Food, Farming and Health in Ugandan Secondary Cities

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4) Food Sources and Access Strategies in Ugandan Secondary Cities: An Intersectional Analysis (Accepted and in Press)
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AFSUN</td>
<td>African Food Security Urban Network</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>DBM</td>
<td>Double burden malnutrition</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>HDDS</td>
<td>Household Dietary Diversity Score</td>
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<td>HFIAP</td>
<td>Household Food Insecurity Access Prevalence</td>
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<td>HFIASS</td>
<td>Household Food Insecure Access Scaled Score</td>
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<tr>
<td>LPI</td>
<td>Lived Poverty Index</td>
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<tr>
<td>NCD(s)</td>
<td>Non-communicable disease(s)</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organisation</td>
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<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
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<td>UA</td>
<td>Urban agriculture</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>WHO</td>
<td>World Health Organization</td>
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PART I: SCENE SETTING
1 INTRODUCTION

1.1 Wider Research Context

This thesis arose from an interest in food and farming within African cities. I was inspired by two sets of research findings garnering attention around the time I applied for my PhD funding in 2014. The first came from research within the health and nutrition sector highlighting a growing non-communicable disease burden (NCD) such as obesity, heart disease, diabetes, and hypertension in urban populations of Sub-Saharan Africa (SSA) (Parnell and Pieterse 2014, WHO 2014, Swinburn et al. 2013, Dalal 2011). Related to this was discussion of a phenomenon termed the double burden of malnutrition (DBM) whereby a population is simultaneously affected by problems of undernutrition and problems of over-nutrition (Shrimpton and Rokx 2013, Popkin, Adair and Ng 2012).

The second research strand that I found interesting regarded links between farming and health. I was intrigued by claims from international development agencies (FAO 2013, HKI 2013), as well as urban agriculture researchers (Prain, Karanja and Lee-Smith 2010, Cole, Lee-Smith and Nasinyama 2008, Egziabher et al. 1994), that households that grow/rear their own food were likely to have better dietary diversity and food security status, and thus better nutrition and health outcomes than households that did not farm. De Zeeuw and colleagues note that ‘Urban households that are involved in some sort of farming or gardening are more food secure, have a better and more diverse diet, and eat more vegetables than non-farming households’ (de Zeeuw, Van Veenhuizen and Dubbeling 2011, 155). Yet much of the research from which these two sets of claims were extrapolated came from larger cities, capital cities, and megacities (Thornton 2008).

This thesis contributes to countering this city-scale bias by focusing on the food, farming and health practices and experiences of urban-based households in secondary cities. I was interested in exploring whether these phenomena (NCDs and DBM), and the proposition that growing one’s own food might help food security and nutritional status (Haddad et al. 2015, FAO 2013, Maxwell, Levin and Csete 1998), were in evidence in just such secondary cities of Uganda. In addition, it is secondary cities where the greatest urban growth and transformation are predicted to occur in the coming decades, particularly in SSA (Parnell and Pieterse 2014, Berdegué, Proctor and Cazzuffi 2014, Satterthwaite, McGranahan and Tacoli 2010). Researchers increasingly recognise that it is secondary cities and smaller cities that are more representative of the majority of urban areas within Africa, and that are experiencing the most rapid growth (Martellozzo et al. 2014, Cohen 2004). The overarching goal to which I hope my research will
contribute is that of reduced poverty, improved food security and greater well-being for urban residents of Uganda and perhaps beyond.

1.2 Theoretical Points of Departure

I frame my research around nutrition transition theory as articulated by agricultural economist and Professor of Nutrition, Barry Popkin (Popkin 1994, Popkin 2001) and economists such as Prabhu Pingali (Pingali 2007). The starting point is the theorised food system, nutrition and epidemiologic transitions predicted to occur with urban development (Popkin 1994, Drewnowski and Popkin 1997, Popkin 1998, Popkin 2001, Popkin et al. 2012). Nutrition transition theory posits that as societies concentrate in cities, density increases and the economic and social structures of daily life change (compared to more rural/less dense life), and these combine to create more sedentary urban lifestyles where there is less time available, and less need, for own food production, or even cooking. This theory comes from the public health sector’s concern about clear practical problems apparent in the intertwined food, farming and health trajectories of the urban and urbanising places of the world, but it extends ideas from modernisation theory propositions (Nhema 2016). This initial conceptual framework is described in further detail in Chapter 2.

Many contentions regarding food, farming and health in growing urban areas are influenced by this way of thinking and by historical experience from the Global North, and from large cities (Thornton 2008, Robinson 2006). This thesis interrogates this conceptualisation of urban life and explores how useful such framing is for the residents of two Ugandan secondary cities: Mbale and Mbarara. Figure 1 shows a map of Uganda, with the cities’ location. Geography is a subject particularly well situated for exploring complex human-environment interactions, drawing from a range of disciplines (Slocum 2011). I interrogate the urban food environment and the nutritional and epidemiological context of Mbale and Mbarara from a feminist geographic and intersectional perspective. In particular, I draw from the feminist geographic perspectives of, for example, Linda McDowell (McDowell 1999) and Doreen Massey (Massey 2010, Massey 2005, 2004, Massey 1991) on the relationships between space, capital and power, and the intersectional understandings of Kimberlé Crenshaw (Cho, Crenshaw and McCall 2013) and Gill Valentine (Valentine 2007). Chapter 2 clarifies these theoretical perspectives and how I relate, and contribute, to them.
Figure 1: Map of Uganda showing Study Cities of Mbale and Mbarara (circled)

Source: Created by author using national geographic base map data available in ArcMap
Implicit within the research problems and predictions of urban lifestyle and nutritional transitions is (all too often) the assumption of an urban developmental trajectory that will follow historical trends and experiences of Global Northern cities (Nhema 2016, IBRD 2009, Tipps 1973). Yet many are wary of such assumptions (Turok 2016, Nhema 2016, Turok 2014, Turok and McGranahan 2013, Hettne 2009, Tipps 1973). In addition, researchers have called for improved understanding of the complex links between food, diets, agricultural practice, and health and nutrition outcomes: food, farming and health I say in shorthand (Webb 2013, Fan and Pandya-Lorch 2012, Haddad et al. 2015). I thus formed my research question out of this theoretical and empirical background and intellectual intrigue. I wanted to interrogate, in the Ugandan secondary city context, these phenomena. I wanted to specify and contextualise, and I wanted to ask the ‘for whom’, ‘under what circumstances’, and ‘why’ type of questions. Such questioning belies my third wave feministic approach to research (Moss 2002) (elaborated on in Chapter 2), which is interested in exploring varying aspects of difference with the aim of contributing to socially just societies. Thus, I set out the following overarching research question:

What are the characteristics of the food, farming and health environments of Ugandan secondary cities, and how are these experienced and understood locally?

I chose to operationalise this research question by studying two specific secondary cities: Mbale and Mbarara. I describe the rationale behind this in Section 1.4. I further broke this overall research question into four sub-questions (hereafter referred to as numbered research questions):

1) What is the status of Mbale/Mbarara households’ food, farming and health environments at this moment in their development trajectory?

2) What factors may be influencing which Mbale/Mbarara households farm, and where they farm?

3) How are the food and health environments (particularly dietary diversity, food security and obesity) of urban communities represented and interpreted by local healthcare professionals?

4) What are the food environment characteristics, food sources and access strategies, of urban residents in Mbale and Mbarara? What insights may be gained from an intersectional analysis of similarity and difference?
Each manuscript in this thesis addresses one of these questions. I chose to explore the first and second research questions with quantitative methods, using a large household survey, and statistical analyses, to describe and measure patterns of similarity or difference. I chose qualitative methods of focus groups and biographic interviews to explore the third and fourth research questions, focused as they were upon perceptions, interpretations and experiences. Such interest in lived experiences requires qualitative research methods (Winchester and Rofe 2016). The data analysis encompasses a mix of statistical, spatial and content analysis, in separate papers. Overall, the thesis takes a synergistic approach which places equal value on different methods and in which the findings from multiple methods are ‘interacted so that their combined effect was greater than the sum of the individual parts’ (Creswell 2011, 279).

1.4 Definitions

Before proceeding, it is necessary to define what I mean when I talk about agriculture or farming, and what I mean by urbanisation, urban growth and by secondary cities:

I use the terms farming and agriculture interchangeably throughout my work. In both instances, I am referring to the growth, or rearing, of food or non-food products. Food products include, but are not limited to staple crops such as maize, cassava, grains or tubers; fruit or vegetables; meat; milk; fish; poultry; or bee-keeping for honey production. Non-food products include charcoal, rope, fibres or other forms of fuel or wood. Cash crops include but are not limited to coffee, tea, sugar, cashew nuts, and oil palm. I consider all levels of agricultural production from subsistence to commercial scales, on any kind of land tenure. Urban agriculture (UA) occurs within the boundaries of the city and includes any of those activities listed above, from subsistence to commercial scales. The farming may be an illegal or legal, planned or unplanned activity, on public, private or institutional land, and the produce may remain within the urban area or be transported outside the city.

When I write of urbanisation I am referring to a situation whereby a country or region has a rising share of urban-based population relative to rural-based population (Satterthwaite et al. 2010). Urban growth refers to the increase in the population size of urban areas. This can be a result of rural-to-urban migration, but is also often due to the natural population growth of the urban areas themselves, and to a country’s own reclassification of rural areas, villages or towns as urban (Satterthwaite et al. 2010).
At the time of research, Uganda had only one officially designated ‘city’; and this was its primary city, the capital of Kampala with 1.5 million residents in 2016 (UBoS 2016, Lwasa 2011). Primacy implies a dominance in the urban hierarchy and resource allocations (Berdegué et al. 2014), and indeed Kampala has traditionally attracted a large proportion of public urban funds (Henderson 2002, Parnell and Pieterse 2014). It is during the post-colonial era (since 1962) that Kampala’s primacy has grown significantly (Mukwaya, Sengendo and Lwasa 2010). The capital city has traditionally dwarfed any other urban region in Uganda, being home to more than 80% of the country’s industrial and service sectors (Goodfellow 2010). However, this is changing rapidly with the rise of the secondary towns. I work with two of these secondary towns or cities. By this, I mean secondary for the urban profile of Uganda (Andreasen et al. 2017, Berdegué et al. 2014). The population and areal extent of a secondary city will vary by country (ibid). Secondary cities usually hold key regional, administrative or trading positions within the urban profile of a country (Andreasen et al. 2017), and this is true of both Mbarara and Mbale. I describe why this urban level is interesting and relevant in the next section.

1.5 Research Rationale

Why Uganda? Why these cities? Why two cities? Why food, farming and health? This section answers these questions, outlining the rationale for my research.

Why Uganda? Uganda and ‘urban’ are not intimate bed mates. Indeed, Uganda remains one of the lesser urbanised countries of Sub-Saharan Africa, with a lower level of urban-based population than many other African countries (Haggblade et al. 2016, Goodfellow 2017). However, the country’s total urban population has risen rapidly since the 1990s and was cited at six million in 2014 (UN-HABITAT 2016, 8). This represents a doubling of the urban-based population in just 12 years from a 2002 urban population of circa. three million (Lwasa 2011). UNDESA cited a 24% urban population in 2018 (UNDESA 2018). This is projected to rise to 30% by 2035 (UN-HABITAT 2016, 7).

In 2002, Kampala comprised 41% of the country’s urban population (Mukwaya et al. 2010), declining to 25% in 2014 (UN-HABITAT 2016, 9) with the rapid growth of Uganda’s secondary towns. The average urban growth rate in Uganda was 5.2% per annum (2014 data) (UN-HABITAT 2016, 7). The majority of this growth was in the secondary cities with Mbale growing at an average 2% per annum and Mbarara at 8.6% per annum (UN-HABITAT 2016, 9). This growth rate puts Mbarara within the country’s top five urban growth centres, expanding more rapidly than Kampala itself (UN-HABITAT 2016). It is
exactly this recent (and projected) rate of urbanisation and growth, as well as an increasingly entrenched urbanised poverty, and the growing challenges facing authorities in urban service provision, informality, unemployment and environmental management that have focused attention on Ugandan urban issues (UN-HABITAT 2016, Brown 2014, Lwasa 2011, Mukwaya et al. 2010). Indeed, as the Country Programme Report for Ugandan urban development, produced by UN-HABITAT, notes:

‘while the secondary towns are still relatively small, unless they are managed properly they will grow into large unplanned settlements over time. Uganda has the rare opportunity to proactively manage urbanization with the secondary towns to ensure a better future for its residents’ (UN-HABITAT 2016, 7)

Uganda fits the category of a late-onset urbaniser, displaying a speculative urbanism found in many East African cities (Goodfellow 2017, Parnell and Pieterse 2014). This encompasses a tendency (in the absence of industrial opportunity) to invest in land and real estate as a Lefebvrian secondary circuit of capital (Goodfellow 2017, Brenner 2009). Demographically, Uganda has an extremely young population (a youth bulge) which can be viewed as both presenting great potential, and/or being one of the country’s greatest challenges. It ranks 46 in the world’s list of the top 80 countries with the largest share of youth (defined as 15-24 years) in the population, at 20% (Ortiz and Cummins 2012, 9). Youth unemployment is among the highest in Africa with estimates in the range of 61.6% (Renzaho, Kamara and Kamanga 2016, Tukundane et al. 2015). The consequent poverty of this younger population is of serious concern, and the opportunities for upcoming generations on the labour market appear far worse than those available to preceding generations (Datzberger 2018, Reid 2017, Ngoma and Ntale 2016). Uganda’s youth poverty rates are considered one of the highest in Sub-Saharan Africa, with one study suggesting that 94% of Ugandan youth (here defined as 18-30 years old) live in poverty (on less than US$2/day) (McFarlane and Silver 2017). These demographic and labour market challenges, combined with the urbanising trends described above, mean the country sits on a potentially explosive vulnerability, making research in the context of great pertinence.

Finally, Uganda is considered to be at an early stage of food system and nutritional transitions (Haggblade et al. 2016, Haggblade et al. 2015). Thus the country may be in a unique position to learn from other countries’ experiences and make early interventions to their benefit, and may be able to ‘bend the curve in their nutrition transition onto a more favorable trajectory’ (Haggblade et al. 2015, iv). To do this, however, requires research. We need to know where Uganda’s urban population’s experience now is in terms of their access to, and sourcing of, food. We need to get a sense of urban
residents’ attitudes to nutrition and their knowledge and awareness of health risks related to diets. We need to investigate the daily diets and routines of diverse urban inhabitants. My research makes such a contribution.

Why these cities? I might paraphrase David Simon here: ‘What of the many unexceptional large, intermediate and small cities worldwide?’ (Simon 2007, 363). Ideas from nutrition theory and concerns with double burden malnutrition, claims concerning the role of agriculture for urban African residents, debates on food environments and food deserts, and conceptualisations of ‘the city’ have generally been made from studies of the same cities time and again. These tend to be capital cities or megacities: Lagos, Dar es Salaam, Addis Ababa, Nairobi, Kampala, Accra, Johannesburg, Cape Town, Lusaka, Harare, Lilongwe (see for example: Prain et al. (2010); Cole et al. (2008); Egziabher et al. (1994); Lee-Smith (2010); Myers (2010); Myers (2011); Haggblade et al. (2016); Shrimpton and Rokx (2013); Crush, Frayne and Pendleton (2012); Battersby and Crush (2016); Robinson (2006)). I find problematic the implicit assumption that other cities would just follow the leader. This is the first reason why I chose Mbale and Mbarara. There is, undeniably, a form of size (medium), hierarchical (secondary) and scalar selection (less than 100,000 inhabitants) here, beyond that they are understudied. However, I do not view any of these classifications as essentialising. I am also not trying to reach for a holistic view of each city, or of all Ugandan medium-sized cities but rather for a conjunctural analysis (Robinson 2015) and relational (Ward 2008) co-constructed (McDowell 1999) investigation of varied people’s daily food, farming and health experiences and interpretations. My object of study is not the cities themselves per se, but the lives enabled and constrained within them (refer to Herrick (2017) and Robinson (2015)), and why certain experiences and views might be evident within and between these places. I aim to explore these two Ugandan cities, an understudied context, scale and hierarchy, from the perspective not of problem but simply of a place where people live urban lives (Gough 2012, Herrick 2017). My work sheds light on territorial and relational (Ward 2008) components of food, farming and health in these contexts.

Haggblade et al. (2015) follow the tendency to prioritise the capital city and generalise from there, when they refer to a study undertaken in Kampala in 2012 claiming that ‘90% of respondents consumed fast foods’ (Haggblade et al. 2015, 19) as a reason for concern that Uganda is transitioning towards a ‘Western pattern diet’ (Pingali 2007). I wanted to explore whether residents of other (smaller, unexceptional) cities in Uganda were following similar change in eating behaviours. I thus purposively selected two cities to represent secondary-level cities experiencing the rapid growth and development outlined earlier. One city (Mbale) was known to have a relatively high degree of residential involvement in agricultural activity and the other (Mbarara) was a slightly
larger centre of some regional importance, with undocumented levels of involvement in agriculture. During this selection process, I consulted with my Ugandan counterpart, Professor Frank Mugagga of the Department of Geography, Geoinformatics and Climatic Sciences at Makerere University, to gain local insight on the cities. In the final reflection, I feel Mbale and Mbarara make good representatives of this level of Uganda’s urban hierarchy and urban development trajectory. The fact that these two cities have since been chosen by the Government of Uganda to be two of the country’s four regional growth cities with urban development and investment plans designed specifically for them (NPA 2017) suggests that my selection of them was appropriate.

I take neither an apocalyptic, nor overtly optimistic (Herrick 2017) view. I do not view my cases as simple containers: Mbale city, Mbarara city. Neither do I take a developmentalist (Robinson 2004) approach, focusing only on the poor. My cases are the daily experiences, views and perceptions of diverse urban households and individuals in Mbale and Mbarara, and how these relate to and are influenced by their specific food environments, their health conditions and their relationship with farming. I wish to explore gendered, classed and otherwise differentiated aspects of similarity and difference in these conditions.

Why two cities? One city would be suitable for an in-depth case study. However, I chose two cities because one city alone would not allow me to know whether I was investigating a unique case, an outlier or anomaly, or an average case. Having two cities allows the elimination of an outlier case with greater confidence. It also allows a stronger sense of whether findings were shared in more than one city of similar scale and stage. However, I do not claim that Mbale and Mbarara are representative of all Ugandan secondary cities. Yet similarities between the two cities, in urban food systems, in agricultural engagement and in health experiences, may likely be shared with other growing Ugandan cities. Differences may, or may not, be unique to the place. More than two cities would have been too costly and time-consuming for a PhD project.

Why food, farming and health? My work relates to research in agriculture, nutrition and health in urban areas of the Global South. As such, I need to understand and relate to different disciplines and communicate across disciplinary lines. Traditionally, and of course somewhat naturally, agricultural research has generally occurred in its own silo. Much focus has been on yield gap eliminations, productivity gains, post-harvest loss reductions, technological advances and drought-tolerance, not to forget the economists’ enthusiasm for value chain analysis and links to markets. Similarly, nutritionists have worked with their diet indices, food counts and nutritional analyses. The public health community has its perspectives and foci: healthcare provision, access,
preventive medicine. Yet there have been growing calls in the past decade, particularly from the world’s leading agricultural and health agencies such as the Food and Agriculture Organisation (FAO) and the World Health Organization (WHO), and multilateral organisations such as the United Nations (UN), to work together to solve increasingly complex interrelated problems (UNSCN 2016, Haddad et al. 2015, Fanzo 2014, Fan and Pandya-Lorch 2012). Problems such as the need to translate agricultural interventions (such as productivity improvements) into nutritional gains at the individual level require multidisciplinary cooperation (Herforth, Lidder and Gill 2015, Fanzo 2014, CGIAR 2013, FAO 2013, Webb 2013). There is growing recognition of systemic and societal influences on an individual’s health; that is, that a person’s own behaviour is not the only reason for certain health problems (Barker 1997, Bray 2004, McGibbon et al. 2014, Guthman 2012). I am interested in these questions and calls regarding links between food, farming and health for urban residents. I hope my research will further our understanding of some of the complex interactions, particularly for a Ugandan context, and possibly beyond to other Sub-Saharan African urban contexts.

The characteristics outlined in this chapter—of Uganda’s urbanisation trajectory, and its stage of food system and nutritional transition at the secondary city level—make my research relevant to contemporary debates on African urban development. My research reduces current knowledge gaps regarding urban food systems and the agricultural activities and health experiences of urban residents in the secondary city Ugandan context. My research presents new source material (Eskilsson and Kalman 2006), and new empirics from an under-studied context. My work makes methodological and theoretical contributions (Eskilsson and Kalman 2006), that may have relevance to other secondary cities of Uganda, and possibly even to other SSA countries that have cities experiencing conditions similar to those in Mbale and Mbarara. These contributions allow a nuanced and emplaced understanding of aspects of urban life in relation to food, farming and NCDs in these two cities, highlighting some concerns with nutrition transition theory.

1.6 Structure of the Thesis

I chose to write a compilation thesis rather than a monograph. In Table 1, I provide an overview of my papers and how I see their contribution. The thesis comprises three parts: I lay out, in this Part I, contextual information regarding the aims of the research, my approach, the theoretical framework (Chapter 2) and the methodology (Chapter 3). I then provide some background on Uganda and my study cities (Chapter 4). In the final
section of Part I, I present an overview of my papers (Chapter 5). In Part II, I discuss the combined results and synthesise my multidisciplinary mixed methods approach (Chapter 6). In Chapter 7, I consider implications for theory and for practice, before making a final conclusion. My four manuscripts (three published, one in review) comprise Part III.
Table 1: Paper Overview and Fit within the Research Project

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<tbody>
<tr>
<td>What is the status of Mbale/Mbarara households’ food, farming and health environments?</td>
<td>What factors might influence which households farm, and where they farm?</td>
<td>How are the food and health environments (particularly diet diversity, food security and obesity) represented and interpreted by local healthcare professionals?</td>
<td>What are the food environment characteristics, food sources and access strategies of urban residents in Mbale and Mbarara? What insights are gained from intersectional analysis?</td>
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<tr>
<td>Data collection</td>
<td>Household survey data</td>
<td>Household survey data</td>
<td>Focus group discussion with healthcare workers and professionals</td>
<td>In-depth thematic biographic interviews with urban residents</td>
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<tr>
<td>Data analysis</td>
<td>Descriptive and analytical statistics</td>
<td>Multinomial regression (statistics)</td>
<td>Qualitative content analysis and group dynamic analysis</td>
<td>Qualitative content analysis, intersectional analysis</td>
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<tr>
<td>Methods</td>
<td>Statistical description and inference</td>
<td>Statistical modelling</td>
<td>Feministic, intersectional</td>
<td>Feministic, intersectional</td>
</tr>
<tr>
<td>Discipline</td>
<td>Geography, agriculture, nutrition, health</td>
<td>Geography, agriculture</td>
<td>Geography, feminist geography, nutrition, health</td>
<td>Geography, feminist geography, intersectionality</td>
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<tr>
<td>Main contributions</td>
<td>• Diet diversity low-medium • Food insecurity common • Staple foods dominate • Eating out not common • Involvement in farming common • No evidence of advanced food system or nutrition transitions • Yes obesity levels concerning and claimed experience of diabetes, hypertension concerning • Double burden malnutrition and epidemiologic transition apparent • Contrasts with theory</td>
<td>• Agricultural HHs had lived longer in the city, had greater household size and active rural connections • Strong rural-urban links and interactions</td>
<td>• Shows the production, and co-construction of perceptions and understandings • Reveals highly gendered and classed assumptions in relation to food, obesity and urban life (lack of intersectional thinking) • ‘Blame’ for obesity initially placed on ‘lazy’ housewives or ‘ignorant’ mothers • Relatively low awareness among health workers of causes of and risks for obesity, diabetes, hypertension</td>
<td>• Food sources and diet diversity were similar across gendered, classed differences, with a focus on traditional markets and local stores • Food access strategies differed significantly by work status (class) and links with rural land and people • The most food secure practiced stocking, price speculation and mobility of purchasing, received food transfers and farmed (particularly in rural areas, but also in urban gardens) • A food secure urban life was built on the shoulders of an active rural life (via farming and rural relations), as well as salaried employment</td>
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2 THEORY FRAMES AND PREVIOUS STUDIES

This chapter describes the theoretical perspectives that have influenced my work. I begin with a description of nutrition transition theory, which my research questions were designed to explore for Mbale and Mbarara. I then outline the parameters of the third-wave feminist geographic perspective within which I work, before specifying how I conceptualise space and place. Under each section, I also discuss previous research.

