

**Is Nutritional Priority given to Pregnant Women?**  
**A Case Study of Intra-Household Food Allocation**  
**among the Rural Poor in the Inchanga Area, South Africa**

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Sciences, University of KwaZulu-Natal

October 2009  
Durban

## **Abstract**

The premise of this case study research is that nutritional requirements increase when women fall pregnant and that obtaining adequate nutrition is of particular importance for the maternal environment and fetal growth on both short-term and long-term outcomes, impacting everything from individual well-being to Gross Domestic Product of a nation. Nutrition is a complex and multi-faceted area of study. An important part of this study is the nature of intra-household allocation. This study explores the allocation of food and resources within a sample of rural households to identify whether the onset of pregnancy changes a woman's ability to claim (receive) additional food and resources to meet her increased nutritional needs.

Using case study methodology, I collected a combination of quantitative and qualitative data on individual and household level information of 32 pregnant women in the area of Inchanga, South Africa. Almost all pregnant women in this sample report that their absolute needs are met. I also find that a majority of respondents report a relative increase in food, money and/or resources during pregnancy. This indicates that for the greater part of households in this sample, women's access to nutrition does change because they are pregnant. Where a pregnant woman's nutritional needs were not met, important individual and household correlates include the pregnant woman's relationship to the head of household, to other household members as well as to the father of the child, in addition to the woman's individual access to and control over income.

## **Acknowledgements**

This project has been more than an academic exercise. It has been a journey deeper into the lovely, dynamic, multi-layered place I have been privileged to call home for just shy of two years. It has not only demanded my best academically, but has been transformational in terms of discipline, strength, character, and faith. Education is always a project of the community, thus, this project is not my own. It has been and continues to be shared by those who are part of the journey.

I am indebted to many who will forever be a part of the community of my soul. I owe much to all of my family and give thanks for their love and support of my dreams, no matter how far across the globe these adventures take me. There are many whose friendship and influence on my life has been tremendous. I give thanks to God for you.

The community of scholars at the University of KwaZulu-Natal has provided an amazingly rich and diverse learning environment. I am especially indebted to Dori Posel for her willingness to be my supervisor. Her expertise and insightfulness did more than simply guide this project; it added depth and an excellence that never permitted less than the best. To the professors, staff and fellow colleagues in the School of Development Studies, thank you for many meaningful conversations. I don't know if I would have had the courage to start, endure or finish were it not for each of you.

I am grateful to the community of Inchanga, South Africa. To Mr. Shoji, Ward 4 Councillor, Mrs. Maqaba, Director of Fredville Government Clinic, all the sisters at the clinic, Dawn Leppan, Director of 1000 Hills Community Helpers and Sister Dlamini of the community center for their enthusiasm, support and permission to conduct this research project. This study would not have been possible without the contributions of the pregnant women. Thank you for your willingness to participate in the case study research and share the experience of your lives. I am indebted to the work of Makhosi Mathaba and Nkosingiphile Patience Msomi; they became to me more than translators, but key cultural consultants and friends.

There are many who paved the way for my coming to Durban and my remaining here through the completion of the project. I am grateful for the opportunities afforded me through Rotary International's Ambassadorial Scholarship. Not only did the bursary enable me to live and study in Durban, but I was instantaneously adopted into an international family who has loved and supported me and allowed me to endeavour with them to put into practice "service above self". I am also extremely thankful for an NRF scholarship and the funding that I received for my case study research. Not only did this funding enable me to remain in Durban a second year, but afforded me the opportunity to conduct case study research in the Inchanga area and to complete this project. Thank you.

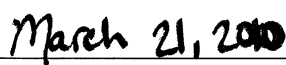
## DECLARATION

Submitted in partial fulfilment of the requirements for the degree of Master  
in the Graduate Programme in  
Development Studies, University of KwaZulu-Natal,  
Durban, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. It is being submitted for the degree of Master of Development Studies in the Faculty of Humanities, Development and Social Science, University of KwaZulu-Natal, Durban, South Africa. None of the present work has been submitted previously for any degree or examination in any other University.



Student signature



Date

## **List of Acronyms**

ACC/SCN	Administrative Committee on Coordination/ Sub-Committee on Nutrition
AIDS	Acquired Immune Deficiency Syndrome
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IFPRI	International Food Policy Research Institute
IMR	Infant Mortality Rate
LBW	Low Birthweight
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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## **Chapter 1: Introduction**

### **1.1 Background and Problem Statement**

Ricardo Uauy (2006:6) states that “no more Disability Adjusted Life Years (the years of life lost due to premature death) are lost to HIV than to maternal and child undernutrition”. This is a significant statement and underscores the centrality of nutrition to well-being and productivity throughout the life course. While HIV and undernutrition are mutually reinforcing, maternal and child nutrition and productivity over the life course are also mutually reinforcing and in many incidents, intertwined with the effects of HIV. Every year millions of women and children die before, during and after pregnancy as a consequence of inadequate nutrition, poor health and lack of care during delivery. According to the World Health Organization, “for women of reproductive age, pregnancy and childbirth are the leading cause of death, disease and disability, accounting for at least 18 percent of the global burden of disease in this age group” (WHO 1998). Furthermore, “every year over four million babies less than one month of age die, most of them during the critical first week of life; and for every newborn who dies, another is stillborn” (AbouZahr and Wardlaw 2003). In the province of KwaZulu-Natal, South Africa, where the incidence of poverty, food insecurity, unemployment and HIV is one of the highest in the country, it is not unexpected that it “performs worst on all measures of mortality with an Infant Mortality Rate (IMR) of 63 per 1000 births and an under five mortality rate of 99 per 1000 births, and life expectancy at birth of 43 years” (Dorrington et al. 2007, iv).

