% of the formal food and groceries retail market (Crush & Frayne, 2011). Shoprite, being the largest of these companies, has been expanding the most aggressively and rapidly outside South Africa since the 1990s (Crush & Frayne, 2011; Louw et al., 2008). Shoprite stores are now open in most Southern African Development Community (SADC) countries; even in Nigeria and Ghana. Moreover, from 2003 to 2010, Shoprite nearly doubled their number of stores (1,150) and tripled its sales (R67 billion) (over 5 billion USD) (Crush & Frayne, 2011).

Many argue that the spread of supermarkets has been driven by a number of determinants linked to consumer demand, for instance urbanization, rising incomes and an increase of the middle class, as well as supply-side determinants such as considerable influxes of foreign direct investment (FDI) triggered by the liberalisation of retail FDI and the modernization of supermarket procurement strategies (Louw et al., 2008; Reardon & Hopkins, 2006; D'Haese & Huylenbroeck, 2005; Humphrey, 2007; Meng et al., 2014; Battersby & Peyton, 2014). Moreover, the competition, consolidation and multinationalisation of the supermarket sector, as well as domestic policies have created an ideal business climate for supermarkets to thrive (Reardon & Gulati, 2008).

4.2.2 The Affordability of Food

As a result of supermarket format, increased competition and improved procurement strategies, one of Reardon's main conclusions is that supermarkets are positive players in the improvement of food security, as they increase the availability of cheaper food and provide an important alternative food source for the urban poor (Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003; Neven et al., 2006; Minten et al., 2010). Emongor and Kirsten (2009) and D'Haese and Huylenbroeck (2005) both found that consumers benefit from the supermarket's trading activities and improved procurement systems as it allows them to sell food at much lower prices. In their case study in Nairobi, Kenya, Neven et al. (2006) found that the urban poor were drawn to supermarkets due to the cheaper processed and staple foods they offered. However, their results for fresh foods were mixed. Minten and Reardon (2008) and Minten et al. (2010) found similar findings in Madagascar and New Delhi, India respectively.

Nevertheless, some disagree with these conclusions and argue that although the price of food in supermarkets may be lower per unit, the minimum required unit size is often too great for the urban poor to afford (Crush & Frayne, 2011; Battersby, 2012). By contrast, smaller retailers generally 'bulk break', offering to reduce portion sizes which become more affordable for the urban poor (Crush & Frayne, 2011; Battersby, 2012). Meng et al. (2014) further conclude that the supermarket retail format appeals to consumers with sufficient buying power.

4.2.3 The Spatiality of Supermarkets

Battersby & Peyton (2014), provide an additional dimension when considering food accessibility in urban areas. They argue that the literature in the African context has mostly focused

on price and financial accessibility to food while neglecting the role of the geography of supermarkets, suggesting that the spatial arrangement of supermarkets plays a crucial role in shaping food accessibility. Before the 1990s, supermarkets expanded very slowly and consisted of tiny niches found in the largest cities and areas often occupied by the richest domestic consumers and expatriates (Reardon and Hopkins, 2006). Today, supermarkets are spreading to low-income countries, and within urban areas, they are changing their store formats allowing them to spread to lower-income areas and reach low-income consumers (Battersby & Peyton, 2014; Louw et al., 2008; Humphrey, 2007; Reardon & Weatherspoon, 2003). Thus, several studies (Louw et al., 2008) argue that supermarkets are targeting all urban consumers regardless of wealth. Weatherspoon and Reardon (2003) further this claim by adding that we are now seeing 'supermarkets for the poor'.

By contrast, Battersby and Peyton (2014) note that despite changing their store formats, supermarkets have yet to reach the lowest income areas. In their study of Cape Town, South Africa, Peyton et al. (2015) found that when comparing the distribution of supermarkets with the average annual household income, the distribution of supermarkets was unevenly dispersed throughout the city and were most commonly located in middle-class neighborhoods. This suggested that the poorest households had limited physical access to supermarkets (Peyton et al., 2015). Similar studies also found that the various transaction costs associated with supermarket location (travel and time costs) often deterred individuals from patronizing supermarkets (Rashid et al., 2010; Battersby, 2012). Barrett (2008) further specifies that the transaction costs involved vary according to households and lead to uneven physical accessibility.

4.2.4 The Urban Dietary Implications

An entirely different way of looking at the impact of supermarkets on food security is to consider how food retail and access impacts dietary intake (Bader et al., 2010). Many argue that the food retail landscape highly affects consumer's diet-related health and nutrition by the prices and products retailers offer (Meng et al., 2014; Popkin, 2006; Popkin et al., 2011). Since supermarkets are becoming an increasingly important part of the food environment, some argue that supermarkets have contributed to changing urban diets (Crush & Frayne, 2011; Popkin et al., 2011). Many agree with this statement; however whether this change will have positive or negative implications for health and nutrition is still debated. For instance, Reardon (2003) and several other

authors argue that supermarkets offer safer and higher quality foods due to their procurement systems (D'Haese & Huylenbroeck, 2005). Popkin (2006) contends that supermarkets have been instrumental in providing safe sources of milk, establishing food safety standards and offering higher-quality produce in poorer parts of the world. Moreover, in their study on consumer's food shopping choice in Ghana, Meng et al. (2014) found that supermarkets may provide better food safety and handling practices as compared to traditional food retailers. Other authors argue that although this might be the case, there are important disparities in the food retail landscape and these have significant health implications. Battersby and Peyton (2014) contend that supermarkets in lower-income areas offer a limited variety of products and fewer healthy foods.

Popkin et al. (2011) expand on this position and suggest that there may be harmful diet-related impacts of supermarkets. They highlight how supermarkets are an important player in modifying diets in low and middle-income countries. Since supermarkets sell large amounts of processed foods higher in fat, salt and added-sugar, this paper points out that urbanization and the cheaper prices offered by supermarkets may promote the increased consumption of unhealthy foods (Popkin, 2006). Similarly, Neven et al. (2006) found that urban consumers in Kenya tend to buy processed and staple foods mostly from supermarkets and fresh produce mainly from traditional retailers. Popkin further notes that the consumer demand for processed food is growing in developing countries and thus, argues that supermarkets play a role in accelerating the nutritional transition (Popkin, 2006).

Overall, the literature on supermarketisation and retail modernization in sub-Saharan Africa highlights the complex and multifaceted nature of urban food security in a changing food retail landscape. The important debates concerning the impact of supermarketisation on urban food security in sub-Saharan Africa highlights the need for further examination of this issue as supermarkets are continuing to expand rapidly in this region.

4.3 Methodology

This research utilized a mixed-method approach using qualitative and quantitative data to address conflicting perspectives in the literature about the role of supermarkets on household food insecurity. Accra, the largest urban centre, was selected as the study area. See figure 2 in appendix for a map of the study area. This study area was chosen as it has experienced rapid supermarket

growth in recent years, yet lacks data on the extent of which supermarkets impact urban food security.

Geographic information was gathered using online store locators and a local map during the field visit, which was later confirmed through Google maps and survey respondents, to map the spatial distribution of major supermarkets as to compare this to household procurement strategies and proxies for food insecurity and accessibility. Since Shoprite, Maxmart, Koala, Melcom, Palace, Game and Marina Supermarket seem to have market dominance and are recognized by respondents as the major supermarkets in Accra, this study observes the location of these supermarket chains throughout Accra (total of 9). Throughout this paper, the term supermarket is used as shorthand for various segments of large-format 'modern retail' stores (i.e. supermarkets, large discount stores/superstores and hypermarkets). Supermarkets can be defined as large self-service food stores handling largely food and fast moving consumer goods, which suggest the ownership of a larger grocery store by an independent owner (Meng and al., 2014; Neven & Reardon, 2004).