2.1 Urban Food System and Nutritional Transitions

As outlined in the opening sections of this thesis, and captured in diagrammatic form in Figure 2, this thesis interrogates concepts of food system, nutrition and epidemiologic change purported to occur with urban life, contextualising to the Ugandan secondary city context. The origins of these theorised transitions can be traced to ideas of modernisation theory, which considers how growing numbers and density of people stimulated change in the politico-economic structures of society and sparked progress towards a more market-integrated social system. These ideas have mainly drawn from the writings of 18th/19th century thinkers such as Adam Smith and David Riccardo, and from global northern experiences (Hettne 2009, Peet and Hartwick 2015, Smith 1776 (1976)). Historic experience depicts demographic and settlement transitions progressing from high fertility-high mortality, more dispersed and more rural towards low fertility-low mortality, more dense and more urban (Popkin 1998, Peet and Hartwick 2015). This occurs with a ‘modernisation’ of the organisational structures of life from hunter-gather societies towards a service-based market economy (Tipps 1973, Nhema 2016).

These ideas of evolving change from one state to another, or transition, in how we live, eat and work are incorporated into Barry Popkin’s concept of what is generally termed ‘nutrition transition’ theory (Popkin 1998, Drewnowski and Popkin 1997, Popkin, Richards and Montiero 1996, Popkin 1994). Yet the theory not only considers nutrition but also incorporates ideas of settlement and physical activity change, food production, distribution and access change, as well as epidemiologic change (Figure 2). These transitions are thought to be prompted by urban growth (greater size of populations, and increased density), together with political economic modernisation:

‘Urbanization has been ongoing for millennia but accelerated over the last century, affecting the sizes and densities of cities globally. Historically, urbanization has been associated with access to a wider variety of food; greater food processing; and increased consumption of food produced, processed, and cooked by others.’ (Popkin 2015)
This urbanisation and urban growth, at least in the global northern experience, have allowed economies of scale in infrastructural provision, food access, and transportation (Popkin 2015). Closely connected was the industrialisation of the labour force, which changed the nature of physical labour to less energy-intensive and more sedentary roles on the factory floor (Popkin 2015). These urban-related conditions reduced the need to grow food oneself (to farm), since a wide variety food could now be bought in urban markets (Popkin 2015). They also changed the nature of daily life, and of the food people ate, as less labour-intensive, more processed food became available with the rise of the big food companies, all interacting to make food more affordable and accessible, and thus also contributing to reduced undernutrition, stunting, and wasting (Popkin 2015, McMichael 2009, Campbell 2009). Better provision of, and access to, healthcare services was also facilitated by urban life, thus combating infectious disease burden which had

The central tenet of the dietary (nutrition) transition concept is that economic and urban development moves societies from a largely low-diversity, low-fat, high-complex-carbohydrate, low-meat, low-dairy diet towards a high-diversity, high-fat dietary pattern, with increased consumption of meat, milk and dairy (Popkin 1998, Haggblade et al. 2016); refer to Figure 2. As Auma and colleagues describe:

‘The nutrition transition is characterized by a shift from traditional, less processed, plant-based diets, towards modern energy-dense nutrient-poor diets characterized by high consumption of red and processed meats, sugar, fats and oils, refined carbohydrates, and low fibre intake.’ (Auma et al. 2019, 342)

An associated lifestyle transition moving from physically active labour and lifestyles (largely within rural agrarian societies) towards more sedentary, less energy-intensive lifestyles (in industrial, and service-oriented labour structures) (Popkin 1998, Popkin 2001) is purported. Related to these interconnected transitions is that of the wider farming and food production and distribution systems which progress away from small-scale food production units (family farms, local markets and local small stores) towards larger-scale production (industrial farms), more retailed food (supermarket rise), and more highly processed foods (big food industry) (Popkin et al. 2012); see Figure 2.

The epidemiological transition, first outlined by Abdel Omran in 1971, details populations initially facing health problems of infectious disease, undernutrition, stunting and wasting. With societal development, the epidemiological challenges facing an increasingly urban population come to be dominated by chronic, degenerative and non-communicable diseases such as diabetes, hypertension, heart problems, obesity, and cancers (Popkin et al. 2012, Popkin 2001, Popkin 1998, Drewnowski and Popkin 1997, Popkin et al. 1996, Omran 1971); see Figure 2.

The framing of this thesis around this conceptualisation of urban food, farming and health transitions is particularly pertinent because of the rapid urban growth now occurring in much of the global south, particularly in secondary cities (May 2018, Cohen 2004, Ruel, Haddad and Garrett 1999); refer to Chapter 1. Indeed, the eminent Global Panel on Agriculture and Food Systems for Nutrition called for urgent action in 2016:

‘Over the next 20 years, multiple forms of malnutrition will pose increasingly serious threats to global health. Population growth combined with climate change will place increasing stress on food systems, particularly in Africa and Asia
where there will be an additional two billion people by 2050. At the same time, rapidly increasing urbanization, particularly in these two regions, will affect hunger and nutrition in complex ways – both positively and negatively.

Unless policy makers apply the brakes on overweight, obesity and diet-related disease and accelerate efforts to reduce undernutrition, everyone will pay a heavy price: death, disease, economic losses and degradation of the environment. ’ (Global Panel on Agriculture and Food Systems for Nutrition 2016, p15)

The Panel notes that food systems need to be recalibrated in order to provide healthy nutritious diets for all, rather than simply ‘empty’ calories (ibid).

Studies and development interventions, particularly from the NGO sector and from urban agriculture (UA) initiatives, have suggested that those urban households that are still involved in producing their own food (crops or livestock) will have better food security and dietary diversity and thus better nutritional and health status (FAO 2013, Maxwell et al. 1998, Mwangi 1995, Cole et al. 2008). It is thus theorised that own food production may help blunt the negative effects, or slow the rate, of some of the food system and nutritional transitions commonly associated with urban growth (Maxwell et al. 1998, Maxwell et al. 2000, Cole et al. 2008, Armar-Klemesu 2000, Prain 2010, Kadiyala et al. 2014). Yet ‘there remains limited evidence in the published literature regarding not only the mechanism by which UA can contribute to the food and nutritional security of urban populations, but also the degree to which it can’, state Yeudall and colleagues (Yeudall et al. 2008, 90). In their own study of the children of urban farmers in Kampala, these authors did find that UA was associated with better food security status and a greater percentage consumption of animal source foods, but proving a direct nutritional benefit was more elusive (Yeudall et al. 2008). A decade before this, children in farm households in Kampala were found to have higher height-for-age scores (an indicator of better nutrition) than those in non-farm households (Maxwell et al. 1998). Debates regarding the nutritional benefit of agricultural production, and how to encourage such, continue (Ekesa, Abukutsa-Onyango and Walingo 2016, Herforth et al. 2015, Kadiyala et al. 2014, Galhena, Freed and Maredia 2013, Fan and Pandya-Lorch 2012, Hawkes and Ruel 2006, Armar-Klemesu 2000).

This theoretical framework of nutrition transition acted as a springboard to my research questions. Clearly, the concept has inbuilt assumptions about the urban form, condition, and food and lifestyle changes that occur, and that these interact to create epidemiologic transitions from communicable towards non-communicable disease. The ‘urban’ is not well-theorised and assumes a certain scale. It should be noted that much of nutrition transition theory’s claims are based on data held in national or international
(FAO and WHO) statistical databases aggregated to the country level of food imports and food exports, of agricultural yields, of gross domestic product (GDP), food balance sheets and national income accountings (Popkin 1994, Popkin 1998, Popkin 2001). These represent a course-grain view. Indeed, others have raised this concern. Nichols notes: ‘research on the nutrition transition has primarily relied on quantitative statistics rendered at national and sub-national levels. While this paints a broad picture of dietary change...these analyses may obfuscate more that they reveal’ (Nichols 2017, 871). She goes on to note that this is because diets are the result of a localised and specific emotive mix of resources, culture, tradition, and inheritance ‘that are not readily captured by statistical models’ (Nichols 2017, 871). Nichols argues for the need for more ethnographic research methods that are more sensitive to the ‘nuanced and embodied ways that dietary change actually occurs’ (Nichols 2017, 873). From her work in India, which revealed some localised dietary processes going against the predictions of nutrition transition, she advocates for the value in taking broad-brush econometric analyses ‘into conversation with ethnographic literature that examines fine-grained processes of dietary change’ (Nichols 2017, 883). My research takes a similar approach, to analyse data collected across an individualised, household and city level using both statistical survey and detailed ethnographic-type research methods.

Himmelgreen and colleagues raised similar conclusions after a literature review of 79 articles across anthropology, public health, nutrition, and economics, which considered nutrition transition, dietary change, diet quality or energy balance in relation to globalisation and to migration. Noting that local variation can be significant: ‘the rate and degree at which the nutrition transition occurs vary depending on the local setting’ (Himmelgreen et al. 2014, 83). They note a complex interrelationship between diet change and neoliberal trade policies, and they caution about the ‘need for a more nuanced understanding of how the loose concept of the “nutrition transition” can and should be applied within a local context’ (Himmelgreen et al. 2014, 83).

Nevertheless, despite these reservations, I frame my research against this theory precisely because it has been so dominant in mainstream thinking and in efforts of the international ‘business’ of ‘Global Health’ and big ‘Development’, and conceptualisations of agriculture in Southern cities (Herrick 2017). Until fairly recently, there have been developmentalist and urban studies assumptions that ‘the urban’ in the Global South had health advantages over the rural, due to generally higher socio-economic, infrastructural, health and education services and lower fertility conditions than rural areas (Herrick 2017). Yet current trends towards an urbanisation of poverty (Dodman et al. 2017, Cobbinah, Erdiaw-Kwasie and Amoateng 2015, Satterthwaite et al. 2010) render such views less potent. Researchers are beginning to talk rather of an urban penalty (Herrick 2017) in a Southern context. Urban studies researchers have
tended to leave ‘health’ in urban areas largely to public health and medical sectors (ibid). The health sector, in turn, tends to be geared towards understanding for practical action (prevention, diagnosis, treatment) and less interested in theorising the urban, scale and rural-urban linkages. My research attempts to work in these in-between spaces, as a geographer: in-between urban studies, health and nutrition studies, food environments research, and agricultural studies. These debates—on nutrition transition and the possible ameliorative role of involvement in own food production, on epidemiological change in and around Southern cities, and the predictions of an increasingly urban life in the Sub-Saharan African regions, with a related urban face to poverty—were the starting frames for my research. My research works to problematise and specify transitional conceptualisations by investigating the food system and dietary circumstances, farming and health experiences of my two secondary Ugandan cities at the stage of development in which they were positioned during my research (2015-2019).

2.1.1 Studies of Food System, Farming or Nutritional Transitions in Africa

South Africa is generally thought to be leading the way (in a negative sense) in terms of a nutritional, food system and epidemiologic transition (Abrahams, Mchiza and Steyn 2011, Haggblade et al. 2015). Claims of the growing supermarketisation of Africa (Tschirley et al. 2014, Reardon et al. 2003), a growing role of supermarkets even for the poorest (Crush and Frayne 2011), the role of fast-foods and highly processed foods as well as sugar-sweetened beverages in creating growing burdens of obesity, diabetes and hypertension (May 2018, Moodley et al. 2015, Steyn, Myburgh and Nel 2003), the role of urban agriculture for the poorest (Masvaure 2015, Smart, Nel and Binns 2015), and feministic investigations of racialised, gendered and classed urban bodies and food behaviours have often been voiced from a South African and southern African perspective (Hovorka 2006, Hovorka 2012, Riley and Dodson 2014, Riley and Dodson 2016). Though hugely relevant and cautionary, it is not certain that the rest of Africa will follow this leader. The discourse from this southern of Southern perspectives has also echoed Popkin’s suggestion of causality—that is, that the food production, food distribution and dietary systems in cities change and this causes a shift in the expression of malnutrition away from undernutrition towards obesity, cardiovascular disease, diabetes and hypertension. Yet my review of studies from the Ugandan context (together with my own findings) suggests an already evident and concerning level of non-communicable disease, but in a context, of generally low food, farming and nutritional system transition at the individual, household and city scale in Mbale and Mbarara.
Uganda has generally been described as being in the early stage of food system and nutritional change (Haggblade et al. 2015, Abrahams et al. 2011). Yet there are a number of studies and surveys (STEPS 2014, Abrahams et al. 2011) highlighting an already present non-communicable disease experience, in either urban (Nyombi et al. 2016) or rural (Mayega et al. 2012, Kavishe 2015, Maher et al. 2011) areas, or both (Schwartz et al. 2014, Turi, Christoph and Grigsby-Toussaint 2013). A 2014 nationally representative survey of NCDs measuring 3,987 adults (18-69 years old), of whom 60% were female, from nine districts across Uganda concluded that ‘NCDs and their risk factors are a public health problem in Uganda’ (STEPS 2014, 10). They cautioned about high levels of hypertension (24%) (higher in males and in urban areas), and noted that 76% were unaware of their condition (ibid). The STEPS survey found levels of raised fasting glucose including diabetes at 3.3% (higher in urban areas but no gendered differences), and 6.7% raised cholesterol (ibid). Finally, they recorded a 14.5% prevalence of overweight (BMI 25-29.9 kg/m²) and a 4.6% obesity prevalence (BMI ≥ 30 kg/m²). Both BMI measures were greater in the urban areas and in women (STEPS 2014, 10). Additionally, they found low consumption of fruit and vegetables (ibid).

In a Kampala study, Nyombi and colleagues find a joint 9.4% prevalence of overweight and obesity, and 14% hypertension prevalence, in 180 Makerere University medical students (Nyombi et al. 2016). They speculate causes to be urbanisation and eating out, noting that ‘The University is surrounded by many suburbs with fast food restaurants. Students therefore often time opt for these fast foods in place of meals prepared in the halls of residence’ (Nyombi et al. 2016, 2), though they do not present data on eating out or the food groups consumed.

A literature review by Christine Ngaruiya and colleagues, investigating obesity as a growing dimension of Ugandan non-communicable disease profile and signifying the country’s experience of a double burden of malnutrition, notes that: ‘While food insecurity has contributed to the under-nutrition problem, a lack of dietary diversity also has a demonstrated role in increasing over-nutrition’ (Ngaruiya et al. 2017). They describe a high focus in the Ugandan diet on carbohydrates and satiation over diversity and nutritional content, stating that:

‘Our Ugandan research revealed high-carbohydrate meals, such as ‘posho’, a staple porridge made from starchy flours like cornmeal or cassava flour, were common. When possible, this is served with meat, which not only contributes to satiety, but culturally is viewed as better or associated with higher class status than beans, ‘greens’ or vegetables – resulting in caloric intake but frequently deficient in micro-nutrients.’ (Ngaruiya et al. 2017)
Ngaruiya et al. (2017) suggest that tradition and culture are drivers of carbohydrate-focused low-diversity diets. Other researchers contest that ‘tradition’ or culture should be blamed. A thought-provoking historical view on 400 years of nutrition transition in East Africa by Verena Raschke and Bobby Cheema, for example, adds perspective. These authors highlight deliberate actions by strategic interest groups, both ‘overt and covert’ (Raschke and Cheema 2008, 8), to expropriate land and traditionally nutritious diets, and to exact profit from trade:

‘from colonisation to the current, oppressive political-economic structure. Uniformly, colonisation and neocolonisation have excised the ancient, indigenous knowledge, destroyed the environment, suppressed domestic self-sustainability, prevented economic independence, forced rapid urbanisation, destroyed the family unit, and introduced a globalised food system. This globalised food system, advanced through the economic reforms of the World Bank and IMF and now controlled by a handful of multination corporations, has been directly implicated in the recent upsurge of NCDs throughout East Africa, including the countries of Kenya, Uganda and Tanzania.’ (Raschke and Cheema 2008, 8).

This view of markets and a financial economy as a driver of dietary and farming system change contrasts sharply with the view that it is precisely a lack of integration into efficient markets and value chains that hampers African food and farming systems’ ability to reduce poverty and create healthy urban environments (Reardon et al. 2013). According to this perspective, urbanisation is considered an important driver for the African agri-food system transformation required for reduced poverty and improved food security (ibid). Others are more considered in their view that urbanisation is an engine of growth and development in the African context, noting that concerted effort by policymakers to shape the form and spatiality of urban growth is necessary (Turok 2016, Turok and McGranahan 2013).

Johan Pottier’s (2015) study of urban food insecurity in Kampala also notes the commonly low-diversity diet of maize or matooke with beans and some sauce. Similar to other scholarly findings, he finds that the most food insecure would eat one meal a day consisting simply of posho. In addition, he described how ‘farming a piece of rural family land made a big difference in the quest for urban food security’ (Pottier 2015, 234). Pottier also describes Kampala’s food supply coming from the Central and Eastern regions with much of the matooke coming from the Western Region (around Mbarara and Masaka), and notes that Uganda significantly contributes to food security in its neighbouring countries by exporting a great deal of maize and beans (ibid). Another study, notes that the cost of food has risen dramatically in Kampala compared to other living costs, particularly between 2007 and 2011, due to a combination of ‘high urban
population growth, high transport costs, inflation and adverse weather conditions’ (Sabiiti and Katongole 2014, 235). They also note that this has incentivised Kampala’s active urban agriculture activity, but attribute this mainly to the lower income:

‘Due to the expensive cost of food the low-income earners are finding it difficult to meet the minim food requirements. As a response, own food production (crop and livestock) has become a common feature in Kampala city.’ (Sabiiti and Katongole 2014, 234)

Regarding food sources, a study by Wanyama and colleagues of 300 households in two poorer parts of Kampala finds that supermarkets do not play a strong role as a food source, particularly for lower-income terciles whose the main sources remain the traditional central and local markets and local small shops that give credit (Wanyama, Gödecke and Qaim 2018). They do note, however, that ‘we observe moderate consumption of medium to highly processed food. Processed food is largely observed in cereals, milk and milk products, oils and fats, sweets and sugars, and spices, condiments and beverages, especially among households in highest terciles’ (Wanyama et al. 2018, 22). Similarly, Riley and colleagues also found, in a secondary city Malawian context, that the more food insecure households ‘were more likely than food secure households to use small shops, street sellers, and informal markets’ (Riley et al. 2018, 36) for the majority of their food purchases. They also report on prevalent experience of food insecurity (45% of the 910 surveyed households) but slightly higher household dietary diversity scores (mean of 6 food groups = medium diet diversity) than seem to be the average in the Ugandan context (Riley et al. 2018). They also report that 38% of the surveyed households raised some of their own food from urban agriculture, mostly around their home or on urban open space (ibid). Additionally, 35% farmed on rural land, with evidence of food security benefits (Riley et al. 2018) much as Pottier’s study in Kampala found. Riley et al. conclude that the urban food system in Mzuzu, a secondary city in Malawi, is ‘dynamic and diverse, with households accessing food from a variety of formal and informal food sources and relying on rural-urban linkages for urban survival’ (Riley et al. 2018, 56).

2.2 A Feminist Geographic Perspective

I investigate nutrition transition theory, and my research material, inspired by scholarship with a feminist geographic perspective (Marston and Doshi 2016, Massey 2010, Massey 2005, Sharp 2005, Bondi and Rose 2003, Moss 2002, Nagar et al. 2002, McDowell 1999). More recent scholarship within feminist geography has emphasised the aim for social justice across a multitude of difference, including gender, class, race,
and ethnic grouping (Mollett and Faria 2018, Parker 2016, Varley 2013, Preston and Ustundag 2005). This is a broader focus than a homogenised category of ‘women’ (Varley 2013). I did not begin this research with a specific aim to explore ‘women’s lives’, or to lift up the voice of the supposedly always poor and marginalised global southern woman (Varley 2013). Nor even did I have any strong pre-conceived ideas about inequalities built around and upon gendered, classed, racialised or ethnic differences in my research sites. I simply set out to explore ‘for whom’. My research findings themselves necessitated this feminist geographic journey. My empirics spoke so loudly of various differences, and of how people continuously constructed and contested these, that I was compelled to follow their call. My epistemological approach, however, has always been in the feminist constructionist vein.

In this thesis, I am equally interested in the experiences of men–single men, young men, elderly separated men–as I am in the experience of various gendered, classed, raced women, as Andrea Cornwall advocates (Cornwall 2003). I do not restrict my investigations to the vulnerable and disenfranchised, or to the urban poor alone (Parker 2016, Varley 2013, Gilbert 1997). I look to elites and professionals (Hiemstra and Billo 2017, England 2002), as well as to the ‘ordinary’ or less empowered (Varley 2013). I work across a diversity of difference in Mbale and Mbarara, emplaced as they are within urban relations and historical-cultural heritages and socio-economic structures of past and present Ugandan experience. As Melissa Gilbert writes ‘identities are constructed differently in different places not only because residents have different social locations, but because the experiences of gender, “race”, and class are structured by local resources such as employment opportunities and local cultures’ (Gilbert 1997, 173). In other words, geography matters.

Yet, I don’t wish to explore my places/cities of interest in all their specificity alone, as Brenda Parker cautions that some ‘feminist urban researchers have overemphasised the “situated” and been reluctant to explore broader causal patterns and generalizations’ [Parker (2016, 1340) referring to Ruth Fincher’s critique]. My methodological mix and my feminist geographic perspective allow me to weave from the specific to the more general and back, from the scale of the body or the household to the city or the city’s relations to rural hinterlands (Parker 2016); from perceived spaces of food, farming and urban life (Lefebvre 1974, Rönnlund and Tollefsen 2016, Bondi and Rose 2003) to the materiality of land, crop and body (Warin 2015, Parker 2016).

Geographers have long been concerned with the relevance of, and yet fluidity associated with, space (Massey 2004). Feminist geographers have applied themselves to ‘spatializing the constitution of identities’ (Moss 2002, 3) and ‘contextualizing meanings of places’ (ibid). Feminist geographers have exposed and analysed specific
constructions of identities within, and in interaction with, ‘particular spatialities’ (Moss 2002, 3). Embodied and emplaced socio-spatial practices characterise both places and behaviours in specific and evolving ways (McDowell 1999). This kind of excavation of specific socio-spatial practices is created and reproduced by ‘relations of power and exclusion’ (McDowell 1999, 4), that geographers have sought to reveal and contest. Traditionally, feminists have asked ‘whose knowledge counts’ (Marston and Doshi 2016, 1659) and why. Geographers (among other disciplines) have added where, when, and in what way. Geographers have contributed significantly to feminist articulations and investigations of scale, and conceptualisations of place, linking local and global in complex multidirectional influences, and investigating processes and power relations behind spatialised, gendered or classed difference (Marston and Doshi 2016). My research has been inspired by these efforts. I have worked to explore and reveal some gendered and classed assumptions of bodies, behaviours, and embedded power structures, which make up the mutually constitutive socio-spatial practice of people and place (McDowell 1999), in relation to food, farming and health, in Mbale and Mbarara.

My feminist analysis embraces intersectional (Cho et al. 2013, Valentine 2007) and postcolonial (McEwan 2001, McEwan 2009) perspectives. An intersectional analysis is essential for a sophisticated understanding of how the multiple, sometimes conflicting, markers of a person’s position in their society such as age, religion, ethnic grouping, legal status, sexual preference or cultural background (Preston and Ustundag 2005), might enable or constrain their food and health situation. These factors affect an individual’s social location (Gilbert 1997, McGibbon et al. 2014) which in turn influences that person’s interpretations of, and access to, the material and psychosocial underpinnings for life (McGibbon et al. 2014). Postcolonial perspectives and approaches to knowledge creation have much in common with the feministic (McEwan 2001). Postcolonialism aims towards alleviating ‘western negative stereotypes about people and places’ (David Simon, quoted in McEwan (2001, 96)) from international development discourses, urban studies, or indeed any study not in the ‘West’ or the Global North if you prefer. Indeed, there are multiple intersections between postcolonialism, feminism and development, and I agree that it is important not to lose sight of materiality, as Cheryl McEwan cautions:

‘Postcolonial feminist approaches demand that we are able to see, responsibly and respectfully, from another’s point of view. However, it is important that they also engage with material issues of power, inequality and poverty, and resist focusing on text, imagery and representation alone’ (McEwan 2001, 105)

In current debates around obesity, feminist researchers have contributed significantly; with sometimes tense discussions between more feministic and more natural science
perspectives. Megan Warin writes an incisive analysis of this tension and proposes a material feminist perspective as offering a bridge over the impasse as it tries to ‘register the inextricable entanglements of bodies in time and place, with histories, the socio-political and the material’ (Warin 2015, 52). She argues that material feminism understands that obesity is not a predetermined biological truth alone (as some natural science research might seem to imply), but neither is it a purely social construction (as some feminists have proposed). Material feminism, Warin claims, rather interprets fat bodies as ‘products of complex biosocial processes which are not reducible to any of their elements; they are neither simply nor primarily a biological fact, nor are they purely socially constructed artifacts’ (Warin (2015, 66), quoting Lam). Some geographers similarly emphasise systemic and unequal power relations as influencing health outcomes, such as Julie Guthman does when she explores the role of environmental toxins: ‘ecological causes of obesity not reducible to individual behaviours’ (Guthman 2012, 952).