Nutrition during the foetal development stage is imperative to reducing the incidence of mortality. While the reduction of mortality of women and children surrounding childbirth is a cause sufficient in itself, the benefits of adequate nutrition extend throughout the entire life course, increasing productivity, decreasing ill health effects and better enabling individuals to obtain optimal livelihoods (see ACC/SCN 2000; Wethington 2005; World Bank 2006; Smith et al. 2003). This project agrees with the broader definition of nutrition that includes weight gain during pregnancy as well as access to clean water, sanitation and a combination of protein, carbohydrates and micronutrients (see ACC/SCN 2000; Gillespie and Kadiyala 2005). Literature suggests there is a minimum level of nutrition women should attain during pregnancy (Ladipo 2000; Shrimpton 2003; World Bank 2006). It is widely acknowledged that undernourished women are much more likely to have low birthweight infants who, if they survive, will learn less in school, suffer from increased

illness throughout their life, and have lower productivity in the workforce. In turn, the likelihood that they will bear undernourished children themselves leads to intergenerational malnutrition. Malnutrition undermines economic growth and perpetuates poverty (World Bank 2006; ACC/SCN 2000).

Nutrition is a complex and multi-factor area of study. There are many ways to understand nutritional status and nutrient intake. This study will focus on food and resource distribution within households. In many cases obtaining adequate nutrition is dependent upon intra-household dynamics (Simister and Piesse 2003; Kurtz and Johnson-Welch 2001; Haddad and Kanbur 1990; Mosoetsa 2005). In some contexts where food is available, it is the inappropriate household food allocation that prevents women and young children from obtaining their nutritional needs. “Empirical results leave no doubt that higher women’s status has a significant, positive effect on children’s nutritional status...They confirm that women’s status impacts child nutrition because women with higher status have better nutritional status themselves, are better cared for, and provide higher quality care to their children” (Smith et al. 2003, xi). Kurtz and Johnson-Welch (2001:443) use the UNICEF (United Nations Children’s Fund) causal framework to put it this way, “adequate nutritional status is dependent on dietary intake [which is] dependent on access to food...The underlying factors influencing diets are in turn dependent on resources and control over food availability and distribution within the household”. Thus, the role of intra-household dynamics is significant and cannot be overlooked. Most literature from a gender perspective acknowledges that positive nutritional outcomes are obtained when women have greater access to and control of resources (see for example Duflo 2000; Gillespie 2001; Winikoff 1988). Appropriate intra-household food allocation enables healthy nutritional outcomes and is of particular importance for the maternal environment and fetal growth.

Insight into the resources rural households have and the existing patterns of household distribution will reveal whether the onset of pregnancy strengthens the woman’s ability to influence intra-household food allocation to meet her increased nutritional need. This study acknowledges that in a situation of poverty, it is possible that no-one in the household has absolute needs met, but some can still receive relatively more than others. The particular set of questions that I will address in this study concerns whether pregnant women receive nutritional priority relative to other adult members (male or female) in the household, and

what factors may influence a pregnant woman's ability to receive a larger share of food or resources in the household.

## **1.2 Rationale of the Study**

Understanding intra-household allocation and determining whether poor rural pregnant women receive nutritional priority within the household is of academic and social importance. Insight into the existing patterns of the resources households have and how those resources are distributed within the household will provide a more textured assessment of the effects of poverty, the impact of gender, and the ability of the state and various organizations to devise more effective, well-targeted poverty alleviation programmes. Studies from other countries typically find evidence consistent with intra-household inequality (see for example, Miller, 1997; Quisumbing and Maluccio, 2000; Thomas, 1990). This area of study is exploratory, as little research of pregnant women and intra-household resource inequality has been conducted on households in South Africa.

There is agreement in the literature on the importance of nutrition for development, both human and economic development. This research project will explore whether the onset of pregnancy creates a situation where poor rural pregnant women receive additional food on the basis that they are eating for two. It is widely acknowledged that pregnancy and the first 36 months of life are two stages that are considered most critical for nutrient intake. An "investment in avoiding foetal undernutrition becomes an even better investment because it not only improves maternal and infant nutrition but also slows or prevents the onset of chronic diseases in later life. ...in addition, prevention will have a significant impact on economic productivity" (ACC/SCN 2000, 44). This is an important consideration for social policy and poverty reduction measures. In the context of South Africa, the *Low Birthweight: Country, Region and Global Estimates*, revealed that in a 1998 survey, the incidence of low birthweight is 155,000 births. The percentage of low birthweight infants in South Africa is 15 percent (United Nations Children's Fund and World Health Organization 2004, 16). Low birthweight is used as a proxy indicator of intrauterine growth retardation and undernutrition. Decreasing these figures as well as decreasing incidents of infant mortality is important to improving the Human Development Index (HDI), a key indicator of the quality of life. Every mother and child should have the right and access to adequate nutrition. Communities and households will greatly benefit when every woman can start pregnancy healthy and well nourished in order that every

child is ensured a healthy start in life (United Nations Children's Fund and World Health Organization 2004).

### **1.3 Aims and Method of the Study**

This study aims to gain a deeper understanding of the allocation of food and nutrition within rural households to discover whether nutritional priority is given to women when they fall pregnant. I do this through a combination of quantitative and qualitative methods using case study methodology. Data are collected at both the individual and household levels through a household questionnaire and an in-depth interview. The study was designed in two parts. The pregnant woman is the principal respondent for both parts. The first part was a quantitative questionnaire, collecting both individual and basic household information. The second part was a qualitative probe designed to explore the household conditions where the nutritional requirements for pregnant women are either met or not met. It does this using case study methodology. This study is most interested in “investigating and responding to exploratory and descriptive questions. The [objective of this] study is not the generalization of results, but a deeper understanding of experience from the perspective of the participants selected for study” (Maykut and Morehouse 1994, 44). Project design was able to emerge and develop throughout the research process. The aim is to better understand those factors that influence the allocation of food within households. In particular, this case study describes whether pregnant women are able to claim a larger share of food and/or resources in the household, and it investigates which individual and household characteristics are correlated with a greater relative share of resources accruing to pregnant women.