Overall, this study used a mixed-methods approach where the following data collection tools were used to collect information in the summer of 2015:

(1) Household Surveys: The survey sampled 126 households. To remain consistent with the literature we aimed to conduct 150-200 surveys in order to reach a point of saturation in survey responses (Teddlie & Yu, 2007). However, due to time constraints our sample consisted of 126 households. The survey was constructed to capture information on household demographics, purchasing trends, factors affecting food retail outlet choice and food access, urban dietary patterns, levels of food insecurity (Household Food Insecurity Access Scale – HFIAS), and how supermarkets may have affected each of these categories. A stratified sampling strategy consisting of spatial delineation was utilized, in which sample participants were selected according to their proximity (within a 2 kilometer radius) and distance (over a 2 kilometer radius) from supermarkets. Within the stratified, sample households were selected randomly. We walked from the identified supermarkets above to the nearest residential neighborhoods, always staying within a 2 kilometer radius in every direction. To reach households residing at a considerable distance from supermarkets, we used our map to target the areas farthest from

supermarkets which far exceeded a 2 kilometer radius. Whenever possible we tried to survey every fourth house on the street. These two areas were selected to capture some of the diversity in household's experience with food security. When administering the in-person survey, we asked the head of the household to respond to the questions in the survey or to appoint another household member knowledgeable of household socioeconomic status, food shopping behavior, and dietary patterns to respond to the questions.

The survey employed the Household Food Insecurity Access Scale (HFIAS), a tool devised by USAID's FANTA project (Food and Nutrition Technical Assistance), as a subjective assessment of food security. It uses a series of nine questions to assess the insufficiency of food intake which includes dietary diversity, nutritional adequacy, preference, as well as physical consequences, and anxiety and uncertainty about food supply, on the basis of a 30-day recall period (for more information see Coates et al., 2007) (Legwegoh & Riley, 2014). The purpose of collecting this information was to evaluate household food insecurity levels, and to determine whether changes in certain elements of this scale had occurred on account of the development of supermarkets. Respondent's food security levels were also tested for any correlations with household demographic characteristics and purchasing trends.

(2) Focus Groups: A total of three focus groups were conducted: two with lower-income respondents and one with middle-income respondents. The topics of discussion included the changes participants have felt as individuals and as a community since the development of supermarkets. Discussions included changes in purchasing trends, food access and diet. A snowball sampling strategy, where participants were recruited from the household surveys and invited to recruit others, shaped the total sample size. These focus groups consisted of 6-12 participants and lasted approximately 30-60 minutes.

(3) Expert Interviews: A total of two in-depth semi-structured interviews were conducted with experts in the academic field. Interviews covered similar topics as the focus groups; however experts were asked to discuss changes linked to supermarkets that they've observed in the community (e.g. diet, purchasing trends, food access and diets) and discuss differences for various socioeconomic groups. Purposeful sampling was utilized, where sample participants

were chosen based on their knowledge of food retail, consumer behaviour and food security, and experience shopping at various food retailers. They were reached by email and each interview lasted approximately 60 minutes.

Household surveys, focus groups and expert interviews were conducted by the researcher in collaboration with a local research assistant. In some cases, the data collection tools were carried out with the use of translation by the research assistant.

4.4 Results

This section first outlines the basic trends in household food shopping behaviour and the determinants contributing to food retail outlet choice. The aim is to first determine where people are purchasing their food and whether people are patronizing supermarkets to determine if the development of supermarkets has affected the food retail landscape and where households obtain food. From there we explore if there are any differences between varying socioeconomic groups, and the factors affecting household food retail outlet choice as this could be indicative of the factors and the barriers affecting food access, particularly at supermarkets. In the second section we then seek to explore how supermarkets may have affected food security, in terms of food access and dietary changes. We aim to outline whether people have experienced changes in food access and food security due to supermarkets; whether there are any differences according to various socioeconomic groups and what factors have contributed to these changes. Finally, we observe the consumption impacts of these food access changes and the potentially diet-related health consequences.

4.4.1 Household Food Shopping Behaviors and Determinants

Table 4 presents a summary of frequencies of the food shopping patterns of the respondent households. Overall, the data frequencies indicate that there are a greater percentage of people who shop for food at supermarkets (63.5%), than those that do not (36.5%). However, there is an even greater number of people who shop at small shops (97.6%) and informal markets/street food (98.4%) Nevertheless, this data does not specify the quantity of food or what foods are being purchased. The data also reveal that only 23.8% of respondents shop for food at supermarkets at least once a week, whereas 86.5% of respondents shop for their household food from traditional

food retailers at least once a week. Therefore, the data suggest that while supermarkets are common and well used, people are still using traditional vendors. This is reinforced by our data that show that 73.0% of respondents prefer to buy their household food from traditional markets, whereas only 8.7% of respondents prefer to buy their household food from supermarkets. See table 4 for full details.

Table 4 – Summary statistics of respondents' overall food shopping patterns.

Variables	Count	Percentage
Shop at supermarkets		
Yes	80	63.5
No	46	36.5
Shop at small shops		
Yes	123	97.6
No	3	2.4
Shop at informal markets/street food		
Yes	124	98.4
No	2	1.6
Supermarket shopping frequency		
At least once a week	30	23.8
Every other week	10	7.9
At least once a month	28	22.2
At least once every six months	16	12.7
Never	42	33.3
Traditional food retailer shopping frequency		
At least once a week	109	86.5
Every other week	11	8.7
At least once a month	5	4.0
At least once every six months	0	0
Never	1	0.8
Preferred food retailer		
Street vendors, hawkers	5	4.0
Small shops	7	5.6
Local markets	92	73.0
Supermarkets	11	8.7
Other	11	8.7

Overall, although more than half of our respondents shop at supermarkets, data show that traditional food retailers currently still dominate the food retail sector and play a very important role in food sourcing in Accra, Ghana. In fact, the main point of purchase for all foodstuffs and for all income, education and distance groups were traditional food retailers. This was supported by our interviewed expert who suggested that "Most people get their food from the traditional markets

[...].” A focus group respondent also supported this, “I normally buy my food items from [Makola market], that is where everyone does their shopping.” Our interviewed expert further explained that “[...] over time what is changing is that people are finding specific things that they need at different places.” Referring to supermarkets, one respondent confirms: “It has changed the system of buying and selling food” and “there are now more places where food is available.”

Data collected during the surveys indicate that all respondents, regardless of their socioeconomic characteristics (i.e. income, education and distance from supermarkets), purchase food from traditional food retailers, as well as purchase their food more frequently from traditional food retailers, and prefer to purchase their food from traditional food retailers (with the exception of respondents with a post-graduate degree who on average prefer shopping at supermarkets). Yet, our data show that there are some differences in who shops at supermarkets among different socioeconomic groups. Although a T-Test determined that there were no statistically significant differences among income scores in relation to shopping at supermarkets, there was a positive significant relationship among HFIAS scores in relation to shopping at supermarkets (P=0.026, T-Test). For instance, those who shopped at supermarkets had an average HFIAS score of 4.00, while those who did not had an average HFIAS score of 6.72. Those with higher levels of food security were more likely to shop at supermarkets than those with lower levels of food security. Since a linear regression test found a strong linear relationship (P=0.004) among income scores in relation to food security levels (as income increases HFIAS scores decrease indicating a higher level of food security), we can speculate that wealthier households are more likely to shop at supermarkets than poorer households. Yet, this may just be that wealthier people have more options and thus, more freedom. In addition, both interviewed experts suggested that where people shop is based on income: “there is a group of people in Ghana who can afford food from supermarkets, but it’s a very small group [...] when people shop they will usually shop for staples and other commodities based on their income.” They added:

> “Those who fall into that group are people who are in the higher-upper class income bracket and also expatriates. They are [...] more likely to shop [at supermarkets]. [...] there is also the middle-income, lower-income people who would go to the supermarkets once in a while, infrequently [...] to buy specific things because they might not have it at the local market [...]. But it’s not a regular source of food for people.”

Similarly, a focus group respondent cited that “[...] most Ghanaians in general cannot afford to shop for the majority of their food in supermarkets [...].” Another focus group respondent

suggested that "supermarkets are more expensive compared to the local markets, hence [they have] a particular class of customer." Nevertheless, a T-Test found no significant differences among income scores in relation to the frequency of purchase from supermarkets and preference of food retail outlet.

As for education, a Chi-Square test determined that there were significant differences ($p<0.007$) in supermarket shopping among respondents with no formal schooling and respondents who completed university. Those with no formal schooling are less likely to purchase their food from supermarkets than those who have completed university. While 84.2% of respondents with a university degree shop for their food at supermarkets, only 25% of respondents with no formal schooling do. In addition, significant differences ($P=0.004$) were found among education groups in relation to the frequency at which respondents shopped at supermarkets (Chi-Square test). While 66.7% of respondents with no formal schooling never shopped at supermarkets, only 10.5% of respondents who completed university never shopped at supermarkets. Furthermore, significant differences ($P=0.002$) were found among education groups in relation to where people prefer to purchase their food (Chi-Square Test). While only 21.1% of respondents who had completed university preferred to shop at supermarkets, 60% of respondents with a graduate degree did. These results are hardly surprising given the relationship between education and income. This may simply be a function of wealth as more educated people tend to earn higher incomes and people with more disposable income are more likely to shop at supermarkets.