Warin also highlights the recognition of the relevance of materiality and its interactions with socio-spatial practices in the work of medical doctor David Barker as supportive of feminist materialist approaches (Warin 2015). She describes the value of his work on double burden malnutrition and what has come to be termed his ‘development origins theory’ for understanding gendered, classed and otherwise differentiated expressions of poverty, malnutrition or obesity (Warin 2015). Indeed, already in 1997, Barker himself suggested that obesity-related problems may be a consequence of the same poverty and inequality processes as undernutrition (Barker 1997), rather than being due to genetics, overeating, or the hypothesised ‘Westernisation’ of diets assumed (Pingali 2007, Haggblade et al. 2015). Both Barker, and (more recently) also Barry Popkin, began emphasising that the socio-environmental and food systems contexts of daily life, at the levels of the individual, the family, the city, and the society (Bray 2004, Warin 2015, Popkin and Hawkes 2015), are essentially relevant to understanding seemingly biological conditions such as obesity, diabetes, and hypertension.

The understanding of the spaces of the city and of urban individuals’ daily lives that permeates this research is influenced by feminist geographers, and particularly by the spatial conceptualisations of Doreen Massey (2005), that space is socially produced. Explicitly, space is recognised as being simultaneously absolute, relative and relational (Massey 2010, Harvey 2006, Massey 2005, Lefebvre 1974). Absolute space is the most commonly understood conception of space as a ‘container’, something measurable with a ruler or scale or boundaries (Holt-Jensen 1999). Relative space was a concept introduced more rigorously around the turn of the century (ibid) and incorporated time, cost, and distance to the space of interest relative to another place or phenomenon (ibid). In this way, a particular space is more greatly related to its context and thus gains
greater explanatory power; that is, what is within a city relative to a person’s home or workplace may matter more. The more complex concept of ‘relational’ space attempts to incorporate social processes and relationships between places, people, and phenomena. Doreen Massey worked particularly within this understanding of space and argues that ‘conceptualising space as open, multiple and relational, unfinished and always becoming, is a prerequisite for history to be open and thus a prerequisite, too, for the possibility of politics’ (Massey 2005, 59). The contributions of power, people, and politics are recognised as integral to the character of a space. In this thesis, I seek to explore and highlight such spatial conceptualisations and their influences on various and varying lives in the food, farming and health spaces of Mbale and Mbarara. Massey argues for the necessity of rethinking cities and spaces as an ‘accumulation of layers, as ungraspable juxtapositions’ (Massey, 2005, p159). This thesis attempts to grasp such layered influences on the food, farming and health environments of individuals and households in Mbale and Mbarara.

Indeed, a social interaction with space and place, which Massey and Lefebvre articulate, implies that a (city)space may be quite individualised and not fully transferable to others. As part of my response to the third and fourth research questions, I explore the personal food-related (city)spaces and urban-rural interaction spaces of various individuals and perspectives within Mbale and Mbarara. Perceptions, understandings, and power dynamics are, of course, inherently influenced by (and related to) gender, class, race, and position in life, as feminist geographers have emphasised (Parker 2016, McGibbon and McPherson 2011, Massey 2010, Massey 2005, McDowell 1999, Gilbert 1997). I try to expose and analyse such throughout my work.

2.2.1 Feminist Studies of Food, Agriculture, Health and the Urban in Africa

The exploration of food, eating behaviours, and access to nutrition has received attention from approaches compatible with feminism. Riley and Dodson, for example, analyse the ‘intersections of spatial and gendered meanings of food’ (Riley and Dodson 2016, 58) in urban Malawi. They highlight the need to understand embodied and emplaced socio-cultural associations of specific food products as essential to ‘understand and address problems in nutrition, public health, and social and environmental injustices that emerge through urbanisation’ (Riley and Dodson 2016, 60). Feministic intersectional analyses (Valentine 2007) have been applied to both gender and food in the African context: Alice Hovorka, for example, utilises what she terms a ‘feminist-posthumanist intersectional interspecies analysis’ of women and chickens versus men and cattle in the context of Botswana (Hovorka 2012). She describes how ‘positionalities, those of men, cattle, women, chicken, and relationships between them, are produced and reproduced through dynamic socio-spatial practices in particular contexts’ (Hovorka 2012, 875). How, where, when and what people eat are
influenced by class, race, gender, place, culture and a whole complex of interactions of places and identities with assets and agency. Indeed, as Psyche Williams-Forson states, our food environments are shaped by the ‘the multidimensional and relational nature of social locations, places and forces (economic, cultural, political), lived experiences, and overlapping systems of discrimination and subordination’ (Williams-Forson and Wilkerson 2011, 11)

In the agricultural sector, feminist modes of inquiry have investigated the concept of the feminisation of agriculture (Lastarria-Cornhiel 2008). A feminist political ecology framework has been applied to explore agrarian restructuring processes in Botswana and the emancipatory potential of urban agriculture for women in this context (Hovorka 2006). In Ghana, feminist research has highlighted gendered cropping patterns and the broader importance of the interaction of gender with class and with market relations in locally constituted and variable ways (Carr 2008), rather than of gender alone.

Feminist geographers’ contributions to urban studies in the early years explored the spatial entrapment of women in Euro-American city suburbs, related discrimination in the labour market (McDowell 1999, Nagar et al. 2002, Gilbert 1997), and women’s geographies of fear linked with masculinist urban planning and built environment design (Gilbert 1997). Though valuable, second and third wave feminisms (Moss 2002) began to critique this approach and to look beyond a homogenous focus on ‘women’ (Bondi and Rose 2003). Some suggested that ‘feminist scholarship concerned with cities was in danger of perpetuating an anti-urbanism already prevalent in much “mainstream” urban theory and practice’ (Elizabeth Wilson in 1990, cited in Bondi and Rose (2003, 230)) with their focus on how cities constrained and restricted women or various ‘others’, rather than allowing visibility to possible emancipatory urban environments. Indeed, in his description of early urbanisation in colonial Uganda of the 1950s historian Richard Reid notes that Ugandan women began to seek out cities and towns as spaces in which to escape ‘chiefly patriarchy’ (Reid 2017, 240) and to gain greater autonomy and economic independence. Although dominant masculinist structures of both colonial and tribal power may have viewed the growing numbers of women within the city with concern (Reid 2017), and thus may have sought to portray the danger and risk associated with urban life for respectable women, the women themselves saw the city as offering a beacon of hope and a chance to renegotiate their position in the world (Reid 2017).

Ann Oberhauser makes an important contribution to feminist geographic analysis in deconstructing the separation of ‘rural’ from ‘urban’ in the South African context (Oberhauser 2016). Her analysis of two rural-based women’s groups showed how they were intimately linked to urban areas via changed labour dynamics in the region, circular migration and rural natural resources (clay, firewood, local stone) employed in pottery-
making and stone-crushing enterprises. Her feminist and post-structuralist analysis revealed how ‘economic strategies and social identities are embedded in and integrate both rural and urban spaces’ (Oberhauser 2016, 489).

The work of Robert Wyrod provides a nuanced analysis of gender relations in Uganda, and men’s attitudes to the government’s actions promoting women’s rights and gender equality (Wyrod 2008, Mbire-Barungi 1999). Wyrod claims that 20 years of government-led championing had made some positive impact and have ‘destabilized conventional notions of masculinity, opening up space for new formulations of African masculinities, both hegemonic and transgressive’ (Wyrod 2008, 818) but that still, for too many, ‘men’s authority within the home remains uncontestable’ (Wyrod 2008, 819). Wyrod’s work describes the still strong conceptualisation of the masculine ideal of the ‘provider’ in Uganda, and a common discourse of female dependency. However, others note that female expectations for provider men can weigh heavily and some, especially younger and/or single Ugandan men increasingly find the pressure constraining (Barratt, Mbonye and Seeley 2012) in a context of informality and underemployment.

Alice Hovorka brings feminist geographic and intersectional perspectives to another level in her analysis of gender-species entwined power dynamics in the Botswana context, that touch on agriculture (men rearing cattle, women tending chickens), food production and gender relations. Her conclusion is worth quoting at length:

‘In Botswana, men are considered leaders, breadwinners and decision-makers thus ensuring them legal autonomy and advantage, access to resources such as land and capital, and associations with cattle; women are considered mothers and caretakers thus relegating them as legal dependents (to men) with less access to resources and associations with chickens. Similarly, cattle are admired and respected, reflect human socio-economic status, drive local and national economies, feature in government programs, reside in reserved, privileged spaces, and are associated with men; chickens garner less attention, hold little status and power, are land-less, feature in low-valued realms, and are associated with women. These symbolic and material aspects of privileging and othering bring together the lives of men and cattle, women and chickens respectively, and serve to (re)produce gender–species intersectionality.’ (Hovorka 2012, 882)

Hovorka’s work reveals specific and contextualised socio-spatial practices. Yet her study also shows how female entrepreneurs have successfully circumvented dominant patriarchal concepts of men-money-markets, by developing lucrative urban agricultural broiler production for city markets. Her reflections on gendered-human and species-
level hierarchies and specific associations with productive and reproductive behaviours resonate for the Ugandan context as well, though women’s rights and access to land in Uganda have, arguably, progressed beyond the Botswana context (Tripp 2004).

Aili Mari Tripp’s research in Uganda also explores gendered relations with a feminist perspective, linking to concepts of provider men, dependent women and women successfully subverting such roles, only to be pushed back by men when they are regarded as having gained too much power or control. Her case study of the Kiyembi women’s market and how female success was appropriated by men, serves as a reminder of strongly embedded patriarchal tendencies (Tripp 2000, 161).

An important body of feminist or intersectional analyses in an African context exists within the health sector. There has been focus on domestic violence (Namy et al. 2017), reproductive or sexual health (Miller et al. 2011), and domestic labour regimes (Christian and Namaganda 2018, Mkandawire-Valhmu and Stevens 2007). In Uganda, Namy and colleagues note how ‘the patriarchal family structure creates an environment that normalizes many forms of violence, simultaneously infantilizing women and reinforcing their subordination (alongside children)’ (Namy et al. 2017, 40). Miller and colleagues’ research highlights important interactions between gender, food poverty and sexually-transmitted disease in their analysis of female food insecurity and high-risk transactional sex in Uganda (Miller et al. 2011). Mkandawire-Valhmu and Stevens discuss the challenges involved in actually applying a feminist approach to research within a Malawian health context but note that:

‘Feminist research is an excellent fit for analysis of health and human rights in diverse real-life settings because of its deep regard for women’s experiences, its emphasis on exploring power relations and larger societal structures…and its action imperative to involve women themselves in making change for the better’ (Mkandawire-Valhmu and Stevens 2007, 279)

Feminist work has expressed some discomfort with obesity research and efforts by the public health sector to raise awareness or combat obesity (Warin 2015). Though written from an American perspective, a 2006 paper by Yancy and colleagues provides a good overview of debates and contestations between feminist and public health ways of working (Yancey, Leslie and Abel 2006). Many feminist investigations of obesity or non-communicable disease have occurred within the context of African American women (see aforementioned Yancy paper for references).
In summary, feminist geographic analyses of food, farming and health within an urban African context are increasing, though there are perhaps fewer studies that assess these sectors together. This is one contribution of my research.
3 METHODOLOGY

My research interest in food, farming, health and the urban, strives to work across disciplines. My interest was to approach my research question through a mix of methods, using an integrative and iterative analysis (Brannen 2005, Creswell 2011). In this chapter I discuss research paradigms and clarify my positioning before reflecting on mixed methods. I then explain my data collection and analysis processes. Figure 3 first provides an overview of methods and timings. I close the chapter with a discussion of ethics.

<table>
<thead>
<tr>
<th>Collection Method &amp; Timing</th>
<th>Sampling Strategy</th>
<th>Analysis Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>July-August 2015: Household Survey</td>
<td>Country and cities: purposive</td>
<td>Descriptive and inferential statistics; spatial clustering</td>
</tr>
<tr>
<td>(1025 households in Mbale, 970 in Mbarara)</td>
<td>Households: random systematic</td>
<td></td>
</tr>
<tr>
<td>Feb 2017: Focus group discussions with local healthcare professions</td>
<td>Purposive: healthcare group. Participants likely pre-selected themselves based on interest or loyalty to the peer/manager who had invited them</td>
<td>Thematic content analysis and group interaction analysis</td>
</tr>
<tr>
<td>(one per city, total participants: 12)</td>
<td></td>
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</tr>
<tr>
<td>Feb &amp; May 2017: 22 Biographic interviews</td>
<td>Purposive from spatial clustering analysis of multiple variables from the household survey related to food, farming and health</td>
<td>Content analysis Interaction analysis</td>
</tr>
<tr>
<td>(Mbale: 10, Mbarara: 12)</td>
<td>(17 interviewees were part of 2015 survey, 5 were purposive strategic selections)</td>
<td></td>
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</tbody>
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Figure 3: Overview of my Data Collections and Interconnections
3.1 Research Paradigms & Parameters: Positioning my Approach

In their chapter on ‘Paradigmatic Controversies, Contradictions and Emerging Confluences’ within the Handbook for Qualitative Research, Lincoln, Lynham and Guba (2011) discuss the issue of whether/how paradigms can be mixed or whether a paradigmatic approach ties in the researcher, invalidating any work they attempt in other paradigms. They call for researchers, particularly those who work with mixed methods (Lincoln et al. 2011), to address such issues, which is what I aim to do in this section. I agree that a paradigm does not have to dictate a specific data collection or analysis method (Creswell 2011). I appreciate mixed methods as offering ‘multiple ways of seeing’ (Creswell 2011, 272).

I view my work through an interpretive constructionist research paradigm, as described by Lincoln et al. (2011). This means that my understanding of how knowledge is created (my epistemological approach) takes a transactional/subjectivist approach. As Guba (1990) notes, I recognise that ‘findings are literally the creation of the process of interaction between’ the researcher and the research participants (Lincoln et al. 2011, 103). I see this as equally applicable whether I am working more quantitatively with numbers, surveys, maps, or with more qualitative research methods. Continuing to draw on Lincoln et al.’s work analysing the inquiry, thought and practice implied by various paradigm approaches (2011 Table 6.5, pp102-115), the implications of my constructionist interpretive paradigm encompass:

- a research aim to investigate the multi-dimensional and contextualised meanings of phenomena or experiences via analysis of co-constructed interpretations

- the idea that knowledge is socially constructed ‘from experience and interaction of the individual with others and the environment’ (Byrd, 2008 in Lincoln et al. (2011), Table 6.5, p107)

- quality criteria, relevant to the methods used, that allow an ‘assessment of credibility, transferability, dependability, and confirmability’ (Guba and Lincoln (2005) as quoted in Lincoln et al. (2011), Table 6.5, p108)

- a striving towards equality in the research process (while recognising this can never be fully achieved), and ‘postcolonial aspirations’ (Lincoln et al. (2011), Table 6.5, p111)

Importantly, a constructionist interpretive research paradigm has no difficulty in dealing with a mixed methods approach. Just as Warshawsky notes for mixed methods, I suggest
that an interpretive paradigm recognises that ‘knowledge is always partial, situated and political, and the relationship between epistemology and methodology is dynamic and multiple’ (Warshawsky 2014, 161).

**Researcher Positioning:** In the case of this research investigating local experiences and information about family daily practices, shopping, farming and eating behaviours, as well as attitudes and perceptions to health, my inescapable position as a white outsider female of some level of higher education working in a Ugandan context, will have had an effect on the research process. On the one hand, being a woman myself and talking with women about the female experience and perspective may bring a dimension of sisterhood and solidarity that may put my female interviewees at some degree of comfort and thus may influence how much information they wish to confide in me. On the other hand, my colour, my education, my accent, and my need for a translator, may bring in an intimidating power dynamic which is difficult to fully erase. With men, I generally felt I was perceived as non-threatening, and perhaps as exotically interesting. An awareness of the possible interplay of such dynamics on the research is essential.

**Academic Voice and Style:** Through my British geography educational background, I was trained, without even realising it, to write in the third-person past tense (passive voice) about research. I only began to question this writing style in my second year of PhD studies. Yet this passive voice is so engrained in me that I easily slip into it. I have actually had to work harder to write academic work in the first person. Hence, you may note a slight difference in the authorial voice in my papers. The first paper is predominantly third-person past tense with a more hidden authorial voice. Meanwhile, in papers two to four, I as the author and researcher am more present in the text and more explicit with my analytical process. I recognise that, regardless of grammar, I use multiple voices in my research: my own (academic and personal, at times analytical, at times reflective (Holliday 2016)), along with the voices of my interviewees, the debates of my focus group participants, or the representations of household respondents conveyed via statistics. I try to reflect upon these multiple voices throughout my work.

3.2 **Mixed Methods**

I reflect for a moment on mixed methods and how my methods were related to each other. Some mixed methods researchers say you should start with the qualitative because only then can you get a sense of what to measure or count with quantitative methods, while others say quantitative methods are the starting point and should take priority over the qualitative (see Teddlie and Tashakkori (2011) for discussion of these views). In my view, it is the overall research question which acted as a guide to what I
needed to measure, count and, ask in the household survey. Indeed Teddlie and Tashakkori emphasise this when they discuss the ‘centrality of the research question’ (Teddlie and Tashakkori 2011, 288). My mixed methods process took a sequential approach in data collection but an iterative synergistic approach in data analysis (Creswell 2011). I would agree with those who emphasise the cyclical nature of mixed methods, noting the deployment of both deductive and inductive logic at various and iterative points (Teddlie and Tashakkori 2011). I have employed both intensive research methods (focus groups, in-depth interviews) to investigate perceptions, meanings, underlying structural influences, and extensive methods (household survey) to both explore patterns and analyse statistical relations (Winchester and Rofe 2016, Sayer 1992, Warshawsky 2014).

The intention with my mix of quantitative, spatial and qualitative research methods has been to work interactively, throughout the dissertation, with all forms of data in an attempt to give as holistic a picture as possible with the method mix and time available (Warshawsky 2014, Creswell 2011, Teddlie and Tashakkori 2011). I recognise of course that any view will still always only be partial (refer to discussion of feminist researchers in Chapter 2). I believe all research methods have a value and can tell us certain things, and can facilitate certain kinds of testing, or data exploration. How you interpret and whether you reflect and recognise the limitations of the data is crucial (Kwan 2002b), as feminist geographers have cautioned. How the data are interpreted also reveals the research paradigm (Creswell 2011, Brannen 2005, Kwan 2002b), in my case a constructionist and feminist interpretive research paradigm. I see no absolute equation between feminist approaches and qualitative methods (Kwan 2002a, Kwan 2002b, Peake 2015). As Kwan notes, it is more about epistemological attitude to knowledge creation and to the interpretation of different methods’ findings and implication: even ‘Inferential statistics can therefore be used in feminist research in a non-generalizing, non-totalizing manner’ (Kwan 2002b, 166). I take this feminist approach in all my papers, when utilising descriptive and inferential statistics, and in my use of geographic information systems (GIS) as one tool of many in a search for greater (but never complete) understanding. Regardless of the voice I write with (Holliday 2016), or the methods I am interpreting, I have been careful to limit and specify my claims (Kwan 2002b). I am cautious with generalisations beyond my specific cities, though I recognise that my findings may have broader relevance for similar contexts experiencing similar processes or conditions. As Brannen notes qualitative findings can be generalised in how they reflect back on theory (Brannen 2005). In this way, you could say I generalise up when I reflect back on nutrition transition theory ideas, on conceptualisations of who farms the city and why, on rural-urban linkages and on wider socio-cultural discourses and practices that influence understandings, interpretations and desires in relation to bodies, behaviours, food, farming and health.
My papers, in the end, became single-method papers. For my research questions aiming to explore perceptions and interpretations, I used more qualitative methods of focus group discussions and individual biographic interviews, but the discussions were influenced by, and further explored, the findings from the household survey and my statistical analyses. Some papers are single-discipline, and some a mix of disciplines (refer to Table 1 and Figure 3), but the thesis as a whole, my final analyses, comprise a mixed method synthesis of all my findings (Creswell 2011), from a feminist geographic perspective. I treat my various methods equally, in that I do not see one as being more dominant than the other (Creswell 2011). I believe that a role of research, and particularly of mixed methods, is to reveal possible multiple perspectives of the same data (Lincoln et al. (2011), Table 6.5, p112). The thesis is where I further interact my findings from the various parts of my research, in order to develop a more coherent whole from the individual parts (Warshawsky 2014, Creswell 2011).

3.3 Quantitative Method: Household Survey

In order to address my first research question on the status of diets, food environments, farming and health in Mbale and Mbarara I needed measures of such. As I began to explore how I would survey this, my project gained the opportunity to use (and adapt, with permission) an already existing food security survey instrument: that of the African Food Security Urban Network (AFSUN). My project co-funded this large-scale household survey together with a project based at Lund University and SLU¹. I was the leader and coordinator of this data collection exercise and worked with a local coordinator–Professor Frank Mugagga of Makerere University’s Geography Department–and a local nutritionist Lydia Kakooza (MSc), from the College of Agricultural and Environmental Sciences at Makerere University, along with a team of 20 enumerators. Our efforts resulted in a survey of 1025 households in Mbale and 970 households in Mbarara.

Of relevance is that the AFSUN survey had already been tested and applied in several other studies in the African urban context (refer to www.afsun.org for further

¹ This work was supported by the Swedish International Development Cooperation Agency (Sida) [grant number SWE-2011-028] led by Professor Magnus Jirström, Department of Social and Economic Geography, Lund University; and by two Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) funds: grant number: 250-2014-1227 led by Dr. Aina Tollefsen, and me, both from the Department of Geography, Umeå University; and grant number: 225-2012-609 led by Professor Beatrix Alsanius, Department of Biosystems and Technology, Swedish University of Agricultural Sciences (SLU) and Professor Magnus Jirström, Department of Social and Economic Geography Lund University.
information). An important advantage is that the AFSUN questionnaire also uses a number of internationally tested and validated tools to measure and assess parameters such as the household dietary diversity score, household food insecurity score, months of adequate household provisioning, or the lived poverty index (see Annex 1). Their permission to use and adapt this survey tool thus supports a high standard of data collection and, moreover, generates a Ugandan dataset that is comparable to the previous studies. This frames potential for future research.

In addition to these standardised food consumption questions we had questions on the various sources of food, and where all household members had eaten their main meal the preceding day. Additionally, we included a question about the number of times during the week prior to the survey the respondent (or someone else within the household) had consumed fried foods, snacks, street foods, fried meats or doughnuts; AND/OR: had added sugar to their food or drink; AND/OR: had consumed a carbonated sugar-sweetened beverage (refer to Annex 1). These additional questions address some of the concerns of Walls et al. (2018) regarding the failure of standardised household dietary surveys to pick up consumption of foods high in oils or added salts or sugar; or eating outside of the home.

I spent two days training the team to ensure that we had a shared understanding of every question and to standardise data collection and recording. Lydia ran the training on measuring heights and weights, and discussions regarding food groups. As part of this training, we had discussions on ethics and informed consent. I emphasised that they would be representatives of the project as well as how important it was that respondents were treated with respect and that care and professionalism were exercised at every stage of the fieldwork.

3.3.1 Data Collection

Fieldwork: Household survey undertaken during July-August 2015.

Sampling Strategy for the Country and Cities: As described in Chapter 1, Section 1.5, purposive and pragmatic sampling was used to select the country (Uganda), as well as the cities (Mbarara and Mbale) as two secondary Ugandan cities that were experiencing rapid growth.

Sampling Strategy: Within the cities, random systematic sampling of every third household was employed by the team of 20 enumerators over the course of ten days. The city areas were sampled via the dropping of interviewer groups of three to five enumerators at random multiple starting points where they then worked their way in
all directions across the sector, stopping to interview every third household. The team only interviewed people over 18 years old. Even if some members of the household were out working, it was not common to find a household completely empty. This was partly because it was summer vacation so many students were at home, and were often interested in responding on behalf of the household, and also because there were sometimes extended families within the same dwelling. However, if there was no one present at a house or no one was willing/able to be interviewed the enumerator simply left that home and continued to the next third household. On average, enumerators estimated that they found a non-responsive household around three times in a day. Their feeling was also that this happened slightly more often in better-off neighbourhoods because gates were more often locked and properties were walled, or the residents were simply out, likely working. In less well-off areas, residences were more accessible and there was more likely to be someone at home. This is perhaps because residents were somewhat less in formal employment than those in better-off neighbourhoods, being more self-employed, working from home, working shifts or on flexible hours, or unemployed. As a result of this, I suggest that the household survey may have a slight bias towards households where not all adults worked full-time outside the home, and therefore perhaps a slight bias to those with more vulnerable circumstances.