Interviews took place at the Fredville Government Clinic and the 1000 Hills Community Helpers Community Center in the area of Inchanga. Located 40 kilometres from Durban, the site was chosen because it is a rural area with easy access and proximity to the University of KwaZulu-Natal.

### **1.4 Organization of the Dissertation**

The remainder of this dissertation is divided into four chapters. The next chapter reviews relevant literature on the nutritional requirements of pregnant women, the nutritional context of KwaZulu-Natal, South Africa, as well as models of intra-household resource

allocation. Detail of the research methodology is in chapter three. Chapter four is an analysis of the research findings. The final chapter concludes the dissertation and presents recommendations of the study.

## **Chapter 2: Literature Review**

### **2.1 Introduction**

This literature review will look at nutrition and models of intra-household allocation. It will substantiate nutrition of pregnant women as a significant area of study by examining the importance of nutrition, nutrition as a development indicator, specific nutritional requirements of pregnant women and the context of KwaZulu-Natal, South Africa. Then the discussion will turn to various models of intra-household allocation as the focus factor of adequate nutrition for this project and under what conditions can we expect the increased nutritional requirement of pregnant women to be met or not met. There is little research available on intra-household allocation and pregnant women, particularly within South Africa. A gap remains in understanding whether the allocation of food and resources increase to meet the increased needs of women when they fall pregnant.

### **2.2 Nutrition**

It is accepted that “our health and well-being, quality of life and ability to learn, work and play depend on how well we are nourished” (Vorster et al. 1997, 1). Adequate health, including adequate food was declared a basic human right in the 1948 Universal Declaration of Human Rights. The “right to health and nutrition was reiterated in the 1989 Convention on the Rights of the Child...The right to adequate nutrition is also enshrined in the constitutions of many countries- for example, those of Ethiopia, Guatemala, India, Peru, and South Africa... The rights-based approach to development has also been firmly endorsed by the development community in recent years” (World Bank 2006, 37). This project agrees with the broader definition of nutrition that includes more than simply food and caloric intake. Adequate nutrition is composed of many complex and interrelated factors including access to sufficient quantity and quality of food that is safe and affordable, clean water, and sanitation, health services as well as caring practices and adequate intra-household allocation. When these factors are in place the health and well-being of individuals and communities becomes evident. The outcomes of adequate nutrition include a better quality of life, higher productivity, enhanced human capital formation and human development. This in turn may increase Gross Domestic Product (GDP) of a nation. Therefore, adequate nutrition may also lead to a reduction in poverty. On this basis, the report *Repositioning Nutrition as Central to Development*, estimates that

“overall, the benefit-cost ratios for nutrition interventions range between 5 and 200” (World Bank 2006, 1). Improving nutrition and the nutritional status of individuals and communities is in alignment with working toward achieving the Millennium Development Goals (MDG), and as such, nutrition is an issue of health and well being, of human rights and social protection as well as an issue of economics.

The opposite of adequate nutrition is malnutrition<sup>1</sup> or undernutrition<sup>2</sup>. This is a problem for both so-called developed and developing countries, even as the malnutrition divide between the two is substantial and is subject to increasing inequalities. It is the poor on all sides who are most affected, and women who are disproportionately represented among the poor (Aliber 2003; Lipton and Ravallion 1997; Tinker et al. 2000). Just as the factors of adequate nutrition are complex and interrelated, so also are the factors that lead to malnutrition. The causes of malnutrition are a combination of personal deficits, including inappropriate dietary intake, ill health or insufficient caring practices, as well as household or community deficits, consisting of food insecurity, unsatisfactory access to health services, clean water and sanitation, or inadequate standard of housing, refrigeration facilities or easy cooking. These factors are all interrelated and dependent on the amount, control and use of resources available within a household or community.

A review of the literature leaves little doubt that poverty is a contributory cause and an effect of undernutrition and micronutrient malnutrition. Income is the integral link to the consumption and procurement of necessary provisions that prevent individual, household or community deficits. Many individuals and households that experience poverty, particularly those in chronic or generational poverty also face the vicious cycle where the consequences of poverty directly reinforce the effects of malnutrition. Inadequate nutrition impedes the genetic potential for physical, mental and social development of people. This may lead to ill-health, lack of adequate education and low productivity, all of which contribute to poverty. “Because the causes of [mal]nutrition are so interrelated and further aggravated by the consequences, it can be expected that they will not occur in isolation within a community or household. Usually, a combination of factors, all associated with poverty, will collectively be responsible for nutrition” (Vorster et al. 1997, 21).

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<sup>1</sup> Malnutrition represents insufficient, excessive, or imbalanced consumption of nutrients.

<sup>2</sup> Undernutrition represents insufficient consumption of nutrients. This project focuses most specifically on undernutrition and micronutrient malnutrition, even as it acknowledges the increasing cases and costs of malnutrition caused by excessive or imbalanced consumption of nutrients and the double burden that plagues communities affected by both insufficient and excessive consumption of nutrients.

Consequently, malnutrition is often experienced as chronic and/or generational. Understanding the role women have in this cycle of poverty and undernutrition is vital. Women are overrepresented among the poor (Aliber 2003; Lipton and Ravallion 1997; Tinker et al. 2000) and are more likely to have lower status within a community and household. Therefore, they are not only more vulnerable to inadequate diet, poor health and diseases, but early and frequent pregnancy exacerbates the cycle of poverty and perpetuates poor health and nutritional status of their children (Tinker et al. 2000, 11).