In terms of distance, a Chi-Square test determined that there were significant differences ($P=0.000$) in supermarket shopping among respondents living within close proximity to supermarkets and respondents living at a considerable distance from supermarkets. Those living within close proximity to supermarkets are more likely to purchase their food from supermarkets than those who live at a considerable distance from supermarkets. While 84.3% of respondents living within close proximity purchase some of their food from supermarkets, only 48.6% of respondents living at a considerable distance from supermarkets do. It is important to note here that our data show that respondents' household distance from supermarkets was highly correlated to income scores ($P=0.029$, T-Test). Data found that the mean income score of those living at a considerable distance from supermarkets was higher (2.33) than those living within close proximity to supermarkets (2.08). This indicates that households living at a considerable distance

from supermarkets were wealthier than those living within close proximity to supermarkets. Nevertheless, due to our sample this data may be skewed as the majority of our surveyed higher-income respondents lived at a considerable distance from supermarkets. In addition, significant differences (P=0.0009) were found among distance groups in relation to the frequency at which respondents shopped at supermarkets (Chi-Square test). For instance, while 35.3% of those living within close proximity to supermarkets shopped at supermarkets at least once a week, only 17.6% of those living at a considerable distance from supermarkets did. Moreover, while only 17.6% of those living within close proximity to supermarkets never shopped at supermarkets, 44.6% of those living at a considerable distance from supermarkets never shopped at supermarkets. Therefore, those who live closer to supermarkets are more likely to shop at supermarkets more frequently. No significant differences were found among distance groups in relation to preference of food retail outlet (Chi-Square test).

Overall, while these results are somewhat contradictory and suggested considerable variation in the population, survey results show that households' retail outlet choice was determined by several factors: 1) cost, 2) distance and location, 3) convenience, 4) food quality, 5) environment and shopping experience, 6) preference and selection, 7) food quantity, and 8) sociocultural appropriateness. Table 5 provides a description of each contributing factor, the number of times mentioned and illustrative quotes. The top three factors that influenced food retail outlet choice were cost; distance and location, and convenience respectively. See table 5 for full details.

Table 5 – List of factors contributing to food retail outlet choice, the number of times mentioned and some illustrative quotes.

Key themes:	Number of times mentioned in survey :	Number of times mentioned total (survey, focus groups, & expert interviews):	Illustrative quotation:
Cost	98	132	"We don't usually do our shopping at Shoprite, most of their prices are too high for us to afford." - Focus Group Participant "A 25Kg bag of rice at Shoprite costs about 150 cedi while at [...] Madina market it could cost as low as 100 cedi." - Focus Group Participant
Distance and Location	85	114	"The distance to Madina is not very long and [...] that is why I would like to shop there." - Focus Group Participant " Because of the distance from the supermarkets to most households across the city, it is not convenient in terms of time-cost to board a vehicle just to come and buy something small you may need for your cooking that day [...]" - Focus Group Participant
Convenience	59	80	"At the supermarket you can get everything you need in one place, whereas markets you need to walk from place to place. It saves time." -Survey Respondent
Food Quality	41	46	"The supermarkets have more hygienic [...] food and packaging as compared to the local markets."- Focus Group Participant "[...] things are done properly. The meat is inspected by the right authority and even those who handle the meats in the supermarkets have been well trained to do so. So you are assured that you are buying good quality meat." - Focus Group Participant
Environment and Shopping Experience	17	23	"[...] there's lots of traffic around the mall." - Survey Respondent "[...] there's good customer service." -Survey Respondent
Preference and Selection	18	23	"Supermarkets don't sell local food like cassava, unripe plantain and those are vital ingredients of regular Ghanaian dishes." - Survey Respondent

			"At supermarkets you only have one choice for tomatoes, whereas at markets lots of different women sell tomatoes, so if you don't like one you go to the next." - Survey Respondent
Food Quantity	15	19	"Supermarkets package products in bulk and some can't buy products in that form." - Survey respondent "I also buy from stands around the neighborhood when I need food items in little quantities. For example in Madina market, I can't buy 20 pesawas worth of onion there but in my neighborhood I can". -Focus Group Participant
Sociocultural Appropriateness	10	20	"In our culture, [we're] not use to going to supermarkets, [it's] part of [our] lifestyle to go to markets. That's what our mothers and grandmothers did." - Survey Respondent
TOTAL Counts	343	457	

The importance of cost when choosing a retail outlet was supported by our interviewed expert who confirmed that it was one of the biggest issues. Referring to supermarkets he expressed that, "There's a world of a difference in terms of price." He also suggested that "if [people] can afford it [they] would go [to supermarkets], but if they are poor, even if they live close to the supermarkets they will travel long distances to go and buy cheaper." Interviewed experts also cited the importance of convenience and quality. For instance, one expert argued that, "When people want to quickly get something and they have a busy schedule at work they would rather [go to] the supermarket and pick things up that [...] they can easily find there. It's at a cost to them, but at least they are able to save precious time that they can use to do other things."

In summary, having discussed consumer food shopping behaviours and the associated determinants, we have determined that although traditional food retailers are still major sources of food, people from all socioeconomic groups are patronizing supermarkets. Yet, wealthier and more educated households and those living within close proximity to supermarkets are more likely to obtain their food from supermarkets. In fact, the main barriers to shopping at supermarkets unsurprisingly appear to be the price of food and their location. The following section will discuss the link between supermarket shopping, food access and dietary patterns.

4.4.2 Linking Supermarkets with Food Access and Dietary Changes

According to the frequencies of survey results, when asked whether or not any of the elements of the HFIAS scale had improved since the development of supermarkets only 31.7% said yes and 68.3% said no. A T-test determined that there were statistically significant differences among income scores (P=0.012) in relation to those who experienced an improvement in the elements of the HFIAS scale and those who did not. In particular, the average income score of those who answered yes (2.43) was higher than those who answered no (2.12). This suggests that based on people's perceptions wealthier groups have benefitted the most from an increase in access to food due to supermarkets, while poorer groups have benefitted the least. As for education groups and distance groups, there were no significant differences in relation to improvements in the elements of the HFIAS scale (Chi-Square test).

Respondents were then asked follow-up open-ended questions about why some of the elements of the HFIAS and their food access had improved. Qualitative data was then analysed for common themes. From the respondents that expressed experiencing an improvement in the elements of the HFIAS and food access, improved access to preferred foods and a greater variety of foods (i.e. preference and selection) was the most cited reason for improvement in food access. For instance, a survey respondent stated that, "Some of the different varieties of foods I have come to enjoy can be found in the supermarket." Another suggested, "[...] when we need to buy different varieties of food not available in small shops close by we go to Shoprite." Another survey respondent specified, "Children have a wide choice of different varieties of biscuits and drinks to choose from", possibly indicating that people have access to a wider variety of processed foods at supermarkets. Preference and selection was then followed by convenience; food quality, distance and location, cost, food quantity, and environment and shopping experience respectively. In discussing the increased convenience supermarkets offer, one survey respondent stated: "At local markets you have to roam around for a long time before you find [canned foods and assorted drinks]. At supermarkets you know exactly where products are and you can go and get [them] faster." Another survey respondent said, "I now buy the majority of my food from Shoprite and I don't have to shop at various locations just one spot. This saves time." As for food quality, a survey respondent explained that, "When you go to the market you don't know how food has been prepared or kept. Sometimes it's unsafe, but supermarkets offer products that are well packaged,

cleaned and well kept. Supermarkets have improved access to safe food." Therefore, preference and selection, convenience, as well as food quality were the major factors in the improvement of food access linked to supermarkets. See table 6 for full details.

Table 6 - List of reasons respondents cited for an improvement in some of the elements of the Household Food Insecurity Access Scale (HFIAS) and the number of times mentioned.