Since Mbale and Mbarara were relatively small and compact cities this sampling strategy resulted in good geographic coverage of the cities (see maps in Figures 2 and 3 in Paper 1). In the absence of good up-to-date scaled maps, I had purchased high-resolution (0.5 metres) Pleiades satellite imagery of the cities. These provided an excellent overview of the cities’ built-up areas, and were used to guide our orientation and sampling.

With all this in mind, I believe the survey data could be viewed as allowing some generalisation to the city level. However, I do not suggest generalisation beyond the specific urban contexts, though findings may have some relevance for other Sub-Saharan African cities that may be experiencing circumstances similar to those in Mbale and Mbarara.

Survey Logistics: I edited the AFSUN questionnaire and added a section asking about health experiences and a section for measurement of adults’ height and weight. I adapted AFSUN’s survey methodology, details of which can be found in Frayne et al. (2010) and Crush et al. (2012). I coded and digitalised the survey using Open Data Kit (ODK) software. This allowed me to set parameters for the enumerators such as whether the question required a single answer only or whether multiple responses were possible, and whether the question allowed for open text responses or whether the responses were pre-defined by multiple-choice options. This ODK questionnaire was uploaded
onto 20 Samsung Galaxy hand-held tablet computers which were used in the field by every enumerator. This coding and interactive data entry process smoothed the data collection and collation processes, minimised the potential for data collection and/or transcription error, and was also a considerable time saver. This software meant that at the end of the field day each enumerator brought their tablet to me to allow me to download their surveys for the day. If the enumerator was aware of a data entry problem, needed to make a change, or required advice on the most suitable response to a particular question, we discussed it together on the spot and made instant corrections where required. This further reduced data entry errors and ensured consistency of survey interpretation by enumerators. At the end of each day, after I had retrieved the roughly 100 surveys from the 20 tablets, I then ran a number of logic-based data-checking algorithms. This automated the identification process of the most obvious data inconsistencies, such as ‘a household member cannot be under 15 years of age and married’ or ‘A household member cannot have a job and be unemployed’. I would note the ID number of the survey and the enumerator. In addition, I would perform a manual check of the day’s surveys to visually pick up any possible overuse of the ‘I don’t know’ response, which potentially could be an indicator of an enumerator not properly performing their role. I would check for obvious outliers or strange entries in any continuous data variables, and check data boxplots of the day’s entries. The next day would begin with a team meeting where I would clarify any inconsistencies or misunderstandings and discuss with individual enumerators any problems I had discovered. This daily cross-checking and validation process helped ensure a high level of professionalism and consistency across the data collection, built a sense of teamwork, and produced a high-quality database. In addition, the tablets had a global positioning system (GPS) way marking function built into the survey, so that each surveyed household was geo-positioned to an accuracy of approximately five metres. The ODK software server had a built-in map-reading function, so every morning I was able to project for the team a map image of the city showing our spatial coverage to that point. This also allowed identification of any obvious gaps in the spatiality, and helped determine the areal focus for the coming day—Annex 1 provides a summary of the survey.

The survey collected data which allowed the calculation of internationally recognised and tested scores of household dietary diversity score (HDDS), household food insecurity access score (HFIAS) and resource poverty (the lived poverty index, LPI), along with detailed information on farming activity. In addition, we recorded experience of various diseases, and weighed and measured willing adults to calculate body mass index (BMI) scores.
**Anthropometric Measures:** The data upon which BMI was calculated were measured directly by the team using portable weighing scales to record the weight in kilograms (kg) and a simple metal measuring tape to record the height in metres (m) of each willing adult in the household. Participation was voluntary. Children were not measured. The ODK software then automatically calculated the BMI score directly after data entry. The weight classifications used throughout this study confer to the WHO categorisations of BMI less than 18.5kg/m² classified as underweight, 18.5–25kg/m² as normal weight, 25–30kg/m² as overweight and greater than 30kg/m² classed as obese (WHO 2011).

We noted that people were quite keen to be weighed and measured because many did not know their status. Somewhat to my surprise and relief, we actually found that people seemed to feel that they got something immediate and direct from our survey through this height, weight and BMI information. I discuss the slight discomfort I felt with this part of the research in Section 3.10.

At the end of every survey, the enumerator would give the respondent a one-page flyer, written in English, explaining the project aims and stakeholders. This leaflet had Frank’s full contact details at Makerere University, as the Ugandan representative of the project. In addition, each respondent received a Makerere University pen, and a keyring printed on one side with Makerere University’s name and logo, and on the other side with Umeå University’s name and logo. These were small tokens of appreciation for their time. It was my impression that people appreciated these small efforts and particularly appreciated having the leaflet that they could read in their own time and that had Frank’s contact information. My feeling was that these small details lent a sense of legitimacy and integrity, and also a sense of being part of something larger.

### 3.3.2 Data Analysis

Analysis of the quantitative data included detailed presentation and analysis of descriptive statistics and simple inferential statistics for the surveyed population. My work on the first and second research questions focused entirely on this kind of statistical analysis of the food, farming and health indicators, among others, of the cities. Linkages and interactions between key indicators that may be influencing the engagement in agriculture were explored using advanced statistical modelling tools for the second research question.
3.4 First Qualitative Method: Focus Group Discussions

3.4.1 Data Collection

I wanted to use follow-up fieldwork in 2017 to check my emerging insights from the household survey data, probing questions that had arisen for me, against the experience, and interpretations of local healthcare professionals. This desire led to my next data collection method: focus group discussions (FGD) with local healthcare professionals. There has been a renewed and reinvigorated interest in focus groups as a research method within geography, and particularly within feminist geography in recent years (Pini 2002, Longhurst 2003). Indeed, Pini (2002) argues that focus groups can be an empowering methodology well-suited to feminist aims to disrupt embedded power relations and advocate for fairer, more just societies because a FGD can transform ‘the traditional power relations between researchers and participants, emphasises localised and lived knowledge, encourages and facilitates self-reflexivity, and invites social and political change’ (Pini 2002, 349). Robyn Longhurst notes that focus groups are particularly well-suited to explorations of ‘meaning, identity, subjectivity, emotion, affect, politics, knowledge, power, performativity and representation’ (Longhurst 2003, 113), as was the concern of the research question to which this method relates. During FGDs I asked participants about the survey’s indications of a high prevalence of female obesity and a presence of other diagnosed non-communicable diseases, yet an average low-medium dietary diversity and a common feeling of food insecurity in urban communities. The aim was to explore the healthcare workers’ experiences and perceptions related to these themes.

Sampling Strategy: I conducted one focus group discussion per city, one of which had four healthcare professionals present and the other seven. A member of each city’s municipal council with responsibility for health-related issues verbally invited participants. It was framed as a non-compulsory open event as part of a PhD research project regarding food, farming and health. As such, more were invited than actually turned up and my impression was that there was no strong sense of obligation to participate. Thus, those who attended were those who could spare the time and had an interest in the topic. The intention was not for statistical representativeness of the council’s healthcare workers or of the city’s clinics, but rather towards thick description and interactive understanding (Holliday 2016), in an exploratory manner, of healthcare professionals’ perspectives. I was, in fact, interested in interaction in four ways: of the healthcare professionals with my survey data, of the healthcare professionals with myself as involved researcher and focus group leader, of the interaction among the healthcare workers themselves regarding the topics under discussion, and finally with
the intersectional feminist geographic perspective that runs as a thread throughout my research.

**Duration & Location:** One focus group discussion lasted 45 minutes and the other one hour. One focus group took place within the Mbale Municipal Council Offices in a small office room. The Mbarara focus group was held within a small room at a centrally located clinic near to the Mbarara Municipal Council offices. Both were held in the morning.

**Approach:** I started the focus groups, after welcomes and introductions, by simply asking participants to describe the main activities they were responsible for in their employment. This was an easy opener question, designed to allow a gentle introduction to the format of the group, as well as providing me with insight into the professional responsibilities of my participants. As with any interview situation I am leading, I usually begin with a few easy opener questions, before I move towards my core questions (Edwards and Holland 2013). I always close a focus group or an interview by inviting the participants to ask me questions, or asking whether there was something they would like to discuss. The guide I used for the focus groups is shown in Annex 2, but more than rigidly following a guide I tried as much as possible to follow the flow of conversation and be responsive to what arose in the situation. This required me to pay very close attention and to be able to respond to a line of discussion, or perhaps steer the conversation in a particular direction if we seemed to be going far off-topic. I ran the focus groups in English throughout. I do not believe this was a problem since English is one of the national languages of Uganda as well as the main language of educational instruction, and these were all tertiary-educated professionals. Joe Odori, my field assistant and translator, was present in the FGDs in case translation or other support was required. I audio recorded, and later transcribed, the focus groups into 35 pages of text altogether. I also wrote a field journal entry after each focus group, in the company of Joe, with whom I would discuss points of intrigue or confusion. My journal observations and notations of body language, seating arrangements, tone, use of humour, points of dispute, and so forth, also form part of the data upon which I draw for analysis. Further reflection on my own role within the focus group, how I felt I was perceived, and a description of the FGD participants, are given in the manuscript that resulted from this research method, my Paper 3.

**3.4.2 Data Analysis**

The FGDs engaged in considerable debate regarding the local food environment, the perceived food and health situation within their constituent communities, and vigorous and contested discussion of gendered and classed differences in bodies and behaviours.
in the urban context. I undertook both a thematic content analysis (Holliday 2016, Winchester and Rofe 2016, Limb and Dwyer 2001) of the focus group transcript, and a group interaction analysis (Onwuegbuzie et al. 2009) of how people, agreed, disagreed, points of contestation, and other aspects of group dynamics using the interview transcript, listening to the audio recording and referring to my field journal notes. Further detail on my abductive iterative exploratory analytical process (Locke, Feldman and Golden-Biddle 2015) is given in Paper 3. I should emphasise that all names associated with my focus groups and interviews are pseudonyms, except my own.

3.5 Second Qualitative Method: Thematic Biographic Interviews

The household survey data fed into the sampling strategy for my second qualitative research method: thematic biographic interviews. In fact, the survey data raised more questions for me than it answered (Winchester and Rofe 2016). It forced me to ask ‘why’ questions. What might be some of the reasons for this pattern, this inequality, this absence, that presence?’ Such questions demand that one asks people directly. A conversation, or rather, many conversations, were clearly necessary (Winchester and Rofe 2016). Thus, halfway through my PhD, I embarked on two separate trips back to my cities to gain insight into questions such as ‘How do people perceive and interpret their diets, their health, their daily life?’ using in-depth thematic biographic interviews with individuals.

3.5.1 Data Collection

Fieldwork: February and May 2017

Sampling Strategy: Spatial analysis of the earlier household survey data informed the sampling strategy for the biographic interviews. I ran spatial clustering analyses within my geographic information system (GIS) to identify hotspots and coldspots of various food, farming and health variables, such as dietary diversity, food insecurity, presence of obesity in adults, and household income. This revealed areas across each city that had statistically significantly different from random clusters of high values (hotspots), or clusters of low values (coldspots) in a specific variable. For example, I was able to view maps of my cities showing the spatial distribution of households with dietary diversity scores that were statistically significantly higher than the city average, or areas with dietary diversity scores statistically significantly lower. Performing such an analysis across these variables began to suggest some spatial alignments in variables. That is, it allowed me to build an impression of areas of the city where households generally
seemed to have high diet diversity, high food security, good income levels and so on, and areas that seemed to be doing less well on such variables. This analysis also revealed anomaly areas, where, for example, there were clusters of households that had good diet diversity and food security compared to the city average, but that were more involved in farming than the average for the city and had lower than average incomes. The Mbarara Prison Barracks area (Cluster 8 in Figure 3) was one such obvious anomaly area that stood out in this way, and Paper 4 reveals why.

From this cross analysis of these various cluster maps, I then purposively selected four geographic clusters per city as areas of interest to conduct my biographic interviews to further explore the experiences of individuals within those households. In Mbale, I chose two clear hotspots (which turned out to be areas known as Half London and Indian Quarters; see Clusters 1 and 2 in Figure 4) and two clear coldspots (Adra-Maluku and Namakwekwe; see Clusters 3 and 4 in Figure 4). In Mbarara, I chose an average area (on multiple of the variables of interest), a hotspot, a coldspot and a clear anomaly area. The hotspot area was known as Kakyeka-Rwebikona (Cluster 5, Figure 4), average area was also Kakyeka but a bit more to the north closer towards Kajogo (Cluster 6, Figure 4), the coldspot was Kizungu (Cluster 7, Figure 4), and finally the anomaly area, as noted above, was the region of Mbarara Prison Barracks and staff housing (Cluster 8, Figure 4).

To get down to the individual level from these household clusters I then drew a grid selection (approximately 400 m²) in the GIS over each cluster of interest. This selected the surveyed households within this grid. I then checked my original database to identify these households and ascertain first, whether they had expressed an interest in being followed up with in future, and second whether they had left a contact number. I of course, removed from the selection those who had said they would not like to be contacted. This in itself presents an element of self-selection bias as those who either had no interest in the research or no interest in sharing their time, or those who felt uncomfortable, as well as those who did not have a contact telephone or email they could or wished to share, removed themselves from potential follow-up. Yet given that these were in the minority, and that there remained a large pool of diverse potential interviewees, I do not view this as a constraint on the kind of data I ultimately collected.

I then created a list of approximately ten households per cluster that had stated they were willing to be followed up with, and who had left a phone number. I reviewed their information, in terms of structure of the household (single parent or multiple adults), age and gender of the respondent, and the diet diversity, food security, income, farming and health situation of the household. I then made a preferred pre-selection aiming to balance these parameters. Those ultimately interviewed from this pre-selection list depended on whether they were contactable by telephone and expressed interest and
willingness to continue to participate. There were a few individuals contacted who it turned out had moved away from the city by 2017, and these we did not proceed to interview. This approach resulted in my being able to revisit 17 individuals who had been part of the 2015 household survey. Note that it was not I myself who had conducted their survey in 2015 but rather one of my team of enumerators.

In addition to these 17, I added five new interviewees (three men and two women). They were included based on their interest in my research and having a professional role related to my focus areas (Jaspar, Innocent and Rania), or due to my interest to further explore the anomaly cluster in Mbarara (Solomon). One interviewee was simply opportunistically asked if he would like to be interviewed (Noah, Mbale) as he was sitting outside his home when Joe and I were walking in the neighbourhood and finding it difficult to track down previous survey respondents in this area. This was because it was a transient neighbourhood (Namatala) with many small rental properties, which acted as an entry point for newcomers to the city, who then moved on once they had established themselves. Solomon, although not himself directly part of the 2015 household survey, lived in the Mbarara State Prison’s staff quarters and thus acted as a representative of the anomaly cluster in Mbarara that had turned out to be prison staff housing. Table 2 provides a summary of the resulting 22 interviewees.
Table 2: Description of Interviewees, 2017

<table>
<thead>
<tr>
<th>Int #</th>
<th>City (Cluster #)**</th>
<th>Name*</th>
<th>Gender</th>
<th>Work Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mbale (1)</td>
<td>Janet</td>
<td>Female</td>
<td>Worked from her home sewing clothes</td>
</tr>
<tr>
<td>2</td>
<td>Mbale (1)</td>
<td>Felicity</td>
<td>Female</td>
<td>Ran a lunch restaurant from her garden</td>
</tr>
<tr>
<td>3</td>
<td>Mbale (2)</td>
<td>Jemma</td>
<td>Female</td>
<td>No paid work, but was looking. Caring for children</td>
</tr>
<tr>
<td>4</td>
<td>Mbale (2)</td>
<td>Isabelle</td>
<td>Female</td>
<td>Student</td>
</tr>
<tr>
<td>5</td>
<td>Mbale (3)</td>
<td>Susan</td>
<td>Female</td>
<td>No paid work. Caring for 2 young children.</td>
</tr>
<tr>
<td>6</td>
<td>Mbale (3)</td>
<td>Kristina</td>
<td>Female</td>
<td>Retired headmistress</td>
</tr>
<tr>
<td>7</td>
<td>Mbale (3)</td>
<td>Jonathan</td>
<td>Male</td>
<td>Food trader, mostly maize, beans, non-perishable</td>
</tr>
<tr>
<td>8</td>
<td>Mbale</td>
<td>Noah</td>
<td>Male</td>
<td>Informal, irregular in construction</td>
</tr>
<tr>
<td>9</td>
<td>Mbarara</td>
<td>Jaspar</td>
<td>Male</td>
<td>Full-time professional in government job</td>
</tr>
<tr>
<td>10</td>
<td>Mbarara (5)</td>
<td>Lalita</td>
<td>Female</td>
<td>Student</td>
</tr>
<tr>
<td>11</td>
<td>Mbarara</td>
<td>Innocent</td>
<td>Female</td>
<td>Full-time professional in government clinic</td>
</tr>
<tr>
<td>12</td>
<td>Mbarara (6)</td>
<td>Bright ††</td>
<td>Male</td>
<td>Unemployed and looking for work</td>
</tr>
<tr>
<td>13</td>
<td>Mbarara (6)</td>
<td>Eydie</td>
<td>Female</td>
<td>No paid work. Caring for 2 children.</td>
</tr>
<tr>
<td>14</td>
<td>Mbarara (6)</td>
<td>Abraham</td>
<td>Male</td>
<td>Student</td>
</tr>
<tr>
<td>15</td>
<td>Mbarara</td>
<td>Ian</td>
<td>Male</td>
<td>Student. Farms parents’ land for small income.</td>
</tr>
<tr>
<td>16</td>
<td>Mbarara (7)</td>
<td>Maisha</td>
<td>Female</td>
<td>No paid work. Caring for 2 young children.</td>
</tr>
<tr>
<td>17</td>
<td>Mbarara (7)</td>
<td>Meyye††</td>
<td>Female</td>
<td>Farmer, clothes trader, &amp; chores for others</td>
</tr>
<tr>
<td>18</td>
<td>Mbarara (7)</td>
<td>Pricilla</td>
<td>Female</td>
<td>Shop owner trading mainly in drinks</td>
</tr>
<tr>
<td>19</td>
<td>Mbarara</td>
<td>Rasmus</td>
<td>Male</td>
<td>Farmer (rural) &amp; locally elected leader</td>
</tr>
<tr>
<td>20</td>
<td>Mbarara (8)</td>
<td>Solomon†</td>
<td>Male</td>
<td>Full-time professional in State Prison Service</td>
</tr>
<tr>
<td>21</td>
<td>Mbale</td>
<td>Rania</td>
<td>Female</td>
<td>Full-time professional in government job</td>
</tr>
<tr>
<td>22</td>
<td>Mbale (4)</td>
<td>Nailah</td>
<td>Female</td>
<td>Clothes seller in central market</td>
</tr>
</tbody>
</table>

Source: Author; Data: 2015 household survey and 2017 interviews

Note 1): * pseudonym ** refers to clustering in Figure 1 † Solomon’s interview (#20) covers a clear anomaly cluster to the south of Mbarara (see Cluster 8 Figure 1) †† Bright (#12) and Meyye (#17) had experienced the greatest change in circumstances between 2015 and 2017.

Note 2): A table showing each interviewee’s age, years lived in the city, marital status, work status, occupation, income sources and reliability of their main income is contained within Paper 4, Table 1
**Approach:** Everyone we telephoned quickly remembered the 2015 household survey because it had been a rather unusual situation, with groups of students moving around carrying weighing scales, measuring tapes and tablet computers, and people had been quite keen on receiving an indication of their BMI. Frank, who usually made this initial contact phone call, found that more often than not people were quite interested in continuing to be involved. Interviewees generally expressed feelings of appreciation that researchers they had once spoken to actually came back to speak to them again. This follow-up was felt to be rare but proper. At the end of every interview, I usually gave a short summary of our preliminary findings from that household survey and allowed time for interviewees to ask questions of me. I also left each interviewee with a one-page leaflet, written in English, summarising the aim of the project, why we were there again, and the main findings from 2015, with Frank’s contact details at Makerere. Again, this was given together with a keyring showing Makerere and Umeå Universities’ logos.

**Interview Logistics:** In terms of interview logistics and dynamics, the first thing to clarify is that I was never alone; I always worked with two Ugandans. As already described, Frank Mugagga was my main counterpart and acted as local coordinator and contact person. Joe Odori, my assistant and translator, having worked with me as part of the 2015 survey team and in the focus group discussions, was present at each of the individual interviews. Frank had spoken on the telephone at least once with those interviewees who were follow-ups from the household survey. As a result, he would accompany Joe and me to meet those individuals, and would introduce us. He would then leave Joe and me to conduct the interview without him. In the next section, I discuss in more detail Joe’s role in relation to the research.

We (Frank, Joe and I) always parked our car a few blocks away from where we would be meeting an interviewee, and walked together through the neighbourhood towards the arranged meeting point. This presented me with a useful opportunity to orient myself to the particular neighbourhood of the city. I would refer to my satellite image, which I always carried in printed form and which I would annotate if something came to my attention in the urban landscape that I felt was significant. I found this walk an essential part of getting some sense of a neighbourhood, and would record my observations in my field journal at the end of each day. Another reason I felt it important to make a walking approach wherever possible was simply that I did not feel comfortable driving up to people’s front doors. In an environment where many still struggle with food and rent and to provide the basics in life it felt brash and insensitive to arrive in a car. I feel it creates an immediate barrier. Although I of course can never escape the fact that my very appearance as a white person in small Ugandan towns immediately highlights me as an outsider, I feel that the car serves to amplify a distance I prefer to try to reduce.
The shortest interview lasted 35 minutes and the longest 70 minutes. The majority lasted one hour. Most interviews took place in the interviewees’ home, with one or two taking place outside their home or workplace, and three or four in their office or shop. The locations themselves were also a relevant part of the research because it meant that I had the opportunity to observe the person’s home arrangement or workplace set-up. At the end of every interview day I would record my observations in my field journal, along with my reflections on the dynamic of the interviews, the reactions I received, points of humour or concern, and so forth. In this sense, my fieldwork process follows ethnographic and participatory observational approaches (Spradley 1980).

Six out of the twenty two interviews were conducted in Luganda (led by Joe), the rest in English (led by me). All interviews were audio-recorded with permission, and were later transcribed into English (Joe transcribing the Luganda ones and some of the English).

Interview Guide: The aim of the interviews was to explore daily lived experiences, perceptions and understandings of food, farming, health and urban life. The interview guide I used is shown in Annex 3. I take an interpretive approach to interviewing and see the interview as a co-construction (Edwards and Holland, 2013, p17). When I start an interview I generally open with the ‘grand tour’ (Spradley, quoted in Edwards and Holland, 2013, p55) type questions. In this instance, I always started (after the due introductions and explanation of our purpose, and allowing an opportunity for questions) with a question that ought to be relatively easy for people to answer. In this case, I generally asked the interviewee how long they had lived in the town, or I asked them to describe an average day in their life. While I was interested in their response, of course, the purpose of this question was dual: it was also intended to relax the person and hand them the baton of ‘expert’ in their own life. Even this strategic questioning betrays the co-constructed nature of an interview.

3.5.2 Data Analysis

I used the Atlas.ti software programme to facilitate the coding and analysis of the transcripts. I went through every transcript coding sentences and paragraphs into broad themes such as: agriculture/gardening; diets, meals, food sources; health; perceptions/attitudes related to weight; general feelings/attitudes/beliefs; views or experiences of urban life; views or experiences of rural life. I applied more detailed coding within these categories. The interviews could also be classified in the software into groups according to aspects of their identity (male/female; youth/mature adult/elderly for example) or their household structure, city residence and by their work status. This helped in sorting material in different ways and paying attention to
overlapping intersections. I conducted a thematic qualitative content analysis of the interview material in order to investigate my fourth research question regarding similarities and differences in food sources, food access strategies and daily urban life. I analysed the food environment situation (diet diversity, food security status), the food sources, and the food access strategies (from the interview data and cross-referencing to the household survey data for those who had participated in that), taking account of intersections with identity characteristics and interviewees’ social location in life. In this was I interrogated my interview material against some expectations from nutrition transition theory of food and farming systems change, and anticipated circumstances of urban life. The outline of this analysis, and the findings, are found within Paper 4.

3.6 Third Qualitative Method: Observation and Field Journaling

Back in my office, reading my field journal entries, I realised I had actually also been conducting a third qualitative method, that of participant observation (Spradley, 1980). Field journal data are also part of the research process, and part of an ethnographic record (Spradley 1980) and can be referred to during the analytical process, as indeed I do in Papers 3 and 4. The points I observed and noted in my journal at the end of the interview with Felicity, for example, about her home and the size and location of the plot she owned, the diversity in her garden, and her chickens as I noted earlier, were relevant to my analysis. These observations all suggested that Felicity was doing reasonably well by local standards, and was, at least, not the poorest of our interviewees. I believe this highlights the value of observational data as important to the research process. I recorded my observations in my field journal as soon as possible after each interview.