Malnutrition impedes development on all levels. The outcomes are population specific, reflecting the social, economic, political and cultural context. There are an increasing number of communities experiencing the double burden of malnutrition, which includes both undernutrition and excessive, imbalanced consumption resulting in obesity and non-communicable diseases (NCDs). Furthermore, malnutrition and HIV/AIDS are known to reinforce each other, increasing the impact experienced by populations that are affected. The resources available, the exposure to risk factors, accessibility of social support networks, effects of HIV/AIDS, intra-household food allocation, cultural norms and climate are a few of the factors that influence the outcome of malnutrition, the level of loss or disease and “the impact of poverty on the extent of malnutrition within communities” (Vorster et al. 1997, 23). As such, the outcomes of malnutrition are based on a myriad of factors that do not necessitate homogeneity of causes or consequences, the combinations of which may differ across countries, communities or households that experience malnutrition. It is acknowledged that not all poor people are undernourished nor are all wealthy people adequately nourished. Even still, there is a large, disproportionate number who suffer malnutrition as a direct outcome of poverty. Losses from malnutrition occur in three main areas: “direct losses in productivity from poor physical status; indirect losses from poor cognitive function and deficits in schooling; and losses owing to increased health care costs. Malnutrition’s economic costs are substantial; productivity losses to individuals are estimated at more than 10 percent of lifetime earnings” (World Bank 2006, 2). In 2006, a World Bank News Release reported that improved nutrition has a significant effect on the ability of a country to increase GDP; they estimated that for poor countries, better nutrition will improve economic growth and increase GDP two to three percent (Hay and Elee 2006, 1).



### **2.2.1 Nutrition and Pregnancy**

Proper nutrition starts in utero and extends throughout the life cycle. Pregnancy and the first 36 months of life provide an opportunity for nutrient intake that is incomparable to other life stages. The “linkages between mother and child are not linear but, rather, part of a continuous process in which health [and nutrition] or ill health [and malnutrition] can be perpetuated from mother to child to mother to child over decades” (Winikoff 1988, 197) having a cumulative impact on future babies. Despite improvements in the availability of food, malnutrition remains a concern. Poor pregnancy outcomes are in large part a result of the maternal nutritional status both before and during pregnancy. The International Food Policy Research Institute (IFPRI) reports that every year poor nutrition during fetal life affects some 30 million infants (ACC/SCN 2000, iv). The consequences of malnutrition of both mother and child include increased risk of disease or mortality, impaired growth both during gestation and throughout the entire lifespan of the child, predisposition to chronic diseases later in life and subjection of both mother and child to the intergenerational cycle of malnutrition.

Malnutrition also has a significant impact on economic productivity, thus prevention of maternal and fetal malnutrition is an important investment (ACC/SCN 2000, 44). On the basis of 2001 figures, the “estimates for four countries suggest that costs of total productivity losses per year associated with poor maternal, newborn, and infant health range from US\$8 million in Mauritania to US\$95 million in Ethiopia” (Gerdtham 2006, 1353). The impact of HIV/AIDS infection on maternal environment and fetal growth are less known as few studies have examined this relationship, but the reinforcing nature of malnutrition and HIV/AIDS would likely result in even greater losses and exacerbated poor pregnancy outcomes.

#### **2.2.1.1 Nutritional Requirements for Pregnant Women**

Healthy pregnancy outcomes have a lot to do with the nutritional status of the woman before and during pregnancy. Women who do not have adequate nutritional status when they fall pregnant are more likely to give birth to infants with poor nutritional statuses. The “nutrition of young children [including unborn children] is important not only because of concern over their immediate welfare, but also because nutrition in this formative stage of life is widely perceived to have substantial, persistent impact on their physical and mental

development” (Aguero et al. 2006, 25). Physical growth, including brain development from conception through the first two years of life is imperative and damage caused by undernutrition in this period is largely irreversible (World Bank 2006, 57).

Literature suggests there is a minimum level of nutrition women should obtain during pregnancy (see Ladipo 2000; Shrimpton 2003; World Bank 2006). Considering the broad definition of nutrition, access to clean water and sanitation and to antenatal and health services are imperative for the maternal and fetal environment, as is smoking and alcohol cessation. Pregnancy also increases the woman’s need for quantity and quality of foods including a combination of protein, carbohydrates and micronutrients. The presence of disease, infection or malabsorption only increases the nutrient requirements for pregnant women. Total energy expenditure and weight gain is minimal in the first trimester, but nutritional requirements remain increasingly important throughout pregnancy to support fetal growth and development, which includes the maternal metabolism and tissue development specific to reproduction. “Approximately an additional 340 and 450 kcal is recommended during the second and third trimesters, respectively” (Picciano 2003, 1999S). Additional protein is needed during pregnancy “to cover an estimated 21grams/day deposited in fetal, placental and maternal tissues” (Institutes of Medicine 2002; Picciano 2003, 1999S). Maternal and fetal health and well-being is in large part measured by weight gain during pregnancy.

Weight gain represents two major components: “1) the products of conception: fetus, amniotic fluid and the placenta and 2) maternal accretion of tissues: expansion of blood and extracellular fluid, enlargement of uterus and mammary glands and maternal stores (adipose tissue)” (Picciano 2003, 1998S). An average weight gain during pregnancy for a healthy woman without eating restriction is 12.5 kg (27.5lb) (Picciano 2003, 1998S). Weight gain and pregnancy weight are significant determinants of birthweight. Birthweight at term is often used as the proxy indicator of the nutritional status of both mother and fetus. Thus, good fetal growth and positive pregnancy outcomes depend ultimately on the mother’s nutritional health including weight gain during pregnancy.