Reasons for experiencing an improvement in the elements of the HFIAS and food access	**Preference and Selection**	**Convenience**	**Food Quality**	**Distance and Location**	**Cost**	**Food Quantity**	**Environ-ment and Shopping Experience**
Number of times mentioned in survey	54	29	26	20	18	8	445

In summary, the data suggest that improvements in food security linked to supermarkets in terms of access (HFIAS) are related to wealth. Although these results are not surprising given that these relationships have been illustrated in the food security literature, the following data show that respondents also have greater access to and an increased consumption of more processed foods which are a risk factor for obesity and diet related disease. In fact, a Chi-Square test found that there was a significant relationship (P=0.000) among those who experienced an improvement in some of the elements of the HFIAS in relation to those who experienced a change in the composition of their diet due to supermarkets. Specifically, 71.1% of those who cited an improvement in the elements of the HFIAS also cited that supermarkets had affected the composition of their diets. This reaffirms the link between food access and diet.

Overall, when respondents were asked whether supermarkets had affected the composition of their diets, 37.1% of respondents answered yes in that supermarkets gave them additional opportunities to consume certain foods, while 62.9% said no. Our data reveal that there are no significant differences among income scores (T-Test), education groups (Chi-Square test) and distance groups (Chi-Square Test) in relation to a change in diet. Of the 46 respondents who answered yes, an increase in the consumption of cereals (i.e. biscuits, bread, rice, breakfast cereal e.g. Kellogg's, and Indomie instant noodles) was cited 37 times; miscellaneous foods (i.e. soft

drinks, Milo, juice, energy drinks, tea, etc) were mentioned 34 times, and milk and dairy products (i.e. ice cream, yogurt and fresh milk) 23 times.[1] Foods defined by respondents as high in salt, sugar and fat (e.g. pizza, fries, chips, popcorn, pastries, cake, chocolate and other sweets) were mentioned 21 times. Overall, the increased consumption of processed foods was mentioned 107 times. Meanwhile, the increased consumption of fresh fruits and vegetables was only mentioned 5 times.

Although respondents often expressed that supermarkets were expensive, processed foods were stated as the one exception. Overall, respondents claimed that these dietary changes were linked to the growing ease of access to these types of foods due to price, convenience and location. For instance, referring to supermarkets a focus group respondent stated "[...] at other places I may not afford to buy 2 bottles of Coke, but when I go there I can buy 3." Another focus group respondent stated:

> "Many people will gradually shop at supermarkets more because of availability of packaged local foods like fufu and palm nuts nowadays. The traditional ones take a lot of time and effort to prepare. Supermarkets nowadays offer more processed food for example 'neat fufu' which are easier to handle [...]."

Moreover, survey respondents often stated that people living closer to supermarkets bought more processed foods.

Nevertheless, affordability is the major contributor to the increased consumption of processed foods; as our interviewed expert stated, "people's focus isn't on proper nutrition, but meeting food needs" and "processed food is less expensive." They explained:

> "Let's say [...] you need tomatoes to make gravy. Fresh tomatoes are more expensive than processed tomatoes, and so the amount of gravy that you will get [will be less since] you need to spend more to get fresh tomatoes. So if you are getting processed tomatoes you are going to spend less and I see people already doing that."

This was confirmed by our respondents who perceived supermarkets to sell cheaper processed foods. For instance, a survey respondent stated, "Sometimes there is no money to buy food but

[1] These results are supported by other data where we asked respondents where they purchased different types of food. This data show that the food groups most purchased from supermarkets were cereals, miscellaneous foods, milk and dairy products, meats and oils respectively.

because my husband shops [at supermarkets], there would be at least something to eat in the house for example drinks, biscuits, oil, rice, sardine." Another survey respondent added: "It's easy to access food such as bread and coca cola [...] because of supermarkets. I always have such quick drinks and foods around and so I don't go hungry."

Thus, improved access to these processed foods has played a role in the acceleration and accentuation of this trend. This is concerning, as an increased consumption of processed foods could lead to harmful diet-related health consequences. Our interviewed expert states:

> "I can only speculate because [...] most of the foods that are sold in supermarkets are processed foods. Of course if you are eating processed foods usually you have added components that are energy dense so they usually have high fats, simple sugars added to it to increase the shelf life and that would usually not have good implications for health."

This perception seems to be shared by many other focus group respondents, one explained: "These imported foods are what are harming our health, the canned and processed foods."

All in all, the main result that stands out of from the data is that supermarkets in Accra Ghana have not had a significant impact on food security across the various income, educational and distance groups but they have allowed respondents of all income groups to have greater access to, and an increased consumption of more processed foods. As will be explored in the following section, this may mean that the major effect of supermarkets is not food insecurity but rather to increase the risk associated with obesity and other chronic diet related diseases. We suspect that this trend may be increasingly relevant for lower-income households residing within close proximity to supermarkets, since the price of food, convenience and distance are important determinants of food choice and supermarkets have made these processed foods more affordable, convenient and easily available.

4.5 Discussion

According to this study, although traditional food retailers remain the major source of food for all households, more people, particularly wealthier, more educated households and those living within close proximity to supermarkets, are purchasing their food from supermarkets. At times, our quantitative and qualitative methods provided contradictory results. For instance, statistical analysis found that there was no relationship among income groups in relation to shopping at supermarkets. Yet qualitative data from both focus groups and expert interviews indicated that

wealthier households were more likely to shop at supermarkets. Both household socioeconomic characteristics (i.e. wealth, education and distance from supermarkets) and food retailer attributes (mainly cost, distance/location and convenience) contribute to food retail outlet choice (Chamhuri & Batt, 2013; Walker et al., 2011; Zameer & al., 2011; Maruyama & Trung, 2007; Terano et al., 2014; Gorton et al., 2009; Dong & Stewart, 2012). As for the implications of supermarkets on urban food security, overall, our results point to the following key trends:

(1) Modest changes in food security are linked to wealth, and are reflected in the increased convenience, and improved access to greater quality foods, and preferred foods offered by supermarkets.
(2) All income level households have experienced increased access to, and consumption of, processed foods mainly due to the cheaper prices, convenience and locations offered by supermarkets. This may be particularly relevant for lower-income households living within proximity to supermarkets.

In contrast to the literature reviewed at the beginning of this paper, the main results of this study provide evidence that supermarkets in Accra, Ghana, are only playing a modest role in changing urban food security. First, the majority of survey respondents reported not having experienced a change in the elements of the HFIAS due to supermarkets. Second, there is a strong association between those that had experienced a change in food security and wealth. In fact, higher-income households were most likely to experience a change in the elements of the HFIAS. This is consistent with Meng et al. (2014) who argue that supermarkets in Ghana are patronized by high-income households. More specifically, reported improvements in food access were linked to the convenience supermarkets offer and the improved access to higher quality and preferred foods. Meanwhile, the cost of food at supermarkets was rarely expressed as a contributing factor to increased food accessibility. For lower-income households, for which the cost of food is an essential determinant of food choice, there has been little change in food security. Consequently, we tentatively conclude that supermarkets mainly influence higher-income households. Although the economic access of upper-income households may remain unchanged, these modern food retailing outlets mainly offer improved convenience and increased access to better quality and preferred food. Thus, in Accra supermarkets provide higher-income households with a new food access point.

These results contradict to some extent the literature that suggests that supermarkets offer lower prices than traditional food retailers, and are thus accessible to all urban consumers. In his work, Reardon often argues that supermarkets increase the availability of safer, higher quality and less expensive foods, even for the urban poor (Reardon & Hopkins, 2006; Weatherspoon & Reardon, 2003; Neven et al., 2006; Minten et al., 2010). Although this is supported by similar studies conducted by Emongor and Kirsten (2009) and D'Haese and Huylenbroeck (2005), the data presented in this paper suggest a more nuanced view of this issue and in this way, our paper reinforces and provides additional evidence in support of the conclusions made by Crush & Frayne (2011) and Battersby (2012). The findings of these authors is similar to our data and suggest that foods sold in supermarkets are unaffordable for the urban poor due to the size of packaging required for purchase which adds to the total cost of items. Furthermore, Meng et al. (2014) conclude that supermarkets appeal to consumers with sufficient buying power; validating our research findings. As the growth of supermarkets continue and competition increases between modern retail formats, prices may decrease and become more affordable for the urban poor. However, according to our analysis this not currently the case nor will it be in the near future.