3.7 Spatial Methods (a qualitative and quantitative resource)

I used a geographic information system (GIS) in ArcMap version 10.6 and conducted some spatial analysis during the course of my research. For the most part, I used these techniques against my georeferenced survey data to explore whether there appeared to be spatial patterns apparent in the food, farming and health data. As I described in detail in Section 3.5.1, I also used the GIS to conduct hotspot/coldspot analyses. This acted as a data exploratory technique, as well as informing the sampling strategy for the qualitative interviews.
In addition, I utilised GIS as a tool to present and display descriptive and analytical results. The ability of GIS to visually depict findings on a map of the city, I find, can facilitate understanding and offer great communicative power. I used maps in this way particularly when sharing my findings locally with municipal authorities and project stakeholders (in both 2017 and 2019). I also tested using GIS with my qualitative data, creating maps showing interviewees approximate home and/or work locations (at a scale that did not infringe on confidentiality), where they had urban farming (if they did), and where they had rural farms. I found this not only a useful visual display, but also an analytical tool, revealing the spatiality of land and/or social relations, in an intersectional perspective. These maps informed my analysis related to my fourth research question (culminating in Paper 4) though I did not include the actual maps themselves in the publication due to space limitations.

3.8 Reflections on Role of Assistants, Cultural Guides, Gatekeepers

An important factor that can clearly have crucial influence upon my research is the positioning, approach, communication style etc. of those I am dependent upon to open doors for me, or to facilitate my research: the gatekeepers (Holliday 2016, Spradley 1980) and assistants. In this research, two people played a key role. The first was my ‘gatekeeper’ and local counterpart at Makerere University, Professor Frank Mugagga—a fellow geographer; and the second was my assistant and translator—Joe Odori, a graduate of Makerere University. The positioning of my gatekeeper, Frank plays an important role in situating my research since he was generally the first point of contact of my project with officials and with interviewees in Uganda. Frank’s position as a tenured then-doctor, now-professor, at the university, as well as his natural skills as a communicator and his genuine enthusiasm and enjoyment in speaking with people ‘on-the-ground’ influenced our opening and access in this research. If Frank had employed a different kind of interaction, our initial contact with interviewees could have been (potentially) more difficult.

As well as acting as a translator when necessary, Joe provided ongoing interpretive support. He also served a security role, making sure I was never completely alone. Joe undertook two of the twenty two interviews on his own when I could not be present. If Luganda was the preferred language of the interviewee then Joe took the lead. Yet even with English as the main language, Joe’s presence and knowledge of both Luganda and English, as well as the culture, enabled him to play a translator role in terms of slang or occasional Luganda words that were thrown in by an interviewee, or the use of a local phrase. In the end, Joe and I became an interviewer team, equally familiar with the
questions, with the topics that might arise and so on. We, in fact, became a bit of a double act, sometimes taking turns to ask certain questions, or more naturally becoming involved in an interactive three-way conversation. I quickly grew to trust Joe’s understanding of the aims of my research, his professionalism and his ability to handle any situation that arose. Since he was present at each interview, Joe continued to provide support in the form of a fact-check or sounding board for my ideas and interpretations throughout my project.

With Joe’s presence, we were always (apart from the two interviews he undertook alone) a male-female interview partnership. This meant that no matter whom we met, one of us was the same gendered code as that person (though I recognise gender is not a simple binary). This meant that whomever was interviewed would likely be able to identify with/feel relaxed by the presence of one of the genders. I believe this had advantages and provided comfort to both the interviewees and to me as well.

Joe’s presence also gave me comfort: there was at least one occasion when I initially felt wary of the men I was about to interview, and the security provided by Joe’s presence should not be underestimated. Such situations always arose in the initial meeting moments and early stage. Usually, after around ten minutes, people began to relax and by the end of an interview the dynamic was always more relaxed than at the beginning. Joe also became well-attuned to my feelings and could read my signals of discomfort or incomprehension, and act in support. I thus must acknowledge that the often relaxed, and indeed often quite humorous and engaged interview dynamic was as much a result of Joe as of me, and the good team we made. These aspects are essentially relevant to the social construction (Lincoln et al. 2011) of the research, to the positioning of the research, and to a third-wave feminist approach (Moss 2002, Mkandawire-Valhmu and Stevens 2007) to seeking knowledge.

When I reflect on my interviews, I can see the tremendous value of having Joe’s local knowledge and awareness of Ugandan discourses on bodies, on body-enhancing drugs, and on food and consumption behaviours, present at all times. For example, he would quite comfortably, with humour and mild provocation, ask other young men we interviewed about their perceptions of and preferences for the female body, as well as their own male bodies. While I may well have asked them this question myself, I probably would have asked it in a different way, and their response to me—a (relatively) young female—would likely have been more reserved than how they engaged in discussion with Joe (another young male). I think this kind of dynamic, this process of identification, and simply Joe’s personality and positioning should not be overlooked when one is working in an international context and require a translator/guide. Working
alone, or with other non-Ugandans, would have had an impoverishing effect on the data collection.

I also appreciated Joe’s ability to communicate to interviewees what ‘research’ really meant. He always reminded me that, although an interviewee used words of acceptance and understanding, through politeness, intrigue or hopes of direct benefit, it was often the case that they had not really grasped what ‘research’ was. Joe was skilled in finding a way to clarify in a manner accessible to interviewees’ everyday lives, without raising expectations of returns. Joe, as more of an ‘insider’, was better placed than I myself was as an ‘outsider’ to understand the context and offer this explanation.

Both Joe and Frank have been my cultural guides, but Joe’s role in particular, having been present at all the interviews, and indeed through all my research methods, has been integral to my field experience and interpretations. Although it has always remained clear that I was the research leader and the project was mine to run, Joe and Frank’s support roles have been crucial and I am extremely grateful to them for their engagement, enthusiasm and support.

3.9 Other Influences upon my Research

When I reflect upon the interviews, I realised it was quite common that the interviewee was initially keen to emphasise to this unknown outsider (me as a white woman and educated foreigner) that life was hard. They clearly wished to elicit sympathy from the outsider, and I tended to give this through my body language and facial and verbal expressions. My interpretation of this is twofold: the first is that interviewees were likely initially somewhat suspicious/uncertain of who we really were and what we were about, and that they also perhaps hoped that I might give them some money or a gift if they showed they were ‘in need’. The second interpretation is that this is also a reflection of the culture and wishing to be seen as humble and not to brag. Joe concurred with these perceptions in our later discussions. To emphasise this point, as we progressed through an interview, it sometimes became apparent that the person was actually not doing too badly by local standards. This was the case with Felicity who actually owned the sizeable plot and house where we were doing the interview. This was located in a relatively central, and known to be somewhat better off, neighbourhood. She had a large, diverse garden; she was caring for nine others; she ran her own business from home; and there was evidence visible in the yard that she had purchased building material and had started to dig foundations for rental rooms she talked about having a plan to build there. I believe there are important lessons here for how I should respond humanely and
sympathetically as an interviewer, but also that I need to be aware of such underlying
tendencies and power dynamics (Edwards and Holland 2013) and therefore also not
become overly involved in a person’s situation. There are times when someone’s story,
or obviously poor situation, creates ethical challenges for you as a researcher.
Experience—both of the context and of this kind of research—can help in handling such
challenging ethical moments, but you can never be fully prepared for everything.

3.10 Ethical Considerations

Guillemin and Gillam (2004) divide ethics in research into two components: procedural
ethics, and ethics-in-practice. They describe procedural ethics as relating to seeking the
correct permissions, seeking informed consent, and going through an ethics approval
committee and such considerations of good research practice. For this research, I can
say that I have gone through these procedural ethics requirements in good detail. I
submitted an application to the Umeå ethical review board and it was approved, as was
an ethical application to the Ugandan National Council of Science. As part of this process,
I completed documentation regarding my family and me, and the aim and content of
the planned research. At the beginning of each interview or focus group, I also strove to
provide a good introduction of the aim and purpose of the research, my role within it
and the possible relevance of the research findings to an individual or community. I
always allowed time for questions and consideration and gave the potential interviewee
the opportunity to decline to be interviewed, and I emphasised that there were no
correct or incorrect answers, that all information would be kept confidential, and that
they could stop the interview at any time. At no point did I have problems with regard
to this. I can say that all of the interviews I have conducted to date have concluded with
the interviewee feeling comfortable asking me probing questions about why I was
interested in such information, and what might be coming back to them (either as an
individual, but more often conceptualised as the town’s residents).

Regarding Guillemin and Gillam’s (2004) ethics-in-practice, I might consider myself to be
less prepared. However, upon closer reflection, and as a result of my long experience of
working in lower-income countries of Africa, I could say that I did find that I was mentally
prepared to be challenged by the circumstances I might find people living in. I was aware
of the fact that by the very colour of my skin I am instantly set apart from interviewees
and viewed, at best, with polite curiosity and at worst, as representing a potential
money-making opportunity. Most of my experiences to date, however, have been
benign.
I did have an experience during this fieldwork when I felt that the four-year-old twins in a household I was interviewing showed signs of malnutrition. It could have been that their very reserved behaviour and unhappy clingy appearance were a sign of poor care keeping towards them. It could have been that they had intestinal worms and needed simple medication. Did I have a responsibility to question this more closely? Should I have voiced a concern with their parent? I was probably not well-prepared for this, as a number of these thoughts only came to me some hours after I had left that home, and indeed after I had conducted a couple of other interviews with young children in the room. These other children had been louder, more boisterous, cheeky and curious and it was their behaviour that made me further reflect on the less child-like behaviour of the earlier children. This situation is one of those ethically important moments that Guillemin and Gillam (2004) describe. I think the emphasis these researchers raise—that harm could be done by a well-intentioned researcher—is important to bear in mind in such circumstances. Guillemin and Gillam go on to describe the practice of reflexivity by the researcher as a crucial way of preparing for ethically important moments. They conclude that ‘reflexivity does not prescribe specific types of responses to research situations; rather it is a sensitizing notion that can enable ethical practice to occur in the complexity and richness of social research’ (Guillemin and Gillam, 2004, p278).

In addition, there are a host of ethical considerations about privacy, confidentiality and representation, which I have tried to remain conscious of and respect throughout my research. The geo-positioning to an accuracy of 5m, of any form of data, requires careful consideration of how such data are presented, how maps are created, and what is published.

Finally, I should note that I did find that measuring people’s weight and height in order to categorise them into ‘normal’ or ‘deviant in some way’ sat uncomfortably with my feminist and post-colonial perspective (see my discussion of material feminism in Chapter 2). Social scientists do not typically use measurement tools to classify people by their bodies, yet BMI is an internationally accepted standard with proven value as an indicator of certain types of health risk. Despite some reservations associated with the measure physician Frank Nuttall notes that ‘at present the BMI is the currency by which we define the obesity issue’(Nuttall 2015, 120).
4 BACKGROUND TO STUDY CONTEXT

My study cities of Mbale and Mbarara are not cities characterised by huge slums, appalling conditions of depravity, or glitzy highly securitised gated communities of wealth. They do not sprawl over vast distances, but are traversed from one side to the other in just 5km. They are not sites of gridlocked traffic and heavy pollution. They are not an apocalypse of extremes (Herrick 2017). Inequalities exist in Mbale and Mbarara, certainly, but they are perhaps not as extreme as in other or larger cities, such as Kampala, Nairobi, Lagos, Johannesburg or Accra. I thus try to write beyond ‘meta-narratives of catastrophe and possibility’ (Herrick 2017, 563) in my work. In this section, I provide some background (geographies, histories, stakeholders, events) to the development of Mbale and Mbarara to help contextualise my findings.

4.1 Ugandan Urban Development Trajectories

I do not wish to overemphasise the ‘disruptive power of the colonial state’ (Reid 2005, 324), because there were also powerful socio-spatial and political systems in place that influenced urban development prior to colonialism. These had an influence on, and were influenced by, the colonial regime, and both eras continue to cast shadows into present-day Uganda (Reid 2005, Mukwaya et al. 2010).

Pre-colonial Uganda is generally not associated with strong urban centres or urbanising processes. Yet pre-colonial tribal administrations had ‘elements of an urban character’ (Mukwaya et al. 2010, 272). Interesting, and relevant to geographic notions of the social production of space (Massey 2005, McDowell 1999), is the suggestion that pre-colonial Uganda had a mobile urbanism whereby the urban functions of administration, land allocations, moved in site with the temporary or cyclical migrations of various royal households (Mukwaya et al. 2010, Reid 2017). When the British arrived, they strategically located their headquarters in proximity to traditional tribal seats (Lwasa 2011, Mukwaya et al. 2010). This dualism between traditional seats of power and proximate centres of colonial administration has, researchers argue, left traces that reverberate into the present (Reid 2017, Lwasa 2011, Mukwaya et al. 2010).

The sixty-eight year period of British colonial influence overlaps with a phase of urban development described by Mukwaya, Sengendo and Lwasa as ‘settlement stabilisation, fixation and pseudo-planning’. This was an influential phase during which much of Uganda’s urban legislative, planning and regulatory frameworks were established in
accordance with British planning theories and approaches (Mukwaya et al. 2010, Kiggundu 2014, Home 2014). These included the dominance of master and detail planning, with a focus on zoning—of both land usage and residential areas where segregations were along race and class lines (Byerley 2018, Kiggundu 2014). The socio-spatial roots of many Ugandan towns, and economic and infrastructural connections and competitions between them, were formed during this period of modernist planning ideals (Mukwaya et al. 2010, Kiggundu 2014).

Yet it is during the post-colonial era (since 1962) that Uganda (mainly Kampala until more recently) has begun to experience rapid urban growth. The key drivers of this growth have been significant natural population increase (fuelled by high fertility rates and improving healthcare services as Fox (2014) notes), steady rural-to-urban migration, attempts at urban industrialisation, and a reclassification of more districts as ‘urban’ (Lwasa 2011). The economic neoliberalisation since the 1980s (Reid 2017) has also enabled the rise of a private sector of housing developers, construction firms, other commercial entities (often agriculture-related) and private tertiary education providers (Lwasa 2011). Indeed, Lwasa notes that many of Uganda’s secondary towns, including Mbale and Mbarara, are ‘experiencing growth driven by the establishment of educational centers’ (Lwasa 2011, 282).

Uganda has tended to pursue a policy of urban growth as a strategy towards ‘development’ (Lwasa 2011), rather than the other way around. Such an approach is influenced by the idea that density and proximity are sufficient preconditions for the emergence of new economic sectors (Wiggins and Proctor 2001), as modernisation theory and nutrition transition theory propose. Yet in many of the cases where this has occurred there has also been a concurrent rise in the manufacturing industry and related employment opportunity (Wiggins and Proctor 2001). In many urban African contexts, this manufacturing/employment growth has largely failed to coincide with increasing population, and the relationship between urban growth and economic development is highly variable and debated (see for example Turok (2016); Turok and McGranahan (2013)). This has resulted in many urban African residents being left in a poverty trap, cobbling together a livelihood within informal sectors, surviving in informal housing with poor access to sanitation, health or education (Reid 2017). The need for serious initiatives to tackle urban problems of informality, poor infrastructure, and transport and environmental problems has been recognised (UN-HABITAT 2016, Lwasa 2011, Mukwaya et al. 2010). The main change in Uganda in recent years has been the government’s decentralisation initiative (Lwasa 2011). A major barrier to progress is the small and insecure fiscal situation for urban planning (Kiggundu 2014, Brown 2014). The continued dominance of Western educational models and training for planners which prioritises zoning and master planning (Kiggundu 2014, Brown 2014) and a failure to
stimulate broad economic growth have been suggested to have hampered efforts to think outside the box or to find solutions to certain entrenched urban problems.

Despite such problems and urbanised poverty, cities continue to hold out aspirational promises of material gain (Reid 2017) in the minds of many, fuelling continuing immigration. These more subtle psychological pulls and long-ingrained assumptions that urban life is more civilised and sophisticated than rural life are important other drivers of urbanisation (ibid, and unpublished interviews). Yet many Ugandans (elites and otherwise) still see security in land (Reid 2017, Goodfellow 2017) and maintain active links to rural homelands and rural farms, even investing urban-made successes into future rural spaces of identity and perceived self-sufficiency (Goodfellow 2017, Jayne et al. 2016, Reid 2017, Frayne 2010).

The most recent urban-related news in Uganda is the concept of green growth and the compact cities launch in 2017 under the Uganda Green Growth Development Strategy (UGGDS) 2017/18-2030/31 (NPA 2017). This was prepared under the United Nations Development Programme’s Low Emission Capacity Building Programme (LECP) with funds from the European Community and German and Austrian governments, and technical support from the Global Green Growth Institute (an intergovernmental organisation). My study cities of Mbale and Mbarara are proposed as two of the four planned regional cities. The vision and aim of this new strategy for green regional cities is premised on ideas of economic and urban growth that rests upon improved ‘agro-processing and upgrading the value chain from agriculture’ (NPA 2017, 50).

### 4.2 About the Study Cities

The administrative category below the city of Kampala was (at the time of research) the ‘municipality.’ This designation includes a swath of peri-urban settlements and rural villages. The Ugandan study cities in this research were (at the time of study), both officially described as municipalities. Thus, census data were only available at this level, which includes surrounding villages: Mbale (92,863 residents) and Mbarara (195,160 residents) (UBoS 2016). The actual population of the main urban area, therefore, is lower than these figures. I estimate their actual urban populations in 2015-2017 to be approximately 70,000 in Mbale and 90,000 in Mbarara, based on my survey experience and discussions with local researchers and municipality staff. However, both Mbarara and Mbale have applied to the government to have their status officially changed to that of ‘city’. These applications are ongoing. A consequence of gaining official city status would be a greater budget allocation from central government, and greater powers to
regulate and control local tax regimes and service allocation. It is also hoped that city status would encourage investors with the effect of creating employment opportunities, and that the new resources and powers would enable better social and infrastructural planning and provisioning (Nahamya 2015). This imagined vision of a future city abundant with opportunity is already attracting migrants from surrounding rural areas (my own field notes and interviews).

I believe it is also relevant to note that Mbale and Mbarara (and indeed Uganda as a whole) are urban/societal contexts where there is not full and free democracy (Yap 2013). There are also no social safety nets, beyond who you know. It is a context where salaried employment is becoming a rarity (Datzberger 2018). The country’s urban landscapes do not always provide the basic infrastructures for a decent urban life (sewerage, running water, refuse collection, functioning healthcare, reliable/affordable electricity); certainly not for everyone. This is a context where assumptions of agglomeration economics and neoliberal market forces as a fair and just redistributor of wealth and resources simply do not stand strong (Turok 2014).

Secondary towns such as Mbale and Mbarara, have long played an intermediary and facilitator role between their rural hinterlands and the urban complexes further up the hierarchy (in the Ugandan case, largely Kampala and possibly Jinja) but this traditional role is being weakened by new communication technologies and denser networks of urban-rural linkages (Mainet and Edouard 2017). Towns like Mbale have lacked a strong industrial or productive economy of their own, functioning mainly as trade corridors: ‘Secondary towns are active in the catchment of farm products and for the supply of rural areas but they are lacking real and effective tools for local development’ (Mainet and Edouard 2017, 43). Time will tell as to whether being designated a regional growth city under the Green Growth Development Strategy (described earlier) will bring the productive and employment opportunities that are needed. Chinese infrastructural investment initiatives are in evidence already.

Historically, food production within many African cities lay outside the official (especially colonial but even post-colonial) designers’ city representations (the planners, architects, decision-makers etc.) (Myers, 2011). Force was even deployed to literally uproot people’s crops and livestock (Bryld 2003). Yet in spite of this previous repression, the daily spatial practice and lived necessity often enabled an urban food production (Mackay 2018, Hamilton et al. 2013, Lee-Smith 2010, Cole et al. 2008, Egziabher et al. 1994, Quon 1999). The past decade, however, has seen an expansion of these official representations of what the city can incorporate. This is true of the Ugandan (KUFSALCC 2005) experience, as well as the Kenyan (Ministry of Agriculture, 2010) and Ghanaian (MOFA 2007) contexts, for example. However, at the time of research, neither Mbale
nor Mbarara had areas of urban land under organised irrigated intensive gardening for proximate markets. This is a point of difference from the urban agriculture of many larger African cities (such as Accra, Kumasi, Kampala, Nairobi, Dar es Salaam and Yaoundé; for example see: de Zeeuw and Drechsel (2015); Drechsel and Keraita (2014); Prain et al. (2010); Brook and Davila (2000); and Egziabher et al. (1994)). Mbale and Mbarara do contain home gardening and agriculture within institutional land. My research explores the UA practice within these secondary cities and thus adds to this body of literature.

4.2.1 Mbale

Historical research by Michael Twaddle noted that Mbale was an important trading centre already prior to colonial times, with intense African, Asian and Arabian merchant activities (Twaddle 1966). Twaddle describes Mbale as being established in 1901/02 by a local general–Semei Kakungulu—who had conquered the area and established his chieftaincy there (ibid). By 1965, Mbale had grown to 16,000 people and was a centre of administration and trade, with the Asian presence dominating commercial activity (Jacobson 1968). Elite male Africans (defined in this 1960s research as those with completed secondary education) worked within government administration, with a few in private companies (ibid). Non‐elites, who were the majority, were confined to menial and unskilled employment (ibid).

Kiggundu (2014) notes that Mbale (along with Jinja) was one of the few urban areas to have implemented an original colonial town development plan. The remains of this town planning, with street grid patterns in the centre, and a colonial elite residential area separated from the masses by a golf course (Mukwaya et al. 2010) can still be seen today (Figures 5, 7b and 7e). Home (2014) also describes a colonial plan which provided huge land plots around the homes of colonial managers and key stakeholders (later taken over by the African elite) with green belts and golf courses commonly separating them from the informal disordered African residential areas found on the edges of the original town (see Figures 5, and 7a and 7b). Where topography allowed, colonial planning put the wealthiest at the tops of hills, with steadily decreasing socio-economic status going down the stratigraphy: ‘altitudinal stratification’ (Mukwaya et al. 2010, 273). Mbale is still a pleasant town, though its former reputation of being one of the cleanest cities in East Africa (Silver 2017, Mukwaya et al. 2010) is perhaps somewhat eroded. Challenges facing the town include informality of settlements and employment, and difficulties providing adequate water, sanitation and solid waste services (Habitat 2011). In recent years Mbale has experienced climate-related challenges such as drought, floods and mudslides or landslips, as well as outbreaks of disease such as cholera and ongoing challenges with HIV/AIDS (Silver 2017). In 2017, the municipality completed a phase of
road rehabilitation around the main streets, paid for by a grant from the central government. During my last visit in February 2019, I noted construction had started on a new industrial estate on the western edge of the town, with Chinese finance.

One of the biggest barriers to overcoming such problems is the limited and vulnerable fiscal situation facing the local government, with the 2015/16 budget totalling just UK £5 million (Silver 2017). The central government’s policy of decentralisation of responsibility for urban services ‘without the local tax base or revenue to sustain operations’ (Silver 2017) is a huge barrier to urban development. This situation has forced Mbale (and many other Ugandan towns) to search for new funding opportunities at both national and international scale (Silver 2017). New fiscal ties have resulted in a loss of autonomy and authority, and have allowed new international stakeholders such as the World Bank, or UN-Habitat and local and international NGOs such as ACTogether and Shack/Slum Dwellers International (SDI), and global multilateral public-private partnerships such as Cities Alliance, to dictate terms of urban infrastructural investment (Brown 2014, Kiggundu 2014). Such power imbalance and financial insecurity, Silver argues, has resulted in situations whereby external agents use sites such as Mbale to test new approaches, which often result in ‘new forms of ‘accumulation by dispossession’” quoting David Harvey’s concept (Silver 2017, 1494).

4.2.2 Mbarara

The British established a civil station at Mbarara in 1906 officially proclaiming it a town (Weekes 1973). The site was chosen because it afforded both good defensive and trading opportunities (ibid). It has remained a centre for regional trade and an important transportation node through to the present day (Figure 8, 8d). The town has a linear spatial pattern extending north-east and south-west along the Kabale-Kampala road (Figure 6). Analysis of the town’s temporal and spatial patterns of development since 1984 suggests a period of rapid growth and urban sprawl along this main arterial line, particularly between 1984-1999 (Brian 2016). Brian notes a still prevalent preference for land-use zoning and separation of activities (Brian 2016). Mbarara District’s sectoral economic breakdown is dominated by crop production (84%) (MDLG 2015, 30) with two major cash crops of matooke (cooking bananas) and coffee making the greatest contribution (MDLG 2015, 31).