#### **2.2.1.2 Outcomes of Poor Nutrition During Pregnancy**

The mother’s own nutritional status, body composition and dietary intakes can exert major effects on the life of her unborn child. This is because the mother has to balance the “fetal

demand for nutrients and the maternoplacental capacity to meet that demand. Failure of the maternoplacental supply line to satisfy fetal nutrient requirements results in a range of fetal adaptations and developmental changes; although these adaptations may be beneficial for short-term survival, they may lead to permanent alterations in the body's structure and metabolism" (Godfrey and Barker 2000, 1348S). It is well established that maternal nutritional status is an important predictor of pregnancy outcomes. Three outcomes of poor nutrition during pregnancy, that are all interrelated, include: low birthweight and intrauterine growth retardation, the fetal origins hypothesis and intergenerational affects.

Women with poor nutritional statuses before and during pregnancy are much more likely to experience poor pregnancy outcomes, one of the more frequent being low birthweight at term (LBW). Low birthweight is defined as a birth weight under 2500 grams. Recommendations for weight gain during pregnancy take into account pre-pregnancy weight and nutritional status, suggesting higher weight gains for thin women than for normal weight or obese women (Picciano 2003, 1998S). Two strong determinants of low birthweight at term is pregnancy weight and the weight gain during pregnancy, even as other "nonnutritional factors such as infections, hypertension, smoking and environmental factors (such as indoor air pollution due to cooking smoke or poor housing quality) are known determinants" (Ramakrishnan and Neufeld 2001, 20). Low birthweight is affected by maternal, fetal and placental conditions. It exposes the undernutrition of both the woman and her baby and may be used as a proxy indicator of intrauterine growth retardation. All of which increases the risks of perinatal mortality, along with other abnormalities or long-term health problems. While few studies have examined the affects of HIV/AIDS on all pregnancy outcomes, Drefuss et al. (2001: 824) state that "maternal nutritional status during pregnancy was an important predictor of birth weight and intrauterine growth retardation independent of clinical HIV disease progression and associated immunosuppression in our cohort." Also, adolescent mothers tend to have a higher rate of low birthweight infants. In large part this is explained by the competition of nutrients between the mother's nutritional needs for her own growth and development, and the needs of her fetus. In addition, adolescent mothers have an increased likelihood of poorer placental function (Leslie 1991, 8).

Inadequate nutrition during pregnancy may lead not only to low birthweight and intrauterine growth retardation, but may also lead to a range of fetal adaptations that cause developmental changes, predisposing long-term effects that yield consequences in adult

life. This is referred to as the fetal origins hypothesis or the Barker hypothesis. Due to the complexities of life and the interaction of both genetic and environmental influences, studies have had difficulty defining the direct link between adaptations during fetal life and chronic diseases during adulthood as suggested by this hypothesis. However, it is important to mention that there is an acknowledged relationship between nutrition during fetal life and the tendency for chronic diseases in later stages of the life course. Situations of poverty only exacerbate these poor outcomes. The fetal origins hypothesis “proposes that alterations in fetal nutrition and endocrine status result in developmental adaptations that permanently change structure, physiology, and metabolism, thereby predisposing individuals to cardiovascular, metabolic, and endocrine disease in adult life” (Barker 1995, 171). Some studies have linked birth size, weight for gestational age and placental weight as markers of fetal growth and suggest that infants who are small, short or thin at term may have an increased propensity for adult cardiovascular disease and type II diabetes (Moore et al. 2004, 1820). It is also acknowledged that in the fetal growth stage there are critical growing periods in which various organs and systems mature. For example, fetal heart development is imperative in the first nine weeks of pregnancy and the gonadal development period is also very early in gestation. This is compared to weeks 26 and 24 of gestation when renal development takes place (Barker 1995, 171). Failure to meet the nutritional demands of the fetus at critical growth periods may result in permanent structural changes to specific organs or systems, increasing susceptibility to corresponding diseases and disorders in adult life.

In light of this research, it is widely acknowledged that undernourished women are much more probable to give birth to low weight infants who, if they survive, will learn less in school, suffer from increased illness throughout their life, and have lower productivity in the workforce. In turn the likelihood that they will bear undernourished children themselves leads to intergenerational malnutrition. The nature of poor pregnancy outcomes, including intergenerational failure to reach full growth potential are caused by a myriad of factors including genetics, environment and culture. Factors such as poverty, women’s status in the household or community, access to adequate quantity and quality of food that is safe and affordable, and use of health care practices may act to constrain access to care, choice and amount of nutrition available to pregnant women (Ramakrishnan 2004, 19). The inability to isolate one specific cause may help explain the length of time it takes to reduce the incidence of low birthweight, cut down the intergenerational consequences or decrease other poor pregnancy outcomes. However, Smith et al. (2003: 136) finds that

when a woman's own nutritional status "improves, so does the status of her young children. Improving women's status today is a powerful force for improving health, longevity, capacity, and productivity of the next generation of young adults."

### **2.2.2 Nutritional Context of South Africa and KwaZulu-Natal**

South Africa is a middle income, developing country that is shaped by its apartheid past. There is a population of over 47 million people. Unlike many other middle income countries, a significant number continue to live in rural areas, including private commercial farms and communal lands of the former homelands. It is generally "accepted that inequalities in access to land and other resources, and specific agricultural land use and urbanization policies of the past have led to household food insecurity and have contributed significantly to undernutrition, especially in rural areas and the previous homelands" (Vorster et al. 1997, 21). While there is no official monetary poverty line for South Africa, there is a minimum per capita caloric intake of 2000 Kcal/per day with an adult equivalent per capita caloric intake of 2500 Kcal/day. Using this measurement Vorster et al. (1997:23) report that 39-42 percent South Africans was poor. Rural poverty remains a major problem, as over 70 percent of all poor people reside in rural areas and nearly half of these are chronically poor (Cousins 2005, 8).