There is also strong evidence that supermarkets are contributing to urban dietary changes. Although fewer respondents experienced an increased consumption of foods, the changes occurring could have harmful diet-related health implications. From the households that increased their consumption of certain foods, unhealthy processed foods were often cited. This increased consumption of processed foods is likely due to the cheaper prices supermarkets offer, which makes them more affordable. Interviewed experts further supported this assertion by insisting that people are still struggling to meet food needs, and are thus not as preoccupied with nutrition. Lower-income households could be particularly vulnerable, as the price of food plays an important role in food choice. Nevertheless, this trend is almost exclusively relevant for lower-income households living within proximity to supermarkets, as distance still plays an important role in food access. Likewise, many respondents likely to be higher-income households expressed changing where they purchase their food (i.e. supermarkets), but not their diet. Interviewed experts asserted that although processed foods were available and consumed prior to the arrival of supermarkets, supermarkets have made them more readily available and accessible. Thus, we tentatively conclude that supermarkets are contributing to changing urban diets by promoting an increased consumption of processed foods which leads to a diet high in saturated fat, salt and

added-sugar. Consequently, supermarkets play a role in accelerating the nutritional transition which may lead to poor nutritional security, particularly for lower-income households.

The overall result, which is that supermarkets' main impact seems to be to increase access to processed food, is consistent with the literature that demonstrates that the increased availability and accessibility of new foods and drinks, linked to the drastically changing food system and the rise of supermarkets, contributes to shifting dietary patterns and diet-related chronic health conditions such as diabetes, heart disease and obesity ((Meng et al., 2014; Farley et al., 2009; Donkin et al., 2000; Popkin et al., 2011; Dake et al., 2016). Many argue that the modern food landscape, and in particular supermarkets, have affected diets, by increasing the spatial and economic accessibility and intake of cheaper processed and lower-quality foods, for example low-cost edible oils (Igumbor et al., 2012; Popkin et al., 2011). Some even argue that in some urban food systems, the supply and industrial food processing system have replaced traditional and nutrient-dense foods with foods and drinks that are energy-dense, nutritionally poor yet cheaper (Crush et al., 2011). Although supermarkets can also *increase* the availability and accessibility of a more diverse diet, they can *decrease* the ability of marginalised groups to access higher quality diets, and *promote* the consumption of energy-dense, nutrient-poor highly processed foods (Crush et al., 2011). Popkin et al., (2011) argue that households with limited income to acquire food would likely choose the cheapest cost per calorie option from the choices available. Therefore, as supermarkets increase the availability of cheaper processed foods and drinks, more financially insecure households will rely on these foods. Battersby & McLachlan (2013) have noted evidence of a dramatic shift in urban diets in South Africa, which have been characterised by a growth in the sales of snack bars, already made meals and noodles by over 40% between 2005 and 2010. They also noted an important consumption increase of Coca Cola products from 130 per person per year in 1992 to 254 per person per year in 2010 (Igumbor et al., 2012). As a result, urban diets are shifting towards diets high in saturated and trans fats, sugars, salt, low-fiber-refined foods, and processed foods and drinks which contain an excessive amount of these items (Battersby & McLachlan, 2013; Crush & Frayne, 2011; Popkin et al, 2011; Popkin & Larsen, 2004).

These major dietary changes have led to growing nutritional and health concerns, such as overnutrition and obesity in urban areas (Popkin et al., 2011; Popkin & Larsen, 2004; Crush et al., 2011; Battersby & McLachlan, 2013). For instance, Battersby and McLachlan (2013) noted that

in South Africa obesity in women increased from 27% in 2003 to 39.2% in 2012. Similarly, Crush et al. (2011) discussed a review of 28 studies which found that in urban West Africa, the prevalence of obesity more than doubled in the past 15 years. They also found that the increase in obesity was greater in lower-income rather than in higher-income individuals and households (Crush et al., 2011). In fact, the burden of obesity on a global scale is shifting towards the poor and rapid increases in overweight and obesity rates have been documented in the most impoverished countries of sub-Saharan Africa (Popkin & Larsen, 2004; Popkin et al., 2011; Crush et al., 2011). In Ghana specifically, a number of studies have found that in recent decades the prevalence of overweight people and obesity has been increasing (Crook et al., 2016; Dake et al., 2016). Urban areas, especially Accra, have the highest prevalence of overweight people and obesity (Crook et al., 2016). For instance, in the greater Accra region findings from a Women's health study of Accra determined that in 2008-2009 65% of women aged 18 and older were either overweight or obese (Benkeser et al., 2012).

Overnutrition and obesity have been linked to serious health implications such as energy deficiencies and low productivity (Crush & Frayne, 2011; Popkin et al., 2011), chronic malnutrition (Battersby & McLachlan, 2013), non-communicable diseases (Popkin et al., 2011) and chronic dietary diseases (Maxwell, 1998). Moreover, undernutrition and overnutrition have often been found in the same community; within the same household and even within the same individual (Crush et al., 2011; Popkin et al., 2011). The coexistence of undernutrition with overweight and obesity has been referred to as the "double burden" by many researchers, and is most prevalent in countries experiencing a nutrition transition (Crush et al., 2011; Doak et al., 2005; Popkin et al., 2011). Studies have shown that the coexistence of obesity and malnutrition in households is associated with socioeconomic factors such as urban residence and income, which has disproportionately affected the poor (Crush et al., 2011; Doak et al., 2005).

Undernutrition and overnutrition have often been viewed as separate issues. Yet they both are linked to food system challenges (Battersby & McLachlan, 2013). It is increasingly apparent that food systems impact food security and shape food consumption, and thus have significant health implications (Battersby & McLachlan, 2013). Supermarkets, being key players in food systems, are therefore influencing food and nutritional security. Thus, the expansion of

supermarkets will likely play a role in modern health concerns such as obesity (Michimi & Wimberly 2010).

4.6 Conclusions

Rapid urbanization and food supply system changes make urban food security increasingly problematic in sub-Saharan Africa. Food retail structures in these areas, more specifically, in Accra, Ghana, are experiencing important transformations, much of which is linked to the rise of supermarkets. Nonetheless, the extent to which the expansion of supermarkets will impact urban food security is less clear. This article addressed the food shopping patterns of urban consumers; the determinants of food retail outlet choice, the impacts of supermarkets on food access for varying socioeconomic groups, and the dietary changes associated with patronizing supermarkets. Our analysis reveals that although many urban consumers patronize supermarkets, traditional food retailers still dominate the food retail landscape. Additionally, wealthier and more educated households living within close proximity to supermarkets are more likely to purchase food from supermarkets. In fact, food retail outlet choice is determined by both socioeconomic characteristics and food retailer attributes.

As for food security, supermarkets have led to modest changes in food access that has mainly been experienced by higher-income households. Our data reveal that consumers in Accra perceive that supermarkets provide higher-income consumers with a new alternative food source that offers improved convenience, and increased access to greater quality and preferred foods. However, while supermarkets play a role in improving access to diverse food sources for wealthier consumers, overall, the perception of households was that foods sold in supermarkets were more expensive than traditional food retailers. Lower-income consumers still face economic barriers to patronizing and accessing foods sold in supermarkets. The food purchasing patterns of lower-income households in Accra highlight the current incompatibility of poor household consumption patterns with formal retail outlets such as supermarkets. In fact, supermarkets currently do not increase the economic accessibility to food.

Yet, supermarkets were found to sell cheaper processed foods and drinks that have become increasingly accessible to all consumers and particularly affordable for lower-income households. Consequently, the consumption of these processed foods and drinks has increased, particularly for

the urban poor living within close proximity to supermarkets. These dietary changes raise major nutritional and health concerns such as overnutrition and obesity. Coupled with undernutrition, urban households, and in particular poor urban consumers, are increasingly faced with a dual burden of undernutrition and overnutrition and obesity. This dual burden is associated with serious health implications and diet-related diseases. Although dietary guidelines, nutrition education and food marketing regulations are often suggested to combat this problem, the outcomes of these approaches will be to a great extent based on a wide range of dynamics and factors linked to food shopping choices. Ultimately, affordability, time constraints, physical access, and preference play an important role in food choice, regardless of nutritional value. Any actions to increase awareness of nutrition and promote the consumption of healthier foods need to be accompanied by attempts to make foods more accessible. Thus, healthier dietary patterns need to be affordable, physically accessible, time sensitive and culturally and contextually appropriate.