Differing Ugandan land tenure systems have been blamed for different spatial and physical aspects of the built environment in Mbarara (Makabayi and Musingusi 2015). Areas largely under formal titled land, such as Kamukuzi (a low-density residential area west of town; see Figure 8a) were more spatially ordered, conclude Makabayi and Musingusi (2015), and contained larger plots and houses built with better quality
materials than untitled customary tenured lands in the city. They describe Kisenyi (Figure 8c), a mixed neighbour quite central and leading into Kizungu (a locally-termed ‘slum’ area currently undergoing some gentrification) as an example of land plots that are largely under customary tenurial arrangements. These, they note, are characterised by smaller plots, poorer-quality wattle and daub-type building materials, and temporary structures with much less spatial regulation, and much poorer road, electrical and water infrastructural provision (ibid). The insecurity of tenure common with customary land holdings was associated with informal settlements and ineffective urban planning (Makabayi and Musingusi 2015). Yet this tenure arrangement remains common across Uganda (ibid).

Emphasising post-colonial theorist’s concerns with a continued admiration of Western ideas of cities, of planning and of the concept of a ‘modern’ city, Mbarara’s District Development Plan for 2015-2020 has as its guiding vision a ‘well-planned, modern and prosperous District by 2040’ (MDLG 2015, 4). The definition of what a ‘modern’ city is or should be, is never articulated. This document also evidences a neoliberal conceptualisation of the way forward, with strong trust in the idea that markets are the solution to urban problems—their goal is to ‘increase the quantity and quality of goods and services for improved standards of living’ (ibid).
Figure 5: Map of Mbale, Uganda

Note: Boxes with numbers locate the correspondingly numbered images.

Source: Open street maps. Created by author, August 2018.
Figure 6: Map of Mbarara, Uganda

Legend

+ Central Market

Note: Boxes with numbers locate the correspondingly numbered images.

Source: Open street maps. Created by author, August 2018.
7a) Namatala and Settlement Ponds
7b) Senior Quarters, former colonial residences and newer villa housing
7c) Mbale Central Market Hall
7d) Informal economy brewing local alcohol
7e) Grid and block layout of the centre showing prominence of the new market structure

Figure 7: Images from Mbale

Note: All photographs H. Mackay. Close-ups of satellite imagery; see source info for Figure 6.
8a) Kamukuzi low-density tenured housing, claim Makabayi & Musingusi (2015)

8b) Residential middle-class street, Kakyeka

8c) Less-ordered customary tenure, Kisenyi, Makabayi & Musingusi (2015)

8d) Legend from Master Plan showing zoning

8e) View over Mbarara, within town centre

Figure 8: Images from Mbarara

Note: All photographs H. Mackay. Close-ups of satellite imagery; see source info for Figure 4.
5 PAPER SUMMARIES

5.1 Doing things their way? Food, farming and health in Ugandan cities (Paper 1)

This paper was framed around claims of nutrition transition theory that associated nutritional, food system and epidemiological transitions occur with increasingly urban lifestyles, culminating in a growing non-communicable disease (diabetes, hypertension, obesity) burden (Popkin et al. 2012, Pingali 2007, Popkin 2001, Ruel et al. 1999, Popkin 1998, Drewnowski and Popkin 1997, Popkin et al. 1996, Popkin 1994). Yet much of the data upon which these claims have been made comprise national-level aggregate data, or are based on studies from capital cities and megacities (Thornton 2008, Satterthwaite et al. 2010). In addition, much of the urban growth and urbanisation that is predicted to occur in the coming decades will take place in the Global South, and within and around smaller, secondary cities (Berdegué et al. 2014, Satterthwaite et al. 2010, Cohen 2004). These two secondary Ugandan cities were situated within a context of late-onset but rapid urbanisation (Goodfellow 2017), yet early-stage food system and nutritional transition (Haggblade et al. 2015) during the time of data collection in 2015. Our aim was to measure and assess aspects of dietary diversity, food insecurity, food sources, socio-economic status and household agricultural practice by employing a random systematic survey of 1,995 urban households (1025 in Mbale, 970 in Mbarara). We also measured the heights and weights of willing adults to allow calculation of BMI data, and asked about experience of the main infectious (tuberculosis, HIV/AIDS, malaria) and non-infectious (non-communicable) diseases (such as diabetes, hypertension or heart problems).

The survey indicates that, during 2014-2015, the populations of these two secondary cities of Uganda were still largely eating from home (87% Mbale, 89% Mbarara), consuming traditional foods that were not highly processed with a strong focus on maize, beans and matooke (cooking bananas). The main food source for 85% of households in Mbale and 89% of those in Mbarara were the traditional markets, and 63% of Mbale and 76% of Mbarara households said they also shopped in local stores. Just 23% of Mbale and 24% of Mbarara households said they sourced some food from supermarkets. Consumption of snacks or street food was low and infrequent (just 17% in Mbale and 12% in Mbarara said someone within the household had consumed these within the preceding week). Just 9% of households in each city said they had someone in the household who consumed a carbonated sugar-sweetened beverage such as Coke, Fanta daily. More than half of the surveyed households (65% in Mbale, 51% in Mbarara) were involved in own food production to supplement the household food supply. Many
(62% in Mbale, 49% in Mbarara) households had received food transfers during the preceding year, predominantly from rural-based relatives. The feeling of food insecurity was quite common (51% Mbale and 36% Mbarara experienced severe food insecurity during the four weeks prior to the survey, and a further 15% in Mbale and 19% in Mbarara were moderately food insecure). This was calculated in accordance with the internationally tested and validated measure of household food insecurity access prevalence (HFIAP). The average dietary diversity was low to medium (4 food groups consumed during the preceding 24 hours in Mbale, 5 in Mbarara), based on 24-hour diet recall data, and calculated in accordance with the internationally validated scale of the household dietary diversity score (HDDS) and FAO standard classifications. In Mbale, a full 40% of surveyed households fell into FAO’s classification of low dietary diversity (three food groups or fewer in 24 hours), and this figure was 20% in Mbarara. Just 29% in Mbale and 43% in Mbarara were classed as having high-diversity diets. More details on the food groups (cereals, roots and tubers, legumes, and sugar are shown in Annex 5, which presents the 24-hour recall data from the survey in a format showing the most common food groups consumed). Yet we recorded a high prevalence of obesity (14% in Mbale [N=1248 adults], 22% in Mbarara [N=948 adults] using WHO classifications). What is more, overweight and obesity were highly gendered, with 83% of these categories comprising females. Female-only obesity was 18% in Mbale (N=810 total women) and 27% in Mbarara (N=636 total women), suggesting the need for further investigation into obesity experience. Self-reported presence of a person within the household who had been diagnosed with diabetes (12% in Mbale, 8% in Mbarara households), hypertension (22% Mbale, 11% Mbarara) or heart problems (11% in Mbale, 6% in Mbarara) suggests some concern and the need for further investigation.

The findings in this paper show that problems with non-communicable diseases, particularly obesity, diabetes and hypertension are already of some concern in Mbale and Mbarara residents. Yet commonly claimed causes within international discourse on food system, nutrition and urban lifestyle change do not seem strongly apparent in Mbale and Mbarara. That is, the paper suggests an NCD burden despite a not very advanced nutrition and food system transition, at least in the form conceptualised by Popkin and others as entailing an ‘increased reliance upon processed foods, increased away-from-home food intake, and increased use of edible oils and sugar-sweetened beverages’ (Popkin et al. 2012, 3).

An implication of the paper’s findings, and a contribution to debates around urban food system, nutrition and epidemiological transitions, is that we may need to be cautious with assumptions of causality: with assumptions of what changes first. The proposition that food system and nutritional transitions occur first and work together to create an epidemiological transition towards obesity, diabetes, and hypertension was not strongly
supported by our survey data in Mbale and Mbarara. A conclusion of this paper is thus that there might be other drivers of epidemiological change in these cities. Further research is essential.

5.2 Farming or not farming? Factors influencing agricultural involvement (Paper 2)

In this paper I explore the relationship of urban households with agricultural activity. I analyse the idea from nutrition transition theory that urban-based households will engage less in farming and own food production. This theorising suggests that as we concentrate in cities, we tend to become less involved in producing our own food and more dependent on the markets, perform less physical farming activity and have less connection to the land. In my bid to deconstruct my data and to consider which of my urban households might be farming, this analysis also fits with my overarching theoretical sensitivity to feminist geographic analyses (Parker 2016, Peake 2015, Preston and Ustundag 2005, Sharp 2005, Moss 2002, Nagar et al. 2002) and intersectional appreciations (Mollett and Faria 2018, Cho et al. 2013, Valentine 2007). My analysis was influenced by feminist geographic calls to specify, to contextualise, to deconstruct, using the household survey data to undertake statistical modelling of what factors seemed to influence the likelihood that an urban-based household would be involved in agriculture, and where that activity would occur (rural, urban, or both areas).

Using multinomial logistic regression, I explored which urban households had greater odds of farming, and where such farming might occur (the urban area, a rural area, or both). Results suggest that larger households, those whose heads were not working (in regular waged employment), and those with older household heads or heads who had lived longer in the cities, as well as those that had rural family connections (received rural food transfers), were more likely to be involved in agriculture, in either an urban or a rural area. These findings are in contrast with studies that have suggested that it is the urban poor, or recent rural-urban migrants, who farm the African city or retain rural farming livelihood strategies within cities (Masvaure 2015, Mougeot 2010, Bryld 2003, Mwangi 1995). Instead, this paper suggests that, in these two secondary Ugandan cities, the more urban-rooted and the relatively better-resourced urban households had higher odds of being involved in agriculture. Others have begun to present similar conclusions from other urban African contexts, noting that it is often the better-resourced, and longer-term urban residents, who benefit more from urban agriculture which others have also noted (Berdegué et al. 2014, Lee-Smith 2010, Bah et al. 2003, Mbiba 2001). My findings thus contribute to a better understanding of urban-based
households’ involvement in agriculture, and to understanding of urban-rural linkages, in these Ugandan contexts.

An implication of this paper is that non-farming households in the context of Mbale and Mbarara are likely to be more dependent on markets for all their food and thus more vulnerable to food-price hikes and food insecurity; this was also found by Crush and Frayne (2011). Non-farm households were more likely to be smaller, have lower incomes and have less connection to rural relatives (less in receipt of rural food transfers). Although this study focuses on Uganda, its findings are relevant for other secondary African cities that experience similar socio-political, economic and food-related circumstances.

5.3 Feminist geographic analysis of perceptions of food and health (Paper 3)

In this paper I cross-check my earlier household survey findings (of fairly low diet diversities, common feeling of food insecurity and yet high prevalence of overweight and obesity, and common reporting of diabetes, hypertension or heart disease) with the experiences and understandings of local healthcare professionals (local elites). The research question asked how the food and health environments of urban communities were experienced, understood, and represented by local healthcare professionals. The method I chose was focus group discussions with healthcare workers, one per city. This method choice meant that I needed to consider the dynamics of group interaction in my analysis (Onwuegbuzie et al. 2009), the social construction of the focus group itself (Longhurst 2003, Pini 2002). I thus employed both a thematic content analysis of the focus group transcripts and a group interaction analysis of the material and discursive representations–points of agreement, points of contention–among the health workers regarding the dietary and health-related circumstances of the communities they served.

This paper continues to probe and assess the conceptualisation of food system, nutrition and health transitions (Popkin 2015, Popkin et al. 2012, Popkin 2001, Popkin 1998, Popkin 1994). To do this I draw from feminist geographic theorising of the value in taking into account multiple and diverse viewpoints (Hiemstra and Billo 2017, McEwan 2001), and in how to ground discourses ‘in practice (and in place)’ (Dowler and Sharp 2001).

Findings revealed how healthcare professionals had a tendency to, at least initially, prescribe highly classed and gendered assumptions of bodies and behaviours in places and daily practices. The work uncovers and deconstructs a dominant patriarchal
tendency towards ‘gendered and classed discourses of blame’ (Warin 2015, 54) towards urban housewives or mothers, particularly regarding obesity. My data reveal and explores varied local socio-cultural and political meanings of concepts such as food, work, femininity and masculinity (Nagar et al. 2002). There was a tendency to make blanket generalisations and not sufficiently problematise claims or categorisations (for example the stay-at-home housewife, the peasant, or the working class). My FGD data certainly reveal such homogenising thinking (Parker 2016, Nagar et al. 2002), but they also show some disruption of such designations through humour and contestation. In short, this paper reveals some of the hidden power relations and embedded specificity of the dominant patriarchal heterosexual educated norm (Hovorka 2012) of the social context. Yet at the same time, the work also exposes the creative and constantly ongoing co-constructed nature of depictions of ourselves and others (Holliday 2016), and this offers an opportunity for positive food system and health interventions. Finally, the manuscript supports the discomfort some have felt concerning claims of a widespread and advanced African nutrition transition (Riley and Dodson 2016), and is relevant to debates regarding double burden malnutrition. This paper contributes a nuanced and emplaced analysis of both the materiality of urban food and health environments, and of how discourses around diets, body size and health may be being constructed, and contested, by healthcare professionals in Mbale and Mbarara. This work also demonstrates the value of insights gained from a feministic epistemology, from mixed methods, and from an intersectional appreciation of people in places.

5.4 Food sources and access strategies: an intersectional analysis (Paper 4)

The final manuscript that comprises this thesis took my investigation of urban diets, food environments and city living down to the individual level using twenty-two in-depth thematic biographic interviews. I believe this micro-view complements, and perhaps complicates, the findings from the broader household survey by facilitating a deeply contextualised understanding of a person’s life story and their experience of city living in relation to food, farming and health. It is just such contextualised analyses that feminists have argued that geography is so well-positioned to contribute (Hiemstra and Billo 2017, Varley 2013, Bondi and Rose 2003, Moss 2002). I explore individuals’ urban food environments using the feminist geographic lens of intersectionality (Mollett and Faria 2018, Cho et al. 2013, Williams-Forson and Wilkerson 2011, Valentine 2007). The research question to which this paper responds was whether, and in what ways, the food environment characteristics, food sources and access strategies were gendered, classed or otherwise differentiated in specific Mbale and Mbarara residents. The paper
also considers insights gained from an intersectional analysis of similarity and difference, and compares these secondary city food environments to studies of Kampala’s food environment and agricultural practice.

Findings illuminate geometries of advantage as well as of disadvantage (Bastia 2014, Cho et al. 2013). While food sources were similar across dimensions of difference (predominantly traditional markets), food access strategies differed significantly between the food secure and the least food secure. Stocking, farming, food transfers, and spatial mobility were features of the salaried and food secure. The finding that institutions can combat food insecurity and help overcome identity-related disadvantages or structural constraints via land access and/or livelihood subsidies, given awareness and commitment, is an important contribution to both the food security and urban agriculture debates in the African context.

The socio-economic situation (or class status) of interviewees, closely linked as it was to their employment situation, shaped personal food access strategies, with fewer differentiations by gender, race, tribe or other single identity-related aspect, or interactions therein. Class itself is the result of complex interactions with wider structures of the labour market and how this is shaped by multi-scalar interrelations, policies and practices (Christian and Namaganda 2018, Cho et al. 2013, Sachs 2013). A contribution of this paper is the exploration of how identity, not in isolation but in interaction with assets, structures and particularly rural places and people, works to shape food environments, mediated by individual agency.

The importance of rural-urban interaction and exchange of labour, cash and agricultural products for urban food security is another contribution of this work. My finding that rural land, rural agriculture and rural social networks remain important to urban food access strategies is significant, and supports a body of work on multi-spatial livelihoods in the SSA context (Ayerakwa 2017, Berdegué et al. 2014, Parnell and Pieterse 2014, Satterthwaite et al. 2010, Andersson Djurfeldt 2015, Bah et al. 2003, Foeken and Owuor 2001). This continued valuation of, and investment in, rural land in the Ugandan socio-economic context, found by myself and others (Reid 2017, Goodfellow 2017, Jayne et al. 2016, Pottier 2015), as a food and livelihood security strategy does not fit neatly with the food system, nutritional and urban lifestyle propositions outlined in the introduction, or with a separation of rural from urban. The more food secure urban lives were those built on top of an active rural life. Those individuals who had weak or non-existent links to rural land and people had, in interaction with insecure work status, more food insecure and vulnerable urban lives (also found in Southern African cities (Crush and Frayne 2011)). An implication is that neat prescriptions of food system and nutritional transitions from rural life to urban life, envisioning sharply differentiated
food sources and access strategies from farm towards supermarket, from own land to distant land may be misleading for the secondary city Ugandan context. My findings regarding the continued purchase of urban food from traditional sources also suggest caution regarding concerns of a supermarketisation of urban African food systems. The findings suggest that food system, nutritional and epidemiological transitions may be less linked than previously thought, or linked in more complex ways.
PART II: CONCLUDING DISCUSSION
6 CONCLUDING DISCUSSION

I began this thesis with an interest in food and farming within African cities, and how the food, farming and nutritional environments may relate to non-communicable disease burden (obesity, diabetes, hypertension) in urban residents. I wanted to counter a city-scale bias whereby much research has focused on primary cities, by investigating two less-studied secondary cities of Uganda: Mbale and Mbarara. Research has increasingly highlighted that it is just such secondary cities that are more representative of urban areas within Sub-Saharan Africa, and predictions suggest that this is where the greatest, and most rapid, growth and change will occur in coming decades within urban Africa (Parnell and Pieterse 2014, Martellozzo et al. 2014, Cohen 2004). In addition, there have been calls to improve our understanding of the complex links between diets, agricultural practice, and health and nutrition outcomes in the urban context (Haddad et al. 2015, Webb 2013, Fan and Pandya-Lorch 2012). Thus, I designed my research to investigate characteristics of Mbale and Mbarara residents’ food, farming and health environments, and to explore how these were experienced and understood locally. I divided this overarching research aim into four sub-questions, the first of which concerned the status of diets, of food security, of farming activity, and of health (particularly non-communicable diseases). This I principally investigated with a survey of approximately 1,000 households per city. The second sub-question asked what factors might influence whether an Mbale or Mbarara household would farm the urban area, the rural area, both areas, or not farm at all. I used the same survey data and statistical analysis to investigate this question. The third sub-question probed the indications from my household survey, particularly of the concerning prevalence of low dietary diversity and high food insecurity and yet also of obesity, using primarily focus group discussions with local healthcare professionals. Here I was interested in health workers’ experiences, perspectives and interpretations of the food and health circumstances of their patient communities. Finally, to further investigate the food environment characteristics, food sources and access strategies at the individual level of varied Mbale and Mbarara residents, I used in-depth biographic interviews and an intersectional analysis. Each of these four sub-questions has produced a manuscript of this thesis.

theory in both the socially constructed, and material realities, of daily life. In this study, this means daily life in the urban spaces of Mbale and Mbarara. As Brenda Parker writes, ‘feminists have often argued for “situated” and relational knowledges that engage in deep empirical work; clarify the standpoint from which they are produced; blur binaries; engage and make visible the voices and experiences of historically marginalized; and do not make all-inclusive claims about knowledge, causality, structure, or the world’ (Parker 2016, 1340). Yet at the same time she notes a danger in becoming too situated, too embodied, and advocates that feminist geographic research can draw upon materialist theories to ‘produce more thorough and explanatory empirical work and forms of resistance’ (Parker 2016, 1347). I have tried to tread a path between these ambitions.

My first research question examined the status of food, farming and health environments in Mbale and Mbarara during the time of my research (2015-2019). The results indicated inequalities at the household level across the cities in food insecurity, diet diversity, farming engagement and in body mass index (BMI) data, as well as self-reporting of having been diagnosed with diabetes, hypertension, or heart disease. From both my statistical analyses, but also from my focus group discussions and in-depth interviews, I found that some, but not all, of the variation could be explained by income and work status (class) differences. Yet some inequalities did not fit well with conceptualisations from nutrition transition theory of a move to more diverse and secure food situations, nor a move towards processed foods, with urban residence. Both cities, at the aggregate average level, comprised households with low-medium dietary diversity. The food groups consumed consisted predominantly of cereals (largely maize flour), roots and tubers (largely matooke), legumes/nuts/seeds (largely beans), and sugar at these low and medium categories (refer to food group table in Annex 5). Follow-up focus groups and interviews confirmed the centrality of maize (usually in the form of posho) with beans, or matooke with beans, or rice with beans in the context, and this is supported by other studies (Pottier 2015, Ngaruiya et al. 2017, Raschke and Cheema 2008). Others have also noted the common experience of food insecurity within Ugandan cities (Pottier 2015, Prain et al. 2010), particularly in relation to seasons, price fluctuations and time for school-fees payments (Pottier 2015). My qualitative findings do suggest a close link to income insecurity and variability, as others highlight (Battersby and Watson 2019, Crush et al. 2012). Yet my research also exposed important social and relational, or even institutional, links to natural (urban or rural) and social capital and to rural land and people, as playing a crucial mediating role in food security. The indication from my survey data that food and farming system transitions had not advanced very far along the nutritional transition trajectory, but that the epidemiologic transition seemed further developed, was supported by my other research methods. My interviews, for example, revealed that even slightly better-off individuals, who had salaried employment and felt more food secure, maintained fairly traditional low-
diversity diets, maintained (and in fact invested in) farming activity as a food security measure, and still preferred to shop predominantly in traditional markets and local stores, buying only a few occasional products from large Western-style retail supermarkets. My findings support the contentions of Himmelgreen (2014) and Nichols (2017) of complex, and sometimes contradictory, localised expressions of food systems that require fine-grained qualitative and quantitative analysis beyond large aggregated datasets.

My second research question focused specifically on the agricultural practice of urban residents. Initially, I analysed statistically which factors influenced the odds of a household being involved in farming, and where that farming would take place. The findings, suggesting that the somewhat better off and more food secure and more urban-rooted (longer years of residence of the household head) had a greater likelihood of farming (in an urban or a rural area, or both), were supported and deepened by my in-depth interviews and intersectional analysis. This qualitative analysis revealed classed intersections linked to employment status but also revealed the importance of assets, particularly rural-based assets and rural-based social networks in enabling agricultural production. These findings support Doreen Massey and Henri Lefebvre’s conceptualisation of relational space (Rönnlund and Tollefsen 2016, Massey 2010, Massey 2004, Massey 1991, Lefebvre 1974), and work on capital assets and multi-spatial livelihoods (Ayerakwa 2017, Berdegué et al. 2014, Satterthwaite et al. 2010, Foeken and Owuor 2001, Bah et al. 2003, Ashley and Carney 1999), as well as geographers’ claims of the importance of intersectionality (not only of various aspects of identity with each other, but also of intersections with wider socio-environmental asset bases and with broader political-economic structures (Cho et al. 2013, Valentine 2007, Mollett and Faria 2018).

My third research question further investigated the findings from the household survey of relatively low diet diversities and high food insecurity yet high overweight and obesity prevalence and concerning claimed diagnoses of diabetes, hypertension or heart disease. This NCD data of course does not include those who did not know that they had such conditions, those who were undiagnosed. This lack of awareness suggests that my data may be under-estimating diabetes, hypertension and heart disease. Indeed, the STEPs survey of NCDs noted a high prevalence (24%) of raised blood pressure and that the vast majority of these (76%) were ‘not aware of the hypertension status’ (STEPS 2014, 64). Men were more affected than women (ibid). This study also found an urban area prevalence of 3.3% raised blood sugar levels, including diabetes, and 89% of those were not aware of their situation (ibid). Focus group discussions with local healthcare professionals initially suggested highly classed and gendered ideas of bodies, diets and weight, with a tendency to centralise blame on women, as Megan Warin (2015) has
noted. The conceptualisation was that the rich were fat, and housewives and mothers were fat due to greediness and/or laziness and/or ignorance; and that the poor were food insecure and had low diversity diets. This was the initial discourse, put forward particularly by the men in the groups. These young, educated, both single and married, stably employed men were themselves an embodiment of the dominant patriarchal, heterosexual, educated urban ‘norm’ of local discourse; refer to Parker (2016); Hovorka (2012); Williams-Forson and Wilkerson (2011); and Wyrod (2008). Yet as we further discussed in the focus groups, and as some of the women began to raise their voices and relate to their experiences with their patient communities, a more nuanced but less straightforward picture emerged. This was one whereby the somewhat better off consumed relatively monotonous diets and had food security concerns, and the less well-resourced were experiencing overweight, obesity, diabetes and hypertension. There was much discussion of gendered and classed power dynamics within the household and the important role of men in household food-related decision-making, as well as the role of wider food system economics and cost-benefit analyses that must occur in an under-resourced or unstable situation. Findings indicate local social constructions—of culture, of traditions, of tribe, of cooking roles, of bodies, of exercise, of power, of desirability—all having an influence on urban food and health environments, similar to some of Hovorka’s findings from Botswana (Hovorka 2012) and Riley and Dodson’s in Malawi (2014, 2016). Yet my findings also point to urban-rural material and relational connections, to peoples’ social relations. This has been raised by a number of scholars regarding the African context (Berdegué et al. 2014, Satterthwaite et al. 2010, Bah et al. 2003). My findings concur with geographer Rachel Slocum’s assertion that ‘food must be understood within circulations of power’ (Slocum 2011, 303). My interview material raised and elaborated upon many of these ideas and reasonings.