KwaZulu-Natal became South Africa's largest province in 1994 when the former KwaZulu homeland and Natal province were combined. The province is ethnically diverse consisting of a majority of African, followed by Indian, Whites and Coloured people. While KwaZulu-Natal is not the poorest province in the country, it remains relatively poor, where 43 percent of the province's population reside in urban areas, and the majority continue to live in rural areas (Maluccio et al. 2000, 59). According to the KwaZulu-Natal Income Dynamics Study (KIDS), a panel data household survey for the province of KwaZulu-Natal for 1993, 1998 and 2004, the depth and severity of poverty has increased over time, particularly in the non-urban sector and in households led by females. The broad unemployment rate is estimated to be "between 30-40 percent and has been steadily increasing since 1995...many communities in the former homelands have little economic activity to speak of- mean unemployment rates in these communities approach 75 percent" (Hoogeveen and Ozler 2005, 4). These are substantial figures and indicate that unemployment and all measures of poverty are more likely to be higher in non-urban areas within South Africa.

In light of the previous discussion of the link between poverty and malnutrition, it is not surprising then, that South Africa has a serious nutrition dilemma that mirrors the inequalities of the Apartheid era. As such, malnutrition is not uniform across the population, but rather it has different characteristics based on whether it is in an urban or rural area. “According to the literature widespread outspoken hunger may not be a major problem, but the health and nutritional status of millions of South Africans are far from optimal with the more severe incidences of malnutrition found in mostly rural pockets” (Vorster et al. 1997, 19). The concern is not just short-term indicators, but more importantly long-term indicators are pointing to chronic malnutrition. The most vulnerable are African and coloured children and members of female headed households who live in rural areas.

Poverty is not distributed equally in South Africa, either geographically or by gender. The likelihood of living in a poor household is not only increased in non-urban areas, but women are more vulnerable to poverty and are significantly more likely to live in households that are worse off in terms of employment, per capita income and other measures of well-being, including women’s increased demands on their time and lack of opportunities to escape poverty. Unemployment is about one-fifth higher among women than men (Aliber 2003, 479), and women who do have work are much more likely to be over-represented among low-wage workers. More often women are the recipients of social grants, who according the 2006 General Household Survey, accounted for “almost 15 per cent of all women aged 15 years and older...compared to less than ten per cent of men” (Posel and Rogan 2009, 6). As a result, households that depend on income earned or received by women tend to be poorer. Furthermore, women disproportionately engage in unpaid labor and care work for their children and households, and do so increasingly in the context of growing incidence and effects of HIV/AIDS. Much of this is not adequately captured in conventional measurements at the national or household level, nor does it account for intra-household discrimination in terms of resource allocation that may underestimate the extent of female poverty (Posel and Rogan 2009, 9) between and within households.

Chronic, long-term dietary inadequacy results in stunting. It is an outcome of the cumulative effects of economic deprivation, disease and poor diet, exposing “long-term changes in the physical and social environment, and their nutritional consequences”

(Kirsten et al. 1998, 4). Stunting is measured by anthropometric measurement of low height-for-age (H/A) and reflects failure to reach the genetic potential of physical growth (Faber et al. 2001, 410). In contrast, short-term dietary inadequacy results in wasting and underweight. Wasting is measured by low weight-for height (W/H) and underweight is measured by low weight-for-age (W/A). These are indicators of acute nutritional stress and severe food shortages or serious illness (Vorster et al. 1997, 6). South Africa is experiencing all three of these dietary inadequacies. Short-term indicators are more likely to occur in urban and formal urban areas while those on commercial farms and rural areas have the lowest recorded energy intake, resulting in long-term consequences, indicated by the incidence of stunting. According to the 1995 South African Vitamin A Consultative Group (SAVACG) “national survey the prevalence of stunting (22.9 percent) was much higher than that of underweight (9.3 percent)” (Vorster et al. 1997, 7). At the provincial level, in 1997, 18.5 percent of the population in KwaZulu-Natal were stunted, while 4.3 percent were classified as wasting. The chronic malnutrition rate for the province was 63 percent (Kruger 2007, 20). This figure is higher than the national average. Deficiencies in micronutrients only exacerbate the nutritional inadequacies in KwaZulu-Natal. For example, vitamin A deficiency is linked to higher levels of stunting (see Faber 2001). According to the 1997 provincial statistics, KwaZulu-Natal has a higher than national average deficiency at 38 percent (Kruger 2007, 20). The province of KwaZulu-Natal performs among the most poorly in the country in terms of nutrition indicators and mortality measures, specifically infant mortality rate and under five mortality rates (see Dorrington et al. 2007).

The problem becomes more complex with the coexistence of under and over nutrition. Malnutrition statuses expose the socio-economic and geographic demographics of South Africa’s poor resulting not only in stunting and wasting, but the double burden of a high prevalence of obesity particularly among African and coloured women. This is not a result of cultural variation in dietary patterns, as an analysis of such patterns has shown that “although cultural influences may explain some differences in nutrient intakes between ethnic groups, other factors such as food insecurity, disruption of the family unit, parasitic infections and lack of education [or access to healthcare] are probably more important determinants” (Vorster et al. 1997, 1). The common denominator of all these factors is poverty. This is hardly surprising because of the role income has in the procurement of food and resources and the use of the minimum per capita caloric intake as a measurement of poverty. The complexity is that “poverty is both a fundamental cause and an outcome of

[mal]nutrition” (Allen and Gillespie 2001, 4; see also Vorster et al. 1997; Simister and Piesse 2003). The cyclical nature of malnutrition is due to the fact that both under and over nutrition reinforces poor outcomes and aggravates intergenerational malnutrition and poverty. Women are typically worse off than men as they tend to be disproportionately poor, more likely to have a lower social status and their role in reproduction exposes them to greater health risks.