In addressing these topics, this article has contributed to the literature on supermarkets and urban food security in Accra, Ghana. Yet, questions remain regarding the impact supermarkets will have on urban food security in Western Africa and the role of supermarkets in dietary changes. Future research needs to fully address the relationship between food availability and consumer food choices at different food retail outlets, as well as associated consumption changes. As urbanization, population growth and climate change continue to increase pressure on food supply systems, understanding these dynamics will become ever more pressing.

CHAPTER FIVE – CONCLUSIONS

5.1 Summary of Arguments and Findings

Rapid urbanization and food supply system changes make urban food insecurity an increasingly problematic phenomenon in sub-Saharan Africa. Food retail structures in sub-Saharan Africa and more specifically Accra, Ghana are experiencing important transformations, much of which is linked to the rise of supermarkets. The understanding of these food system changes is critical as the food retail environment considerably influences lifestyle, consumption and everyday life. Food retailers, including supermarkets, affect urban food security in terms of food accessibility by the prices and products they offer, as well as their locations. This leads many scholars to question the ways in which this transition may affect food security. Although the rise of supermarkets has been well documented in the literature and many agree that this represents an important force in modifying the food supply chain (Reardon et al., 2003; Crush & Frayne, 2011; Humphrey, 2007), what the future food retail landscape will look like and to what extent the expansion of supermarkets will impact urban food security is less clear. At present, the literature on the effect of supermarkets on food security is sub-Saharan Africa is conflicted. Debates remain surrounding the affordability of food, the physical accessibility of supermarkets, the quality of food and the dietary implications of supermarkets.

Thus, to fill some of the gaps in the literature, this research has sought to explore and develop a greater understanding of how the growth of supermarkets is shaping food systems, and in turn urban food security in Western Africa, and more specifically Accra, Ghana. This study has sought to address household food retail shopping behaviours, the determinants that contribute to food retail outlet choice, how supermarkets have affected access to food for varying socioeconomic groups, and what the associated dietary changes are. In doing so, a case study in Accra, Ghana was completed as it is a large urban city in Western Africa that is rapidly urbanizing and being accompanied by a rapid expansion of supermarkets. This case study of Accra, Ghana illustrates the importance of researching the impact of supermarkets on urban food security from a consumer viewpoint. It is a vital approach in understanding consumer behaviour, which can have benefits for policy makers, traditional food retailers and supermarkets. Unfortunately, conducting consumer surveys linked to food consumption and diets are economically out of reach for many

developing countries (Kearney, 2010). Therefore, this research contributes and expands this literature by addressing consumer decisions.

Research findings were presented in chapter four in the manuscript. It presented findings from household surveys, focus groups and expert interviews. This chapter addressed the food shopping behaviours of urban consumers; the determinants of food retail outlet choice, and how supermarkets have affected food security in terms of access to food for varying socioeconomic groups and dietary changes. Our analysis reveals that although many urban consumers patronize supermarkets, traditional food retailers still dominate the food retail landscape. In addition, wealthier, more educated households and those living within close proximity to supermarkets are more likely to purchase food from supermarkets. In fact, food retail outlet choice is determined by both household socioeconomic characteristics such as income, education and distance from supermarkets, as well as food retailer attributes such as; cost, distance, convenience, food quality, environment and shopping experience, preference, food quantity, and sociocultural appropriateness. Nevertheless, different factors are more relevant to certain income groups and different food retail outlet shoppers.

In terms of food security, modest improvements in food access have been experienced due to supermarkets and these changes have often been experienced by higher-income households. These changes have taken the form of increased access to improved convenience, quality foods and preferred foods offered by supermarkets. In contrast to much of the literature, respondents expressed that foods sold in supermarkets were much more expensive than traditional food retailers. Thus, the price of food held little importance in the increased access to food.

In addressing these topics, our analysis was able to highlight the modest impacts supermarkets are currently having on urban food security, yet at the same time draw attention to the potential harmful consequences these impacts may have in the future. Our case study results reveal that supermarkets provide higher-income consumers with a new alternative method to obtain food, which offers improved convenience, and access to greater quality and preferred foods. However, while supermarkets play a role in improving access to diverse food sources, assuming that the presence of supermarkets improves food security oversimplifies the correlation between poverty, household purchasing strategies and modern and traditional food retail systems. Lower-income consumers still face economic barriers when it comes to accessing foods sold in

supermarkets. The food purchasing patterns of lower-income households in Accra highlight the current incompatibility of poor household consumption patterns with formal retail outlets such as supermarkets. Still, supermarkets were found to sell cheaper processed foods which have become increasingly accessible to all income groups, particularly for lower-income households living within close proximity to supermarkets. As a result, the consumption of these processed foods has increased, particularly for the urban poor.

This raises major nutritional and health concerns such as overnutrition and obesity. Coupled with undernutrition, urban households and in particular poor urban consumers are increasingly faced with a dual burden of undernutrition and overnutrition and obesity. This dual burden of undernutrition and overnutrition and obesity is associated with serious health implications and diet-related diseases, often referred to as the 'dual burden of disease'. Although dietary guidelines, nutrition education and food marketing regulations are often suggested to combat this problem, the outcomes of these approaches will be to a great extent based on a wide range of dynamics and factors linked to food shopping choices. Ultimately, affordability, time constraints, physical access, and preference play an important role in food choice, regardless of nutritional value. Any actions to increase awareness of nutrition and promote the consumption of healthier foods need to be accompanied by attempts to make foods more accessible. Thus, healthier dietary patterns need to be affordable, physically accessible, time sensitive and culturally and contextually appropriate.

5.2 Contributions of the Research

5.2.1 Practical Contributions

Although the influence of supermarket growth has been explored from a number of different perspectives, there are few studies that have investigated how the new food retail landscape in sub-Saharan Africa is affecting food security from the perspective of the consumer (Meng et al., 2014). Researching these changes from a consumer viewpoint is vital in understanding consumer behavior. This research engaged directly with urban consumers through household surveys and focus groups to identify household food shopping patterns and the factors contributing to these food shopping behaviours. These discussions offered participants a chance to voice their perspectives and discuss with others. This helped to understand what drives consumers

of different socioeconomic backgrounds to purchase their foodstuff from different food retailers. The results are, therefore, a small-scale example of urban consumer food shopping behaviours in Accra, Ghana that can contribute to a larger understanding of consumer profiles, food shopping determinants, the barriers to food access and urban dietary patterns.

The perceived factors to food retail outlet choice described by the consumer participants could reflect some of the factors affecting food access including socioeconomic characteristics which could highlight the barriers or determinants that are most important for different socioeconomic groups such as lower, middle and upper-income households. These factors could also reflect varying food retailer attributes that encourage or deter households from purchasing certain foods from their retail outlets. Therefore, this research could serve to inform discussions on how to develop and deliver food and/or nutritional security initiatives. Research from a consumer standpoint provides insights that can steer strategies by identifying the consumer profiles of different food retailers. Understanding food retail changes and the impacts of these changes from a consumer viewpoint is crucial for policy makers who are involved in improving consumer diets (Meng et al., 2014). Additionally, traditional food retailers can benefit from this information as it can provide recommendations on how to improve their products and services in order to attract consumers and remain economically viable. Such an analysis also offers thorough information on the food supply chain that can help supermarkets make decisions related to entering markets and/or expanding to new niches, as to reach a larger number of consumers.

5.2.2 Scholarly Contributions

The major contributions to the literature are found in Chapter Four of the manuscript that highlight a case study of the rapid growth of supermarkets and its impacts on urban food security in Accra, Ghana. This research helps to address an important gap in the growing literature concerning changing food supply systems and the modernization of food retail, and its implications on urban food security. More specifically, it contributes to the scholarly work of supermarketisation and urban food security in sub-Saharan Africa, particularly Western Africa, which is a topic currently under-researched in this region. Given that in recent years supermarkets have begun to expand rapidly in these regions, studying and understanding how supermarkets will change the food supply system and, in turn, urban food security, particularly in a context of rapid urbanization will make bridging this gap in the literature ever more pressing.