My fourth and final research question dug more deeply into the food environment characteristics from the household survey, investigating whether and how food sources and access strategies varied across disparate individuals’ lives. Similarity of diet diversity, food groups consumed, and food sources (traditional markets and local stores) were found across a range of identity aspects such as gender, class, or tribe. The main difference in food environments encompassed the varying food access strategies deployed by the food secure and the food insecure. This similarity of diet composition and food sources runs somewhat contrary to nutrition transition conceptualisations, similar to other researchers cautions about local variation (Nichols 2017, Himmelgreen et al. 2014). However, the differences in food access strategies were strong and informative. The more food secure urban residents had a more stable employment situation (linked to class), were able to buy in bulk and to stock food (moving around the city and to rural areas to buy at cheaper prices as well), and had relational interaction with the rural (via farming and food transfers—rural land assets and rural social capital).
The most food insecure of my interviewees were not simply income-poor but also land-poor, social relations-poor, and asset-poor (rural and urban assets). This finding contrasts with some theorising on who farms within and around an African urban context (Masvaure 2015, Gallaher et al. 2013, Orsini et al. 2013, Lee-Smith 2010, Mougeot 2010, Mwangi 1995), but also with nutrition transition and urban development theories, which suggest that urban life facilitates greater human, social, financial and physical assets (Turok and McGranahan 2013, Popkin et al. 2012, Popkin 2001, Ruel et al. 1999, Popkin 1998, Popkin 1994). Turok and McGranahan, for example, note that cities can offer ‘the enabling environments through physical and social infrastructure, human capital, financial systems, technical support and responsive governance’ (Turok and McGranahan 2013, 477). Yet my findings suggest that a person needs a certain level of such capitals first in order to be able to access and benefit from such urban capital resources. If someone had little in the form of rural capital assets in the first place, it was much harder to build such in an urban area, unless they had secure employment with a reasonably reliable, liveable salary. This employment situation was not the norm among my twenty-two in-depth interviews, in which only five individuals could claim this, and less than half of my earlier surveyed households had a member earning regular salaries. My findings support the literature on the commonness of informality and underemployment in the urban African context (Dodman et al. 2017, Cobbina et al. 2015, Myers 2011, Lindell 2010). This emphasises the challenge involved in trying to fit patterns of urban development and food system change from global northern cities that offered industrial employment and salaried and unionised labour to the less industrialised and more informal economic context of urban SSA.

The **most significant contributions** from this doctoral research as a whole can be summarised in nine key points as:

1) A concern about the theorised causality between supposed food system and nutritional changes and epidemiological transition towards NCDs. There may be other drivers of NCD burden, or more complex links than is often portrayed in international discourse.

2) The finding that own agricultural activity (via own labour or hired labour; either within the city, or in a rural area) continues to be important for the food security of urban residents of these secondary Ugandan cities. This farming relationship was particularly a strategy of the more food secure, the salaried, the longer-term city residents, and the urban elite. This finding reveals the continued prioritisation of land as security within the urbanising Ugandan context, as other researchers have highlighted (Reid 2017, Goodfellow 2017, Jayne et al. 2016, Kangave et al. 2016, Pottier 2015). The continued perception and valuation of land as a principal asset in
Ugandan culture is apparent in how my interviewees describe their lives, their efforts and their hopes and ambitions. This strive for land echoes the claims of a Lefebvrian secondary circuit of capital, focused on land (Goodfellow 2017) and the description by Kangave and colleagues that ‘Uganda is largely a “real property” economy’ (Kangave et al. 2016, 11). They note that people bypass banks, investment accounts, stock markets or such financial mechanisms, and put money directly into land and buildings. Indeed, historian Richard Reid noted that ‘[f]or millions of Ugandans, as middle age approaches, the overpowering focus of work and life is to secure a plot of land in one’s own district to where one will retire, one day; and to have on that land everything to secure a reasonably comfortable old age’ (Reid 2017, 242), and this resonates strongly with the future ambitions of my interviewees.

Of note was that the agricultural practice of urban inhabitants in the Mbale/Mbarara contexts, while slightly improving food security, did not necessarily translate into better dietary diversity due to the strong focus on the same food crops (maize, beans, matooke, sweet potatoes) usually purchased at the market.

3) The differing role of an urban agriculture at this secondary city scale compared to the urban agricultural character of many primary/larger cities is an important contribution to the urban agriculture literature. Mbale and Mbarara’s urban agriculture mainly took the form of gardening of a few leafy green vegetables, maize, and matooke for own consumption. There was little evidence of active organised entrepreneurial market gardening for city markets.

4) The evidence for the importance of urban-rural links and multi-spatial livelihood strategies for more food secure urban lives in the secondary city Ugandan context. Others have drawn attention to this before. As Edgar Pieterse and Susan Parnell note, ‘African cities have several distinctive features. First, they are integrally connected to rural areas through the practice of circular migration, a strategy for maintaining multiple bases so as to optimise livelihoods and mitigate the risks of settling permanently in economically, environmentally, socially or politically precarious African towns’ (Parnell and Pieterse 2014, 9).

5) The persistence of traditional food sources (central markets, neighbourhood markets and small local shops that give credit) for the majority of urban residents’ needs, and the dominance of traditional foods (maize, beans, and matooke with a few greens and a tomato sauce) was apparent across diverse residents. This brings into question the suggestion from nutrition transitionists, and ideas of the modernisation of urban life, that a supermarketisation of household and city food baskets contributes to an epidemiological transition towards NCDs.
6) The food access strategies of Mbale/Mbarara residents varied by class, asset base, and links to rural land and rural people. This finding highlights the continuing importance of linkage between urban and rural for secondary city Ugandan residents, and the role of multi-spatiality.

7) An initial tendency in discourse among healthcare professionals and policymakers to assume that NCDs are caused by ignorance and laziness and are particularly the fault of housewives and mothers revealed highly classed and gendered interpretations. Yet, my findings also revealed the social construction of such assumptions, and how these can be dissected and contested via debate and allowing multiple voices. To my mind, this offers emancipatory opportunity.

8) The potential of institutions to influence urban food security, either via facilitating access to land to farm for institution staff or (potentially) for surrounding communities, or simply via living arrangement subsidies and/or food donations. This is a significant contribution to literature on both urban agriculture and urban food security, and to those interested in localised power dynamics. This finding indicates that institutions in urban areas have the potential to help individuals, or community groups, to overcome limitations of gender, class, land assets, or household structure, for example.

9) Points of similarity and difference between these secondary cities and Uganda’s primary city, Kampala, were highlighted, particularly with respect to greater variety of food sources in Kampala, yet the broadly similar food access strategies (agriculture, links to the rural, and receipt of food transfers) of those who had salary and rural assets and relations. This is in addition to the slightly differing nature of urban agriculture in the secondary city context, as mentioned under point 3).

In relation to theory, my findings suggest caution with some implicit assumptions of nutrition transition theory about urban life influencing diet change towards a more ‘western’ food system with supermarkets and processed foods, fast foods, greater meat consumption, less farming and reduced physical activity, and that these contribute to non-communicable disease burden (Popkin 2001, Popkin 1998, Popkin et al. 2012). Our survey, and my in-depth interviews, specifically asked questions regarding how often in the week meat was consumed, about eating out, about snacks, street foods, and sodas, as a way to overcome some of the limitations in standardised dietary surveys for measuring nutrition transition that Walls et al. discuss (Walls et al. 2018). My research presents evidence, in the secondary city contexts of Mbale and Mbarara, of an already present NCD experience but without the advanced food and farming system change that theory suggests underlies the epidemiologic transition, similar to other studies that
signal caution at the local level (Himmelgreen et al. 2014, Nichols 2017). Berdegué and Proctor (citing a study by Berdeque and Reardon) also note that rate and extent of modernised food production and retailing, as a percentage of overall food retail, varies significantly by region and is lowest in SSA at just 10%, compared to around 50% in southeast Asia and 30-50% in Central America (Berdegué et al. 2014).

My work also suggests that concerns of a double burden malnutrition in Uganda are valid. My data on NCD experience, along with data from other NCD surveys (Kavishe 2015, Maher et al. 2011, Mayega et al. 2012, Musinguzi and Nuwaha 2013, Nyombi et al. 2016, STEPS 2014) combined with national data on undernutrition, stunting and wasting (USAID 2018), indicate country and city-level double burden of malnutrition (Shrimpton and Rokx 2013). My findings raise questions of causal mechanisms and prompt consideration of what other factors may be driving the evident epidemiologic transition in Uganda, which is also not confined to urban populations. These other drivers likely include physical activity versus energy intake imbalances, but may also include aspects of diet quality such as the nutritional content of the produce, type and level of processing of grains and carbohydrates, pollutant loads, as well as food preparation and cooking practices, amount and type of oil used, or portion sizes and feast-famine eating patterns, or genetic susceptibilities (Bray 2004). Future research needs to consider these wider aspects of food and nutrition.

Another contribution of my research to theory is the mapping of relational interaction of urban-based people with rural land and rural people, supporting claims that multi-spatiality is an important component of urban African lives (Ayerakwa 2017, Satterthwaite et al. 2010, Bah et al. 2003, Foeken and Owuor 2001). Having active rural relations was associated (both qualitatively and statistically) with a better standard of, and certainly a more food secure, urban Mbale and Mbarara life. Relations matter; geography matters. My findings indicate that these rural-urban relations and interactions, multi-spatial livelihoods, were influenced by socio-economic status (class), being more common and productive among those who were more food secure and had salaried employment. This is also relevant to theories regarding who is involved in farming, suggesting that the theorising of associating farming mainly with survivalist livelihood strategies and poverty (Mougeot 2006, Bryld 2003) does not hold strong applicability to the secondary city Ugandan context. A body of more recent research has reflected upon the move of the somewhat better off into both urban (Lee-Smith 2010) and rural (Jayne et al. 2016) agriculture in an African context, as a way of spreading risk in often still fragile economic and political climates (Parnell and Pieterse 2014). A larger scale of more modernised agriculture also requires a greater level of inputs (high-yielding varieties, mechanised technology, or inorganic fertilisers or pesticides) and these require greater financial capital than smallholder agriculture.
My findings regarding this urban-rural interaction may also complicate nutrition transition theory (Popkin 1994, Popkin 2001, Popkin et al. 2012), which has tended to view the urban in isolation and as a cause in itself of diet, farm and epidemiologic transitions. My findings of interdependence support a more recent body of work that challenges the idea of separation, of binaries and of separate states to transit between. As Riley and Dodson note: ‘Discourse about the “nutrition transition” taking place in African cities continue to be implicitly rooted in binary categories of foods characterised as urban and rural, modern and tradition, global and local’ (Riley and Dodson 2016, 53).

I would broaden their claim from simply ‘food’ to incorporate food sources and access strategies, including farming. Lifestyle change whereby urban elites may be becoming city-based sedentary farmers also complicate binary associations of city=non-agricultural and rural=agricultural.

Finally, my findings are relevant to theorising of place, and to feminist geographic understandings of power dynamics and identity linkages. My explorations of individuals’ daily spatial practices (Massey 2005, Lefebvre 1974) regarding food and farming highlight the interactions within and between urban space(s) and other urban or rural places. This supports the theorising of the socially constructed, and relative and relational nature of space (Massey 2005, Lefebvre 1974). The specific socio-spatial imaginaries my focus group participants and individual interviewees offered of, for example, the role of agriculture, or of obese bodies and their behaviours, revealed some Ugandan discourses around people, places and activities as well as how embedded local power relations are. Such excavation of social constructions and underlying, often unquestioned, gendered and classed power dynamics is very much in the spirit of feminist geographic analyses. As Melissa Gilbert wrote already two decades ago: ‘Research by feminist urban geographers has contributed to “grounding” feminist theory by demonstrating the importance of the materiality of place and space in the construction of structures and relations of inequality and people's multiple identities’ (Gilbert 1997, 174). It is my hope that my research contributes to what Nancy Hiemstra and Emily Billo described in 2017 as ‘an emerging trend in feminist geography of research that does not necessarily center questions of women, gender, or sexuality but still employs methodologies grounded in feminist principles to interrogate oppressive structures’ (Hiemstra and Billo 2017, 288) and dimensions of inequality.

Regarding policy/practice implications, my work lends support to calls from recent research in secondary cities of Southern Africa (Battersby and Watson 2019) to view the city through a food lens. Urban governance in African cities may need to take on the mandate of food security (Battersby and Watson 2019, Cabannes and Marocchino 2018). As the Assistant Director-General of FAO’s Economic and Social Development Departments notes in the recent UCL/FAO report on integrating food into urban
planning: ‘Until recently, urban planners have paid little attention to food systems, emphasising “traditional” urban priorities such as public transportation and decent housing’ (Cabannes and Marocchino 2018, v). Yet the commonness of feeling food insecure, found in numerous African cities (Battersby and Watson 2019, Frayne et al. 2010) including Mbale and Mbarara, across a range of gendered, classed and differentiated circumstances, demands action from policymakers. Food insecurity is both an outcome, and a driver, of income poverty (Battersby and Watson 2019, Crush et al. 2012). As such, a clear policy implication would be to work toward improving the employment situation in Mbale and Mbarara, as well as in many other African cities. As Jane Battersby and Vanessa Watson describe ‘There is evidence that urban growth occurs without economic growth, and jobless growth (along with increasing poverty) is taking place in many parts of the continent’ (Battersby and Watson 2019, 18); though not everyone shares this view. My findings show not only low incomes but also the unreliability of incomes and the unemployment, underemployment and informality of employment, to be major barriers to food security and diet diversity. City authorities should prioritise job creation, but could also adjust their approach to informality, as others have highlighted (Kinyanjui 2014, Crush and Frayne 2011, Lindell 2010, Skinner 2019).

Two more straightforward recommendations for policymakers and practitioners in Uganda would be, firstly, to promote fruit and vegetable consumption, which my research as well as that of others (Pottier 2015, Ngaruiya et al. 2017, Raschke and Cheema 2008) had found to be low. Policymakers could put in place strategies to improve access to these, at least for children and pregnant women. This would not only boost diet diversity, food security and nutritional status in the present, but may well be a long-term strategy towards reduced obesity in future adult populations, according to the epigenetic theorising of David Barker (Barker 1997, Hughes 2014, Warin 2015). Secondly, local authorities could consider a strategy of charging more for urban advertising space that promotes unhealthy or highly processed food products, and then channel these funds into healthy city food systems, or perhaps fruit subsidies in schools.

Finally, an important implication of my findings could be to reframe the non-communicable disease (obesity, diabetes, hypertension, heart disease) discourse at both the city healthcare provider, and the individual resident, level. Suffering NCDs is not necessarily due to poor decision-making or bad behaviour, as initial assumptions often suggest. My work suggests that NCDs, particularly obesity, are influenced by a lack of power and resources to be able to make healthy food and lifestyle choices, rather than by ignorance or lack of will. There are also wider socio-environmental influences, and metabolic links (such as David Barker’s development origins theory highlights) that may predispose individuals who experienced nutritional constraints in early childhood.
(and even as a foetus in their mother’s womb) to obesity in adulthood (Barker 1997, Warin 2015, Bray 2004). These findings suggest that any policy designed to reduce NCDs in Uganda should avoid assumptions of whom is affected, and avoid asserting blame. Instead, awareness should be raised that nutrient-poor environments and an energy-activity imbalance can contribute, and that these can be influenced by public policy and by influencing wider social and environmental determinants of health (McGibbon and McPherson 2011, Warin 2015, Guthman 2012).

Reflecting upon my research, I feel that the manner and timeline in which I have applied my methods have been appropriate and valuable, providing key insight from multiple perspectives. Starting early in the research process with the large-scale household survey, in my experience, proved opportune as it facilitated the gathering of a broad introductory overview of the characteristics and circumstances of a sizeable sample of the urban households in each city. I found my approach of starting with this survey to be productive and appropriate for my research question. These data provided a rich source of statistics on household food environments, diets, food security, agricultural practices and health experiences—the foci of my overall research questions. This facilitated a broad view of how common agriculture was as an activity of urban-based households, the status of food insecurity within these cities, and the level of dietary diversity and the kind of food groups consumed in urban households, to give just a few examples. The database also offered insight into the spatial distribution of experiences, and into patterns across Mbale and Mbarara. Having access to this kind of data so early in the research process was incredibly useful in both gaining a sense of the spaces and experiences across each of my cities, and highlighting intriguing aspects of similarity and difference. As a result, the household survey acted as a guide to my other research questions and data collection methods, and these in turn shed light back onto some of the survey findings. Running the survey first also gave keen insight into the equally co-constructed nature of such kinds of data collection tools. My experience revealed to me that there remain ‘open-to-interpretation’ questions within a more numerically oriented survey, as within deeply qualitative interviewing and discussions. This experience further sensitised me to the value of intimate involvement in the data collection strategy and techniques of any research method. It also emphasised to me the importance of the lead researcher being out in the field initially and testing their quantitative as well as qualitative data collection tools. In the final assessment, the findings and insights gained from my various methods served to corroborate, elaborate and complement each other (Brannen 2005). I did not find contradiction among them (Brannen 2005), even though contradiction in itself still adds to knowledge-generation.

Finally, my reflection on my research cannot ignore the vital role of good teamwork. I am grateful to all who contributed their expertise, interest and commitment to this
research and to doing the best possible. The interest and support for my work that I received from local municipality staff was humbling and facilitated the research.

As with any study, there have been **limitations** to my research, and these in turn point to pertinent areas for **future study**. In terms of nutrition and diet quality, I was not able to investigate portion sizes, or quality and level of processing of carbohydrates, or individual food allocations within the households. A number of my interviewee and focus group respondents talked of the habit of eating just one meal a day, but it being a huge portion of carbohydrates prior to bed. These aspects of eating patterns, attitudes to what constitutes ‘food’ (as Pottier notes, this term does not translate well from English to Luganda (Pottier 2015)), and barriers to dietary diversity could be investigated with further research. Within the boundaries of this study, I was also unable to measure the actual agricultural yields, such as the kilogram contribution per season of various crops (from urban and from rural agriculture) to the household food supply. As noted earlier, I was also unable to investigate food preparation and cooking practices, time-allocation, portion sizing and energy balance in relation to physical activity levels.

Similarly, my research did not measure the amount (kilograms) of food transfers received (or even sent). More quantitative measurement of such food source contributions would add to our knowledge base. The NCD dimension of my work could not be further developed with clinical diagnostics (for diabetes, hypertension, heart problems) and thus relied on the BMI data and self-reporting of known diagnoses. As a result, the NCD data may well be underestimated, as it does not pick up those with undiagnosed disease. There is clearly a need for diagnostic surveys, though Uganda has begun to make such evaluations, for example with the STEPS survey (STEPS 2014). My research findings also highlight the value of multidisciplinary approaches, working across the biomedical and social sciences, for future investigations of urban food, farming and nutritional circumstances.

Finally, my focus groups with healthcare professionals claimed that sedentary urban lives are a factor in overweight and obesity, especially among women and specific kinds of occupations, such as market vendors or office administrators. This was not something I could investigate further within the realm of this study but I believe this warrants further investigation. In addition, my focus groups and interview data touched on perceptions of body size, and ideas of desirable male and female bodies and how these link to ideas of ‘provider’ man and ‘suitable’ woman. A number of studies in the African context have investigated such aspects (for example Benkeser (2012); Holdsworth et al. (2004); Furnham and Baguma (1994)), but these can be spatially and culturally emplaced and can vary over time. Further study within the contemporary Ugandan context in general, and within Mbale and Mbarara specifically, could be illuminative for further
study of food, farming and health interactions. In addition, future research on food, farming and health could compare the strength and nature of urban-rural linkages for different kinds of cities within the urban profile of the country of interest.

Closing Comments

Overall, my research has revealed and explored multiple aspects of similarity and difference in urban food environments, farming practices and health experiences in two secondary Ugandan cities. A feminist geographic perspective has explored the links and intersections of food, farming and health environments with gender, class, tribe and—not least, with places—as geographers such as Mollet and Faria (2018), Massey (2010) and McDowell (1999) have advocated for. My study has revealed material relations and socio-spatial constructions and contestations within Mbale and Mbarara, which a feminist interpretive perspective describes as essential for grounded and emplaced contributions to knowledge (McDowell 1999, McEwan 2001). Yet aspects of identity, assets, or socio-spatial relations do not act in isolation from wider political economic processes and national-to-global relations, which Doreen Massey refers to as power geometries (Massey 1991). Just as Massey (and other geographers) caution not to exonerate the local (Massey 2004, Parker 2016) but rather to ‘think space relationally’ (Massey 2004, 5), my findings on the relational nature of urban people farming rural land, and of rural relatives sending food, support this contention of relational space and structural influences. In addition, other scholars remind us that we need to maintain awareness of past power geometries and international relations in a particular place, which (in the Ugandan case) influenced a reduction in the diversity of the diet (Raschke and Cheema 2008), and may help explain some of my dietary data.

These comments—on relationality (of people and place), on scalar interactions—link back to my overall research question’s interest in exploring local representations and interpretations of food, farming and health environments in Mbale and Mbarara. Here my focus group and individual interview data were better placed than the household survey. Representations—of obese bodies, of low diversity insecure food environments for specific groups, of household gendered roles and power dynamics, of the role and potential of agriculture—were highly contested and varied. They point not only to the multiple identities of people and place (Massey 1991), but also to the multiplicit nature of an action, for example farming, depending on a person’s positionality (Hiemstra and Billo 2017, Massey 2004, Moss 2002).

In tracing some of these local and diverse representations, with their intrinsic assumptions of socio-spatial practice (i.e. an obese person does not move much, stays at home and just eats, as debated in my focus groups), my work also revealed how these
are not fixed nor immutable (Mollett and Faria 2018, Bastia 2014). Discourses change and evolve, and can be contested or shaped. To me, this represents the possibility of a pathway towards progressive and emancipatory strategies (Parker 2016) within Mbale and Mbarara to reduce food, farming and health inequalities.

In a final overall analysis across my research questions and my mix of methods, this study has revealed some patterns and relations involving unequal food, farm and health conditions across Mbale and Mbarara. Moreover, both cities presented similar statistical and qualitative stories at the city-level suggesting some similarity of circumstance, though individual trajectories of difference were, of course, also present. My interest was to collide general propositions from the theoretical level with the reality of daily experience. My findings highlight the need to contextualise theory to place rather than assume a one-size-fits-all applicability, much as Himmelgreen et al. (2014) caution. My work has forced me to ‘recast’ (Myers, 2011, p24, quoting geographer Ed Soya) the urban spaces of Mbale and Mbarara on relative and relational links to the rural. Food secure urban lives in this socio-economic and political context relied upon the rural, as well as salaried employment. In comparison to studies from Kampala and other primary cities within SSA, or studies from national-level data sets (Shrimpton and Rokx 2013, Thow 2016, Haggblade et al. 2016, Prain et al. 2010, Popkin 2001, Popkin et al. 2012, Steyn and Mchiza 2014), my findings suggest less advance along theorised food and farming system and nutritional transitions, yet comparable experience of NCDs. This is intriguing, has possible implications for theory, and certainly warrants further research.

I close by quoting Edgar Pieterse and Sue Parnell, both African urbanists based at the African Centre for Cities, University of Cape Town, South Africa, from the introductory chapter of their edited volume on ‘Africa’s Urban Revolution’:

‘...the African urban transition could be truly revolutionary. However, this demands a different scholarly agenda to what has been the norm for some time. The rise of Africa’s cities will not be ignored. How the revolution is navigated will depend on how well the force of change are understood and taken up...In order to get to grips with what exactly Africa’s urban revolution implies for specific cities, particular countries and the rest of the world, careful research, critical reflection and sound leadership are vital. As the continent that will be disproportionately shaped by the way in which society thinks about cities, Africa must assume an increasingly central position in the urban imaginary of theorists and practitioners’ (Pieterse and Parnell 2014, 15).

I hope my research within this thesis makes some contribution to a positive, rather than a feared anarchic, African urban transition.
7 SUMMARY IN SWEDISH/SVENSKA SAMMANFATTNING

Bakgrund och teori

Min forskning kretsar kring teorin om nutritionsövergång (nutrition transition theory) så som den formuleras av Barry Popkin, jordbruksekonom och professor i näringslära, och ekonomer som Prabhu Pingali. Utgångspunkten är den teoretiserade övergång i livsmedelssystem, kostmönster och epidemiologi som förutsägs äga rum till följd av urban utveckling. Enligt teorin om nutritionsövergång förändras de ekonomiska och sociala strukterna i det dagliga livet när samhällen koncentreras till städer och förändringen ökar (jämfört med ett liv i landsbygd/mindre förtätning), och en kombination av dessa leder till en mer stillasittande urban livsstil med mindre tid till – och mindre behov av – egen matproduktion eller ens matlagning. Teorin har uppstått ur hälso- och sjukvårdssektorns arbete med de uppenbara praktiska problem som uppstår i korsningen mellan utvecklingsbanorna för livsmedel, odling och hälsa i världens urbana och urbaniserande regioner, men utvecklar också tankar från moderniseringsteorin.