### **2.3 Models of Intra-Household Relations and Resource Allocation**

As discussed, adequate nutrition is dependent in large part on intra-household allocation of food and resources. There is a lot of literature written on nutrition and much written on gender and intra-household allocation. However, there remains a gap in understanding whether the allocation of food and resources within the household is extended to meet the increased nutritional needs of rural South African women when they fall pregnant. Conventional models of the household and measurements of poverty assume that household resources are equally or equivalently shared. Statistics and poverty is then measured on the basis of household information, failing to take into account individual differences, particularly in households where there is unequal access to resources. Unequal household allocation may create a situation where women (or men) are pushed below the poverty line in a household that is conventionally defined as non-poor (Posel and Rogan 2009, 2). Obtaining adequate resources, including nutrition is dependent upon intra-household dynamics (see Simister and Piesse 2003; Kurz and Johnson-Welch 2001; Haddad and Kanbur 1990; Mosoetsa 2005). In some contexts where food is available, it is the inappropriate household food allocation that prevents women and young children from obtaining their nutritional needs. At the same time, in a situation of poverty, it is possible that no-one in the household has absolute needs met, but some can still receive relatively more than others.

This section will discuss various models of intra-household relations, focusing specifically on intra-household allocation. I begin with a discussion of the unitary model, followed by the bargaining framework of intra-household relations. I then analyze variables of bargaining power that according to the literature would be expected to influence decision-making and resource allocation. This is done by highlighting household composition, income and education as three variables of household and individual characteristics pertinent to the allocation of resources. The intent is to examine the conditions where we



can expect an increase in women's to access resources in the household and the conditions where we can expect the increased nutritional requirements of pregnant women are either met or not met.

To be able to discuss intra-household allocation, the household must be defined. The "household is not just a random collection of human beings, but an institution infused with historical and psychological meanings which significantly impinge upon its economic decision-making" (Katz 1996, 25). In the case of South Africa, the household is both complex and is in ongoing transformation. Migrant labour patterns continue to impact the structure of many South African families, who have been characterized as double-rooted or split across households. After the end of apartheid it was thought that increases in mobility and reductions in residential restrictions would improve the likelihood a family would reform as a single family unit. However, "higher costs of living in urban areas, and increased investments in areas that were already well endowed in infrastructure and jobs may increase the incidence of family members not being coresident" (Maluccio et al. 2001, 122). Furthermore, high unemployment and poverty have great power in shaping and defining households. For instance, many poor households throughout South Africa, particularly in rural areas, rely on income from government grants. This tends to attract poorer family members into the household receiving grants, affecting the "composition and structure of already poor households, increasing density levels and dependency ratios, and [helps] explain the persistence of extended rather than nuclear families" (Mosoetsa 2005, 866). Additionally, the presence of disease, including HIV/AIDS, and the impact disease has on a family, including that of death, is having a tremendous effect on the compositions of households and particularly on the demands upon women. Thus, it is especially germane in the South African context to not so much talk about family as a nuclear unit, but rather as a household with more fluidity than typically found in developed countries.

### **2.3.1 Intra-household Relations According to the Unitary Model**

The starting point of any discussion on models of intra-household relations must begin with the conventional neoclassical economic analysis of Gary Becker's Unitary Model of the Family that dates back to mid-1960s. This work was "pioneering in many respects, especially in its economic analysis of nonmarket activities- laundry, cooking, cleaning, childcare- as an object of economic choice distinct from leisure time, and as requiring skills and tradeoffs with remunerated market work" (Katz 1997, 27). Becker's model

(1965, 1973, 1974) was considered innovative in that it changed the principal unit of analysis to the household as opposed to the individual, and it treated non-market activities of the household as a unit of consumption and production, rather than as an unproductive unit (Casale 2003, 17). It is called the unitary model because it views the household as a single entity with a single preference function where the allocation of resources in the household is independent of who brings in the income (earned or unearned). Other names for this model include the common preference model, the “altruism” model, the “benevolent dictator” model or the “New Home Economics”. The unitary model is an appealing approach for its relative ease to measure and obtain empirical evidence that is comparative across a diversity of issues and contexts (See Agarwal 1997; Alderman et al. 1995; Browning et al. 2006 for further discussion).

In order for the unitary model of the household to function properly several strong assumptions must be upheld: the pooling of all household income and resources; identical preferences; and maximization of household utility subject to income constraint. Ideally, pooled resources are allocated on perfect consensus by completely altruistic household members who unanimously endorse transfers that maximize their joint utility. However, when not all household members share a common preference, at least one member must have the jurisdiction to monitor household members and to control the flow of resources and information. This household member is usually referred to as the altruistic leader or benevolent dictator who acts so as to maximize the collective interests of the household unit. The model’s assumptions are necessary to “overcome the inherent problem of aggregating utility functions over the various individuals which comprise the household unit. Insofar as the altruistic leader of the household can represent the tastes and preferences of ‘his’ family, and ensure a Pareto-efficient<sup>3</sup> distribution of the resources within the household, the issue of distinct and possibly conflicting individual welfare functions is conquered” (Katz 1997, 27). The implication is that the input of resources into the household should not influence the transfer of resources within the household. Or in other words, “observed consumption and investment patterns should be unaffected by shifting the control of income from, say, men to women. This is a key prediction of the common preference model, not shared by any of the more general models that permit heterogeneity in preference of household members” (Thomas 1997, 144).

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<sup>3</sup> A resource distribution is Pareto efficient when an individual’s welfare can only be increased through a reallocation of resources that decreases the welfare of another household member.