This case study highlights some of the contradictions in the literature, for instance the limited accessibility and affordability of food found in supermarkets, particularly for the urban poor, and the potentially harmful health-related consequences of dietary changes linked to patronizing supermarkets. Thus, this study opposes common conceptions that suggest that supermarkets improve food security for all urban consumers, as according to our sampled population supermarkets are currently not found to offer cheaper food, with the exception of certain highly processed and unhealthy foods. It also demonstrates the utmost importance of cost as a barrier to food access for most of the sampled population, yet the growing importance of food quality and safety, as well as preference for those who can afford it. Therefore, it offers a more nuanced understanding of the role and impact of supermarkets on urban food security. Nevertheless, this study offers a snapshot in time of the early stages of the supermarketisation phenomenon in Accra, Ghana. Thus, it contributes to the understanding of the role of supermarkets and its impacts on urban food security during an earlier stage of supermarket diffusion. In time, it will be important to continue to document the expansion of supermarkets in this region and evaluate any additional transformations along the way. As more supermarkets spread in Accra, it will be interesting to note whether the physical accessibility to food increases and whether the competition between these supermarkets result in a price decrease leading to improved financial accessibility to food.

5.3 Research Limitations and Future Research Opportunities

This thesis sought to explore the impact of supermarketisation on urban food security by providing insights from consumers on their food shopping experiences, their access to supermarkets and their diets. While some of the results represent trends that are generalizable to urban consumers in Accra as well as consumers in a wider context, the findings from this research are constrained in pursuing a more comprehensive understanding of the supermarketisation phenomenon and its impact on urban food security as the findings stem from a small group of participants. For instance, traditional food retailers in Accra still dominate the food retailer landscape and in most instances supermarket shopping patterns are influenced by several socioeconomic characteristics (i.e. income, education and distance). In Accra, the higher prices of food in supermarkets limit who can access their food, with the exception of cheaper processed foods which are being increasingly consumed. However, in other regions the food retail landscape

could be much different. In comparison to Accra, the food retail landscape in other regions could be much less diverse, have a weaker presence of traditional food retailers and a stronger presence of supermarkets. This could influence supermarket pricing and locations, which could affected the accessibility to food for different socioeconomic groups. Nevertheless, as long as supermarkets continue to offer large quantities of processed foods, consumers patronizing supermarkets will likely consume more processed foods. Although these findings cannot all be generalized to other contexts, this research can provide a starting point for more extensive research into supermarkets and urban food security in sub-Saharan Africa.

Although this study has contributed to the literature on supermarkets and urban food security in Accra, Ghana, there is still little research on the impact supermarkets will have on urban food security in Western Africa. Research gaps remain concerning the role of supermarkets in dietary changes and future research needs to fully address the relationship between food availability and consumer food choices at different food retail outlets, as well as associated consumption changes. As urbanization, population growth and climate change continue to grow and put increasing pressure on food supply systems, understanding these dynamics will become ever more pressing.

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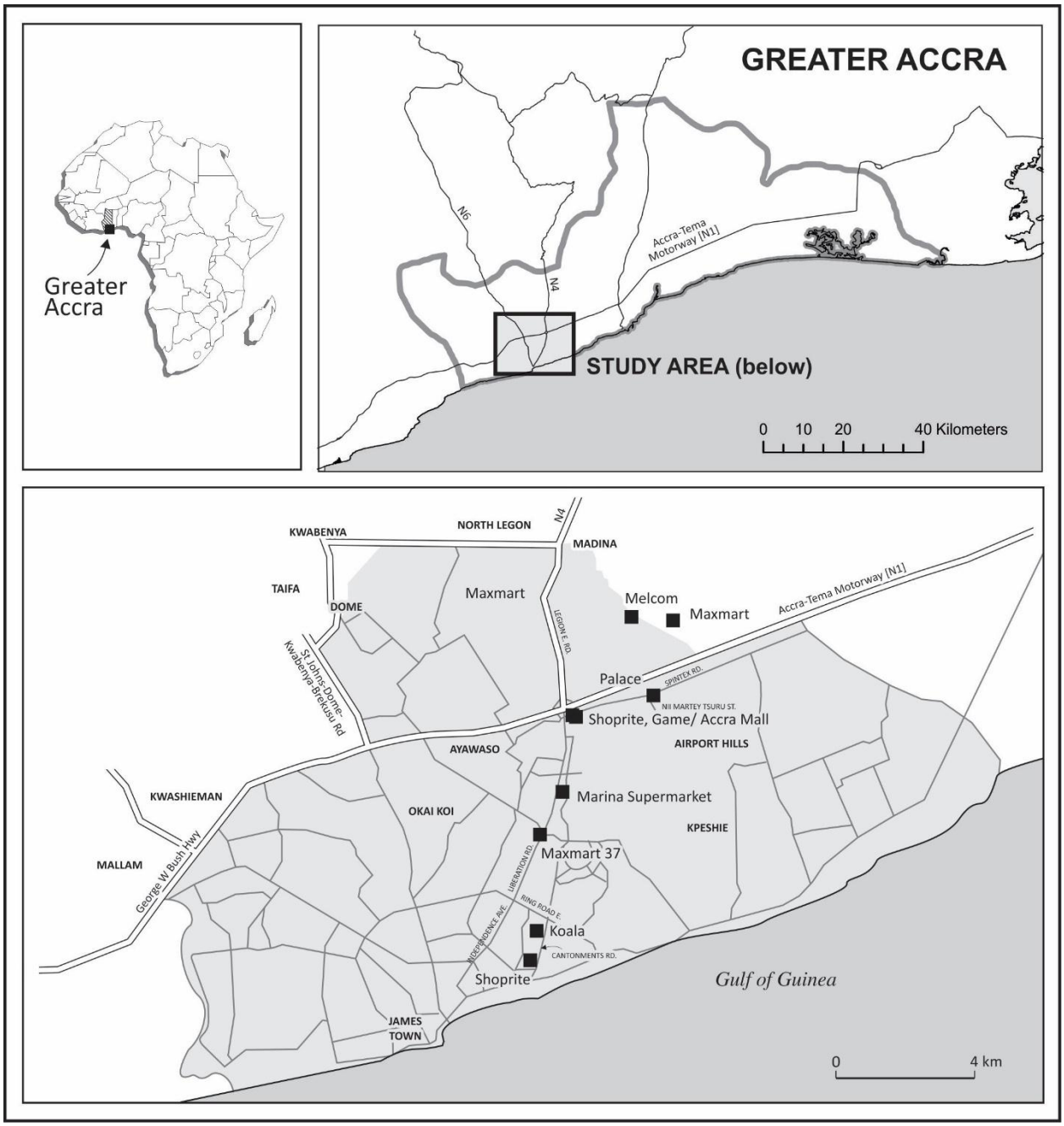
Appendix 1

Figure 2 - Map of the study area, the capital of the Greater Accra region, Accra, Ghana.



Appendix 2

Survey questionnaire guide.

Q1 Identification of Survey Information and Household

	Fill in table
Survey Number (1)	
Date (2)	
Time (3)	
Zone (4)	
Street (5)	
Research Assistant (6)	
What material is used to construct the walls of the house? (Mud/mud bricks - Stone - Burnt bricks – Cement - Wood/bamboo - Iron sheets or name of other type of material) (7)	
What is the predominant material in the roof of of the dwelling occupied by the household? (8)	
Other (9)	

Project Information and Informed Consent

Project Description

Urban food security is an emerging area of development concern and academic enquiry, and which is fundamentally different to questions of food security within the rural and agricultural sectors. Likewise, the rise in supermarkets is a relatively new trend which could have great implications

for food security, yet this process is not well understood. Thus, in order to carry out informed and effective training and capacity building activities, the first step is to build the knowledge base concerning urban food security and poverty in the region. This household survey is the first step in this process of building a knowledge resource base, and will be carried out in various neighborhoods in Accra, Ghana. This project is funded and implemented by the University of Guelph. The project is a response to poverty and food insecurity in West Africa and more specifically Ghana which addresses the potential impact of supermarkets.

Consent

READ OUT ALOUD

I am working as a Researcher for the University of Guelph in Canada. We are talking to people in Accra about food security, their diet, how they get food and other important related social and economic issues. Your household has been randomly selected and we would like to discuss these issues with yourself, or an adult member of your household. Your opinions will help us to get a better idea about how people in Accra feel about these issues. There are no right or wrong answers. The interview will take about 30 minutes. They will be put together with over 150 other people we are talking to in Accra to get an overall picture. We will not be recording your name, and it will be impossible to pick you out from what you say, so please feel free to tell us what you think.