Mitt arbete bidrar till forskningen genom att väga upp ett ensidigt fokus på storstaden inom fältet för nutritionsövergång och odlingens roll för urbana invånare i Afrika. I stället riktar jag in mig på två mindre städer i Uganda: Mbale och Mbarara, och urbana invånares erfarenheter av livsmedel, odling och hälsa där. Jag ville undersöka om en övergång i de epidemiologiska förhållandena mot icke-smittsamma sjukdomar (diabetes, fetma och hypertoni) och felnäring som en dubbel börda (när befolkningen påverkas av samtidig över- och undernäring), var märkbar i dessa städer. Syftet med projektet var också att undersöka om den omställning av livsmedels-, odlings- och kostmönster som påstås äga rum till följd av urbant liv och teoretiseras som en bidragande orsak till utvecklingen av hälsoproblem mot icke-smittsamma sjukdomar (en epidemiologisk transition) förekom i dessa städer. Det övergripande målet för min forskning är minskad fattigdom, trygghare livsmedelsförsörjning och större välbefinnande för urbana invånare i Uganda och världen i stort.

Syfte och frågeställningar

Min huvudfråga är: Vad kännetecknar livsmedels-, odlings och hälsoförhållandena i mindre städer i Uganda och hur upplevs och förstås dessa på lokal nivå?

Den huvudfrågan har jag brutit ned i fyra underfrågor, en per studie:
1) Vilken status har Mbale/Mbarara-hushållens livsmedels-, odlings- och hälsoförhållanden vid den aktuella tidpunkten i deras utvecklingsbana?

2) Vilka faktorer kan ha betydelse för vilka Mbale/Mbarara-hushåll som bedriver jordbruk och var de bedriver jordbruk?

3) Hur ser livsmedels- och hälsoförhållandena ut (i synnerhet faktorer som varierad kost, tryggad livsmedelsförsörjning och fetma) i de stadsområden som företräds och uttolkas av lokal hälso- och sjukvårdspersonal?

4) Vilka livsmedelsförhållanden, livsmedelskällor och försörjningsstrategier har invånarna i Mbale och Mbarara? Vad kan vi lära oss av en intersektionell analys av likheter och skillnader?

**Material och metod**

Flera metoder har använts för att genomföra projektet. Utgångspunkten är en hushållsundersökning av 1 025 hushåll i Mbale och 970 i Mbarara med frågor om varierad kost, tryggad livsmedelsförsörjning, socioekonomisk situation och odlingsförhållanden samt uppgifter om längd och vikt. Undersökningen omfattar statistiska och rumsliga analyser av livsmedels-, odlings- och hälsoförhållanden i de båda städerna, och undersöker vilka faktorer som kan bidra till skillnader i dessa. För en djupare förståelse av resultaten i undersökningen, och för att utforska lokala uppfattningar och uttolkningar, använde jag också två kvalitativa forskningsmetoder: dels fokusgruppdiskussioner med lokal hälso- och sjukvårdspersonal, dels tjugotvå tematiska djupintervjuer. Relationer och intersektioner mellan livsmedel, odling och hälsa med identitetsmässiga aspekter (som kön, klass och grupp) och plats har utforskats utifrån ett feministiskt geografiskt perspektiv.

**De fyra studierna**

**Uppsats 1 – Doing things their way? Food, farming and health in Ugandan cities (Gå sin egen väg? Livsmedel, odling och hälsa i ugandiska städer)**

I denna uppsats prövar jag nutritionsövergångsteorins tes om att en övergång i kostmönster, livsmedelssystem och epidemiologi följer med en ökad urban livsstil, vilket resulterar i en utveckling av sjukdomsåttond av icke-smittsamma sjukdomar (diabetes,
hypertoni och fetma) i två mindre städer i Uganda. Mbale och Mbarara är städer med en för Uganda senkommen men snabb urbanisering, där livsmedelssystem och nutritionsövergång ännu befann sig i ett tidigt stadium vid insamlingen av data år 2015. Vårt mål var att mäta och utvärdera aspekter av varierad kost, otrygg livsmedelsförsörjning, livsmedelskällor, socioekonomisk status och hushållens odlingspraktiker, med hjälp av en slumpmässigt vald undersökning av 1 995 urbana hushåll (1 025 i Mbale och 970 i Mbarara). Vi samlade även in frivilliga uppgifter om längd och vikt för en beräkning av BMI (Body Mass Index) och frågade om erfarenheter av viktiga infektionsåterfall (tuberkulos, HIV/AIDS, malaria) och icke-infektionsåterfall (ike-smittsamma) sjukdomar (t.ex. diabetes, hypertoni och hjärtåkommor).

Undersökningen visar att befolkningen i dessa två mindre städer i Uganda under 2014–2015 i huvudsak intog sina måltider i hemmet och konsumerade traditionella livsmedel som inte var högförädlade med stort fokus på majs, bönor och matbanan, som de i första hand handlade på informella marknader och lokala butiker i området. Endast 23 % av hushållen i Mbale och 24 % i Mbarara uppgav att de handlade livsmedel i större livsmedelsbutiker. Intaget av mellanmål, snabbmat eller mat utanför hemmet var låg. Över hälften av hushållen i undersökningen bedrev någon form av livsmedelsproduktion för att dryga ut hushållets livsmedelsförsörjning. Många hushåll (62 % i Mbale och 49 % i Mbarara) hade under det föregående året, främst från släktingar på landsbygden. Upplevelsen av ottrygg livsmedelsförsörjning var relativt stor. Den genomsnittliga graden av varierad kost var låg till medelhög. I Mbale hamnade så många som 40 % av hushållen i undersökningen inom FAO:s kriterier för låg grad av varierad kost (tre livsmedelsgrupper eller mindre under 24 timmar), och 20 % av hushållen i Mbarara. Endast 29 % i Mbale och 43 % i Mbarara kategoriserades i gruppen med hög grad av varierad kost. Trots detta noterade vi en hög förekomst av fetma enligt WHO:s kriterier. Dessutom var övervik och fetma i högsta grad könsbetingade med 83 % kvinnor i dessa kategorier, vilket pekar på att ytterligare studier behövs. Självrapporterad förekomst av en person i hushållet som har diagnos av diabetes, hypertoni eller hjärtåkommor pekar på att det finns viss anledning till oro och att ytterligare forskning behövs.

Fynden pekar på att problemen med icke-smittsamma sjukdomar, i synnerhet fetma, diabetes och hypertoni, bland invånarna i Mbale och Mbarara redan är anledning till viss oro. Men de vanligt förekommande orsakssambanden i den internationella diskursen om livsmedelssystem, näringsintag och livsstilsförändring tycks inte föreligga i någon högre grad i Mbale och Mbarara. Denna studie visar en förekomst av sjukdomsbörda av icke-smittsamma sjukdomar trots en inte särskilt långt framskriden övergång av kostmönster och livsmedelssystem, åtminstone inte i så som den beskrivs av Popkin med flera i form av högre intag av förädlade livsmedel, restaurangmat och snabbmat samt högre konsumtion av matolja och sötade drycker. En lärdom av detta är att vi bör uttala
oss med försiktighet om kausalitet och våra föreställningar om vad som förändras först. Antagandet att en övergång i livsmedelssystem och kostmönster inträffar först och samspelar i uppkomsten av en epidemiologisk transition mot fetma, diabetes och hypertoni saknar starkt stöd i vår undersökning av data från Mbale och Mbarara. En slutsats är därför att det kan finnas andra drivkrafter för epidemiologisk förändring i dessa städer.

Uppsats 2 – Farming or not farming? Factors influencing the agricultural involvement of urban residents in and around secondary Ugandan cities (Jordbruk eller inte? Faktorer som påverkar odlingens betydelse för urbana invånare i och omkring mindre städer i Uganda)


Resultaten pekar på att i större hushåll och i hushåll vars familjeförsörjare är arbetslösa (saknar reguljär sysselsättning), äldre eller har levtt en längre tid i staden samt hushåll som har familjemedlemmar som lever på landsbygden (överföring av livsmedel från landsbygden), var sannolikheten för att satsa på odling större. Fynden står i kontrast till de studier som hävdar att det är den fattiga befolkningen i städerna, eller nyligen inflyttade migranter från landsbygden till staden, som bedriver odling i afrikanska städer eller upprätthåller försörjningsstrategier från landsbygden i staden. Denna studie visar i stället att i dessa två mindre ugandiska städer var sannolikheten högre att hushållen med starkare förankring i staden och förhållandevis större resurser skulle satsa på odling. Mina fynd bidrar därmed till en större förståelse av de urbana hushållens satsningar på odling och kopplingarna mellan stad och landsbygd i en ugandisk kontext.

En lärdom som kan dras av denna studie är att sannolikheten är större att de hushåll som inte bedriver odling i Mbale och Mbarara blir beroende av informella marknader för sin livsmedelsförsörjning och därmed mer sårbara för förändringar i livsmedelspriser och otrygg livsmedelsförsörjning. De hushåll som inte bedrev odling var i högre grad
små, hade lägre inkomst och mindre kontakt med släktingar på landet (mindre överföring av livsmedel från landsbygden).

Uppsats 3 - Feminist geographic analysis of perceptions of food and health (Feministisk geografisk analys av uppfattningar om mat och hälsa)

I denna uppsats fortsätter jag att utforska och utvärdera föreställningen om en övergång i livsmedelssystem, kostmönster och hälsa. Jag tar avstamp i feministisk geografisk teori som betonar vikten av att anlägga flera olika perspektiv och att grunda diskursen i den faktiska verkligheten. I det här arbetet kontrollerar jag mina tidigare fynd från hushållsundersökningen (förhållandevis låg grad av varierad kost, allmän upplevelse av otrygg livsmedelsförsörjning och trots detta en hög förekomst av övervikt och fetma samt frekvent rapportering av diabetes, hypertoni eller hjärtsjukdom) med den lokala hälso- och sjukvårdspersonalens erfarenheter och kunskap. Detta gjordes genom fokusgruppdiskussioner med hälso- och sjukvårdspersonal, en per stad. Metoden innebar att jag var tvungen att ta hänsyn till gruppdynamiken i min analys och fokusgruppens sociala konstruktion. Jag gjorde därför en tematisk innehållsanalyser av utskrifterna från fokusgruppen och en interaktionsanalys av materialet med diskursiva representationer – frågor där de är överens och inte – bland hälso- och sjukvårdspersonalen om de kost- och hälsorelaterade förhållandena i deras tjänstgöringsområden.

Samtidigt exponerar arbetet också hur våra representationer är en kreativ och oavbrutet samkonstruerad process, vilket öppnar möjligheter till positiva livsmedelsystem och hälsointerventioner. Avslutningsvis ger studien stöd för att påståendet om en långt framskriden afrikansk nutritionsövergång inte helt stämmer, och det är relevant för debatten om den dubbla bördan av felnäring. Studien bidrar med en nyanserad och kontextualiserad analys av urbana livsmedels- och hälsoförhållandens materialitet och av hur diskurser omkring kost, kroppsstorlek och hälsa kan konstrueras och ifrågasättas av hälso- och sjukvårdspersonal i Mbale och Mbarara.

Uppsats 4 – Food sources and access strategies: an intersectional analysis
(Livsmedelskällor och försörjningsstrategier: en intersektionell analys)


Livsmedelskällorna var likartade över alla grupperna (i första hand informella marknader). Däremot fanns det stora skillnader i försörjningsstrategier från de med högsta till lägsta grad a tryggad livsmedelsförsörjning. Lagring, jordbruk, överföring av livsmedel och rumslig mobilitet var kännetecknande för anställda och de med trygg livsmedelsförsörjning. Fyndet att institutioner kan bekämpa en otrygg livsmedelsförsörjning och bidra till att övervinna identitetsrelaterade nackdelar eller strukturella hinder genom markfördelning och/eller försörjningsbidrag, förutsatt att det finns en medvetenhet och samarbetsvilja, är också ett viktigt bidrag till debatten om tryggad livsmedelsförsörjning och stadsodling i en afrikansk kontext.
Fynden belyser såväl fördelaktiga som ofördelaktiga geometrier. Intervjupersonernas socioekonomiska situation (eller sociala klass), som var nära förbunden med deras sysselsättningssituation, formade de personliga strategierna för livsmedelsförsörjning med färre skillnader mellan kön, ras, grupp eller andra identitetsrelaterade aspekter eller interaktioner dem emellan. Klass är i sig själv ett resultat av en komplicerad interaktion med större strukturer på arbetsmarknaden och hur denna formas av flerskaliga interrelationer, policyer och praktiker. Ett bidrag från studien är dess utforskande av hur identitet, inte som isolerad företeelse utan i interaktion med tillgångar, strukturer och särskilt med platser och personer på landsbygden, gemensamt formar livsmedelsförhållandena, medierat av individuellt agens.

Vikten av interaktion och utbyte av arbetskraft, pengar och jordbruksprodukter mellan stad och landsbygd för en trygg livsmedelsförsörjning i staden är ett annat bidrag från det här arbetet. Min upptäckt att landsbygd, landsbygdsodling och sociala nätverk på landet har fortsatt betydelse för urbana strategier för livsmedelsförsörjning är viktig och ger stöd för fler arbeten om rumsliga levnadsförhållanden i kontexten Afrika söder om Sahara. Detta fortsatta värdesättande av och investeringen i landsbygdsmark i en ugandisk socioekonomisk kontext, som en strategi för livsmedels- och försörjningstrygghet, passar inte in i de antaganden om livsmedelssystemet, kostmönster och urban livsstil som beskrivs ovan, eller i uppdelningen av stad och landsbygd. De hushåll som hade den tryggaste livsmedelsförsörjningen i staden var också de som hade en aktiv relation till livet på landsbygden. De som hade svag eller icke existerande koppling till landsbygden och människor på landsbygden upplevde i kombination med en osäker sysselsättningsstatus större otrygghet i livsmedelsförsörjningen och sårbarhet i det urbanaivet. En följd av detta är att enkla beskrivningar av livsmedelssystem och nutritionsövergång från ett liv på landsbyden till staden, med tydligt differentierade livsmedelskällor och försörjningsstrategier från jordbruk till livsmedelsbutik, från egen mark till avstånd från mark, kan vara missvisande i kontexten mindre ugandiska städer. Fyndet att man fortsätter att handla urbana livsmedel från traditionella källor pekar också på att antagandet om ett ökande beroende av livsmedelsbutiker i de afrikanska livsmedelssystemen bör göras med försiktighet.

**Avslutande diskussion och slutsatser**

En avslutande övergripande analys av samtliga frågeställningar och kombinationen av metoder ger vid handa att doktorsavhandlingen avslöjar mönster och omständigheter med ojämlika förhållanden för livsmedel, odling och hälsa i Mbale och Mbarara. Dessutom finns det likheter mellan städerna i de statistiska och kvalitativa utsagorna på


Genom att spåra olika lokala representationer av livsmedel, odling och hälsa med ett inneboende antagande om socio-rumsliga praktiker (till exempel antagandet om att en överviktig person inte rör sig mycket utan bara sitter hemma och äter, vilket diskuterades i fokusgrupperna), har projektet också visat hur dessa inte är fasta eller statiska. Diskurser kan förändras och utvecklas, och ifrågasättas eller formas. Detta öppnar möjligheten till progressiva och frigörande strategier i Mbale och Mbarara för att minska de ojämlika förhållanden för livsmedel, odling och hälsa.

Min forskning bidrar också genom en kartläggning av den relationella interaktionen mellan människor i staden, landsbygden och de som bor på landsbygden, vilket ger stöd för att rumslighet är en viktig komponent i det urbana afrikanska livet. Relationer har betydelse, geografi har betydelse.

Sammanfattningsvis pekar min forskning mot att vi ska vara försiktiga med vissa vanliga antaganden om hur urbant liv påverkar matvanorna mot ett mer “västerländskt” livsmedelssystem och kostmönster, med stora livsmedelsbutiker och förädlad mat, snabbmat, ökad köttkonsumtion, mindre odling och minskad fysisk aktivitet, och att dessa förändringar bidrar till en växande sjukdomsördra av icke-smittsamma sjukdomar bland den urbana befolkningen. Min forskning pekar i stället på att livsmedelssystem,
nutritionsövergång och epidemiologisk transition kanske inte har en så stark koppling som man tidigare trott, eller att den kopplingen är mer komplex än så.

Jag avslutar med ett citat av Edgar Pieterse och Sue Parnell, två afrikanska urbanitetsforskare vid African Centre for Cities, University of Cape Town i Sydafrika, från det inledande kapitlet i den redigerade upplagan av ”Africa’s Urban Revolution”:


Jag hoppas att min forskning inom ramen för den här uppsatsen kan bidra till en afrikansk urban omställning med positiva förtecken snarare än befarat kaotiska.
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ANNEX 1: HOUSEHOLD SURVEY QUESTIONNAIRE

Section A: Household Composition
- Demographic and socio-economic characteristics of each household member
- Anthropometric measurements (weight in kg, height in m) of willing adults
- Location of main meal the preceding day

Section B: Household and Income Data
- House type and structure
- Income and expenditure types and sources
- Lived Poverty Index (LPI)

Section C: Food Consumption Information
- Household Food Insecurity Access Score (HFIAS)
- Household Dietary Diversity Score (HDDS)
- Months of Adequate Household Provisioning (MAHP)
- Food prices and change
- Food sources (supermarket, small shops, traditional markets, remittances etc.)
- Frequency of consumption during preceding week of:
  - snack foods, fried foods, doughnuts, fried meats, street snacks;
  - of sugar added to food or drink;
  - of a carbonated drink/soda

Section D: Urban and Rural Agriculture
- Whether, where, why and who involved in some form of crop or animal agriculture
- Perception of importance to household of agricultural produce
- Agrarian conditions and practices
- Production of meat or milk
- Consumption of meat or milk

Section E: Rural-Urban Links and Food Transfers
- Receipt of food transfers; from whom and where; for what purpose

Section G: Make up of Food Provisions (NB: Section F not used in Uganda)
- from food household produces in rural areas
- from food household produces in urban areas
- food household transfers from rural areas
- food household transfers from urban areas
(cont. next page)
Section H: Health Status

- Perceptions of health status
- Weight-related
- Health of the children
- Non-communicable disease (diabetes, hypertension, heart problems) diagnoses
- Micro-nutrient deficiency diagnoses
- Other diseases (TB, HIV/AIDS, Cancer)
ANNEX 2: FOCUS GROUP QUESTION GUIDE

Focus groups with healthcare professionals in Mbale and Mbarara about their experience of the health issues of their communities and their ideas and perceptions related to non-communicable diseases

Opening type questions:
Could you describe your role in it city’s healthcare service provision? What are the main aspects of your job?
Are there priority areas of focus from your employer and if so what? Has this changed over time?

Core questions:
What are the most common ailments or problems people come in with?
Are there particular health problems that you see more of than say 5 years ago?
What kind of messages do you usually try to give people in terms of a healthy lifestyle?
What does good health mean to you/your organisation?
What do you think people here think of as good or bad body size and shapes for a man or a woman?
Our survey from 2015 suggests that about 26% of the adult population here would be classed as ‘obese’ by WHO BMI cut-offs. The women seem to be more affected than the men are. What are your thoughts regarding this? How does this relate to what you see and experience in your patients? What do you think the reasons for this might be?
Do you think there is a need to be concerned about what people eat?

Closing type questions:
Is there anything else you would like to talk about in relation to health in the city?
Is there anything you would like to ask me?
ANNEX 3: IN-DEPTH INTERVIEW QUESTION GUIDE
(Daily urban experience, food, farming and health)

1. **General about living in the city**
   - Can you tell me about your life in Mbale/Mbarara? How long have you lived here, or if moved here when & why? What do you do for work?
   - Tell me about your whereabouts during a usual day, from morning to evening. What do you do, where do you go, what do you eat?
   - What are the good or less-good things with city life? How is life in town similar to or different from village life?

2. **Food**
   - What do you usually eat? Do you feel you have enough?
   - When you prepare a meal in your family, where do you get the foodstuffs you need from? Who shops, who cooks? How often do you need to go shopping?
   - How often do you eat outside of your home?
   - I have noticed that there are many stalls in Mbale/Mbarara that sell small fried snacks and fizzy drinks. Do you ever eat those?
   - Has your diet changed over time? Does what you eat change if you are in the city or in the countryside?

3. **Farming**
   - Do you yourself grow any foodstuffs or keep any poultry/livestock in town, or in the village? Please tell me about where, what, how and why you farm.
   - Whose land is it?
   - What is good and/or bad about farming?
   - Do you give away, or receive, farm produce?

4. **Health**
   - How would you describe your health? What about other members in the family?
   - Are medical services accessible to you? If not, why not?
   - Are there some foods that you think are especially good or bad for your health?
• What do you think makes for a healthy lifestyle?
• Have you ever heard that some health problems might be related to weight, either too high or too low weight? Are there any problems with weight in your family?
• What do you think is a good or bad size and shape for a man or a woman? Has this changed over time?

5. Time Change / Future
• Has your daily life in the city changed during your time here?
• What are your future plans?
• What do you think are the most important problems in Mbale/Mbarara?
• Looking to the future, what do you think are key challenges and opportunities for the city you live in?

Do you have anything more you would like to tell us about food or farming or health in the city?

Do you have any questions for us?
ANNEX 4: SATELLITE IMAGES

Source: High-resolution satellite imagery © CNES 2014 and 2015, Distribution Astrium Services/Spot Image corporation, USA, all rights reserved. Pleiades Satellite Image of Mbale taken on 8 March 2015, and of Mbarara taken on 14 January 2014. Image resolution 0.5 metres, accuracy to 4.5 metres.
### ANNEX 5: MOST COMMON FOOD GROUPS CONSUMED

<table>
<thead>
<tr>
<th>Dietary Diversity Category</th>
<th>Lowest dietary diversity (≤ 3 food groups)</th>
<th>Medium dietary diversity (&gt;3 and &lt;6 food groups)</th>
<th>High dietary diversity (≥ 6 food groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>Mbale</td>
<td>Mbarara</td>
<td>Mbale</td>
</tr>
<tr>
<td>Number of households in diet category</td>
<td>Mbale</td>
<td>Mbarara</td>
<td>Mbale</td>
</tr>
<tr>
<td>Mbale</td>
<td>406</td>
<td>193</td>
<td>320</td>
</tr>
<tr>
<td>Mbarara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence of HHs in diet category</td>
<td>Mbale</td>
<td>Mbarara</td>
<td>Mbale</td>
</tr>
<tr>
<td>Mbale</td>
<td>40%</td>
<td></td>
<td>31%</td>
</tr>
<tr>
<td>Mbarara</td>
<td>20%</td>
<td></td>
<td>37%</td>
</tr>
<tr>
<td>Food groups consumed by more than half of the households in the category (in order of most common first) [based on 24-hour recall data]</td>
<td>Cereals</td>
<td>Cereals</td>
<td>Cereals</td>
</tr>
<tr>
<td></td>
<td>Roots and tubers</td>
<td>Roots and tubers</td>
<td>Roots and tubers</td>
</tr>
<tr>
<td></td>
<td>Legumes, nuts, seeds</td>
<td>Legumes, nuts, seeds</td>
<td>Legumes, nuts, seeds</td>
</tr>
<tr>
<td></td>
<td>Sugar, sweeteners</td>
<td>Sugar, sweeteners</td>
<td>Sugar, sweeteners</td>
</tr>
<tr>
<td></td>
<td>Milk, other milk products</td>
<td>Milk, other milk products</td>
<td>Milk, other milk products</td>
</tr>
<tr>
<td></td>
<td>Sugar, sweeteners</td>
<td>Sugar, sweeteners</td>
<td>Sugar, sweeteners</td>
</tr>
<tr>
<td></td>
<td>Vegetables</td>
<td>Vegetables</td>
<td>Vegetables</td>
</tr>
<tr>
<td></td>
<td>Spices, condiments, beverages</td>
<td>Spices, condiments, beverages</td>
<td>Spices, condiments, beverages</td>
</tr>
<tr>
<td></td>
<td>Oils and fats</td>
<td>Oils and fats</td>
<td>Oils and fats</td>
</tr>
<tr>
<td></td>
<td>Meat, poultry, meat products</td>
<td>Meat, poultry, meat products</td>
<td>Meat, poultry, meat products</td>
</tr>
</tbody>
</table>