Are you willing to participate? (CIRCLE THE ANSWER GIVEN)

Yes…1 OR No…2

IF NO: READ OUT: Thank you for your time. Goodbye.

IF YES: IF WILLING TO PARTICIPATE, READ OUT THE FOLLOWING:

Thank you for agreeing to participate in this study. Just to emphasize, we are not recording either your address or your name, so you will remain anonymous. You have the right to terminate this interview at any time, and you have the right to refuse to answer any questions you might not want to respond to.

Is it ok if we record this interview through pen and paper? Circle one.

Yes OR No

Are there any questions you wish to ask before we begin?

Specify: _____

SECTION 1 - Spatial and Demographic Traits

Q2 Are you the head of the household? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q3 If NO, what is your relationship with head? Please check one.

- ❑ Spouse of head (1)
- ❑ Unmarried child of head (2)
- ❑ Married Child of head (3)
- ❑ Daughter- in- law/son-in-law of Head (4)
- ❑ Grand child of head (5)
- ❑ Father/mother of Head or spouse of Head (6)
- ❑ Grandfather/grandmother of Head or spouse of Head (7)
- ❑ Brother/sister of Head or spouse of Head (8)
- ❑ Other relatives of Head or spouse of Head (9)
- ❑ Housemaid (10)
- ❑ Others who are not related to Head or spouse of Head (11)
- ❑ Other: (12) _____

Q4 What is your age range? Check one.

- ❍ 18-24 years old (1)
- ❍ 25-34 years old (2)
- ❍ 35-44 years old (3)
- ❍ 45-54 years old (4)
- ❍ 55-64 years old (5)
- ❍ 65 years or older (6)

Q5 What is your gender? Check one.

- ❍ Male (1)
- ❍ Female (2)

Q6 What is your marital status? Check one.

- ❍ Never married (1)
- ❍ Married (2)
- ❍ Living together/cohabitating (3)
- ❍ Divorced (4)
- ❍ Separated (5)
- ❍ Abandoned (6)
- ❍ Widowed (7)

Q7 What is your highest level of education? Check one.

- ❍ No formal schooling (1)
- ❍ Some Primary (2)
- ❍ Primary completed (Junior or Senior) (3)
- ❍ Some high school (4)
- ❍ High school completed (5)
- ❍ Post secondary qualifications not university (diploma, or degree from college) (6)
- ❍ Some university (7)
- ❍ University completed (8)
- ❍ Post-graduate(MA/MSC/PhD) (9)

Q8 What is your occupation?

Q9 What is your work status? Check one.

- ❍ Working full-time (1)
- ❍ Working part-time/ casual (2)
- ❍ Not working - looking (3)
- ❍ Not working - not looking (4)
- ❍ Other (note other): (5) _____

Q10 How many people live in your household?

Q11 How many people in the household are employed?

Q12 What are other sources of income?

Q13 Does the household or a household member own the dwelling? Please check one.

- ❑ Owns the dwelling (1)
- ❑ Rents the dwelling (2)
- ❑ Uses without paying rent (3)
- ❑ Temporary dwelling (4)
- ❑ Other: (5) _____

SECTION 2 - Sourcing of Food and Dietary Patterns

Q14 Where does this household usually purchase their food? Check all that apply.

- ❑ Supermarket (1)
- ❑ Small Shop/restaurant/take away (2)
- ❑ Informal market/street food (3)
- ❑ Grow it (4)
- ❑ Food aid (5)
- ❑ Remittances (food) (6)
- ❑ Shared meal with neighbors and/or other households (7)
- ❑ Food provided by neighbors and/or other households (8)
- ❑ Community food kitchen (9)
- ❑ Borrow from others (10)
- ❑ Other (specify): (11)

  _____

Q15 How often does the household usually purchase foods from these sources? Check one for each category.

	At least once a week (1)	Every other week (2)	At least once a month (3)	At least once every six months (4)	Never (5)
Supermarkets (1)	❍	❍	❍	❍	❍
Traditional Food Retailers (2)	❍	❍	❍	❍	❍

Q16 How much do you usually spend on food at supermarkets in one shopping trip? (In Ghanaian Cedi)

Q17 How much do you usually spend on food at traditional food retailers in one shopping trip? (In Ghanaian Cedi)

Q18 Where do you prefer to buy the majority of your household food?

Q19 Why do you prefer shopping at this/these location(s)?

Q20 Are you able to buy the majority of your food from your preferred food market(s)? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q21 If NO, why?

Q22 How do you normally get to your preferred food market?

Q23 How long does it usually take you to get to your preferred food market? (In minutes)

Q24 How much does it usually cost you to travel to your preferred food market? (In Ghanaian Cedi)

Q25 Have you witnessed a change in your ability to access food since the arrival of supermarkets? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q26 If yes, how?

Q27 Have you witnessed any changes to traditional food vendors since the development of supermarkets? Check one.

1. A change in the number of traditional food vendors?
2. A change in the type of food they sell?
3. A change in the prices the offer?
4. Other

- ❍ Yes (1)
- ❍ No (2)

Q28 If YES, please explain.

Q29 Overall, what do you think of supermarkets and what they offer?

Q30 Fill in the following table below.	Have you or anyone else in your household eaten this/these items in the past 24 hours?		How often do you purchase this/these food items?	Where do you purchase this/these item(s)? (supermarkets, traditional food retailers, or other - specify)
	yes (1)	no (2)	Circle one.	Please fill in box (1)
1. Local food, bread, rice, noodles, biscuits or any other foods made from millet, sorghum, maize, rice, wheat, or locally available grain? (1)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
2. Potatoes, yams, manioc, cassava or any other foods made from roots or tubers? (2)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
3. Vegetables? (3)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	

4. Fruits? (4)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
5. Beef, pork, lamb, goat, rabbit, wild game, chicken, duck, other birds, liver, kidney, heart, or other organ meats? (5)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
6. Eggs? (6)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
7. Fresh or fried fish or shellfish? (7)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
8. Foods made from beans, peas, lentils, or nuts? (8)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
9. Cheese, yogurt, milk or other milk products? (9)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
10. Foods made with oil, fat, or butter? (10)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months	

			7. Never	
11. Sugar or honey? (11)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	
12. Other foods, such as condiments, coffee, tea? (12)	❍	❍	1. Every day 2. Several times a week 3. Once a week 4. Every other week 5. At least once a month 6. At least once every six months 7. Never	

Q31 Has your consumption of specific foods increased because of supermarkets? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q32 If YES, please explain.

Q33 In the future do you think supermarkets would have an impact on what people eat? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q34 If YES, please explain.

Q35 If you lived closer to a supermarket do you think your diet or access to food would change? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q36 Please explain.

SECTION 3 - Household Level of Food Security

Q37 Household Food Insecurity Access Scale (HFIAS)

(READ the list and categories and choose only ONE answer for each question)

Household Food Insecurity Access Scale (HFIAS) for last four weeks:

	No (Answer to question is no) (1)	Rarely (once or twice) (2)	Sometimes (3 to 10 times) (3)	Often (more than 10 times) (4)
In the past four weeks, did you worry that your household would not have enough food? (1)	❍	❍	❍	❍
In the past four weeks were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? (2)	❍	❍	❍	❍
In the past four weeks did you or any household member have to eat a limited variety of foods due to a lack of resources? (3)	❍	❍	❍	❍
In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food? (4)	❍	❍	❍	❍
In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food? (5)	❍	❍	❍	❍
In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food? (6)	❍	❍	❍	❍
In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food? (7)	❍	❍	❍	❍
In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food? (8)	❍	❍	❍	❍
In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food? (9)	❍	❍	❍	❍
In the past week, did you or any household member eat a cooked meal less than once a day? (10)	❍	❍	❍	❍

Q38 Do you think any of the above elements of the HFIAS have changed since the rise of supermarkets? Check one.

- ❍ Yes (1)
- ❍ No (2)

Q39 Please explain.

The questions for this survey are now completed. However, before we end is there anything in particular that you would like to add to what you have said or anything you would like to change?

Do you have any questions that you would like to ask?

Thank you very much for taking the time to speak with us. The information you have provided is very valuable and we appreciate you sharing it with us. Just to reiterate, since we have not recorded your family name or address no one can link what you have said to you or this household, so your confidentiality is totally guaranteed.