The intricacies of decision-making within the household and the complexities of household relations present many criticisms to the unitary model. In order to obtain the joint utility function, the unitary model “depends on the existence of an altruistic household head who induces altruism in others. While altruism no doubt exists within the family, in reality so does self-interest, and therefore it is possible that the household head and other household members will act in a manner to further their own interests as well” (Casale 2003, 24). Furthermore, it is revealed that at the root of all household relations, there is some form of power at play. Even for the altruistic household head, ‘he’ has control by virtue of the fact that ‘he’ assumes the jurisdiction to monitor other household members and manage resources in the first place. In order for the unitary model to hold, there can be no abuse of this power. Power can only be used by the altruistic head for the good of the household. However, within the unitary model there is no mechanism other than altruism of the household head to ensure equitable distribution of resources across household members, leaving the model open to criticism. Actual household relations reveal that many decisions are motivated by varying degrees of self interest and abuse of power. Agarwal (1997: 3) states that in fact, the household reality is a “far cry from that implicit in much of standard economic theory, namely of the family as an undifferentiated unit governed primarily or solely by altruism”. The unitary model fails to take into account individual preferences and the actual experience within households reveal that the mechanism governing household relations is not solely altruism. Mechanisms such as self-interest and power have a significant role in terms of both resource allocation and the distribution of the returns to the household’s resources. This means that an individual’s position (or status) within the household may have important implications for his or her access to resources.

### **2.3.2 Bargaining Models of Intra-household Relations**

The bargaining framework arose as the main alternative to the unitary model out of the need to capture the complexities of the household economy. In contrast to the unitary model, the bargaining framework recognizes that all resources in the household may not be effectively pooled and then distributed equitably across household members. It allows heterogeneity in preferences, acknowledging that conflict and power differentials within the household matter. This impacts the decisions being made, who is making which decisions, who controls the resources, and the effects of constraints. As such, the models within this framework “incorporate a more complex understanding of how [household]

decision-making occurs, variously allowing for individual differences in preferences, in budget constraints and in control over resource use” (Agarwal 1997, 2).

Various models located within the intra-household bargaining framework include the collective, cooperative, and non-cooperative models. The collective models’ main assumption is that the outcome of intra-household bargaining will be Pareto efficient. In the cooperative models, which include the game-theory approaches, the assumption is that outcomes attain Pareto optimality<sup>4</sup> and bargaining ability in these models is based on symmetrical positions in the household, binding contracts and balanced availability of information. The non-cooperative models relax many of the previous assumptions, “including those of Pareto efficiency and...enforceable and binding contracts...allow[ing] for individual production decisions and asymmetry between the parties with respect to information and the rules of the game” (Agarwal 1997, 5). Greater detail of these models and the important differences in approach or assumptions about each model are well explained in review articles and will not be covered here (see Doss 1996; Haddad et al. 1996; Haddad, et al. 1997; Katz 1997; Thomas 1990; Agarwal 1997). Rather, this section acknowledges that households have multiple preferences and most household decision-making is characterized by some form of bargaining. The outline presented here will draw particularly on the assumptions and predictions of the collective model.

The bargaining framework recognizes that there are a range of variables that influence the decision-making process, of which power and control permeate throughout. The ability of an individual to influence the decisions made and the allocation of resources within the household depend on one’s bargaining power relative to other household members. In the context of multiple preferences, inequalities in the status of individual members, self-interest and intergenerational households, “there is an incentive for household members not to pool income but rather to allocate resources over which they have discretion toward goods they especially care about” (Thomas 1990, 636). This usually results in resources being allocated to the benefit of those who have greater bargaining power or more control in the household.

Bargaining power is influenced by the value of an individual’s fallback position as well as by the individual’s threat points. The fallback position constitutes the value of the alternatives outside the household that are available to the individual. These alternatives

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<sup>4</sup> Pareto optimality means that no further Pareto improvements can be made.

include employment, social networks, etc. and may provide options for an individual to exit the household. An individual's threat point represents what the household loses if the individual leaves the household. This includes owned assets, earned or received income and other resources the individual would take with him/her should he/she exit the household. Both the fallback position and the threat point give an individual influence in household decision-making and allocation, as the opportunity of alternatives to leave one's household and the "threat of withdrawing both oneself along with one's assets from the household grants the owner of those assets some power over household resources" (Quisumbing and Maluccio 2000, 17).

Women's decision-making power is intricately related to women's status in the household, which is linked to the nutritional status of both women and children. When it comes to control over household decision-making, many studies indicate that women who have greater control in the decision-making process and allocation of household resources, including the use of time, have an improved effect on maternal health. (see for example Gill et al. 2007; Smith et al. 2003). "Besides the obvious benefit of having more resources to allocate, control over resources give [women] the ability to weigh the costs and benefits of alternative uses of resources so that they are employed in the most efficient manner" (Smith 1995, 10). Women with higher status within the household tend to be better able to care for themselves and in turn to care for their children. There is also an increased tendency for women's healthcare and nutritional needs to be met. As a result, this tends to increase the health and nutritional status of her children as well. Therefore, the intergenerational and cyclical nature of malnutrition is also likely to be perpetuated in households where women have low status.

#### **2.3.2.1 Household and Individual Characteristics that Influence Bargaining Power**

There are many variables discussed in the literature that would be expected to influence an individual's bargaining power over resource allocation within the household. This section will highlight three: household composition, income (earned and unearned) and education. These variables help describe the nature of control over decision-making and resource allocation in the household and the implications of differential control. These three variables will also give insight to conditions where women may have the ability to claim a larger share of household resources.

## **Household Composition**

Household composition plays a significant role in influencing an individual's bargaining power over intra-household allocation. It refers to the relationships that comprise the household and the status of an individual household member relative to other members. An individual's relational and decision-making status works to enable or constrain the amount of food and resources allocated to that particular individual. This is influenced in part by an individual's relationship to the household head and other household members who have high status, as well as whether one is related biologically, through marriage or otherwise.

Household composition is complex. Within the household, especially in the context of extended and generational households, many types of relationships exist: wives; cowives; partners; sisters-in-law, mother-in-law/daughters-in-law, grandmother/granddaughter, etc. The level of cooperation and support between the various types of relationships within a household impacts the maternal and fetal environment. These relationships may be communal, but it "may be more accurate to view [household relations] as an associative one given the need to reconcile competing allegiances [and where] there is wide variation in the extent to which family members feel a genuine community of interests or, conversely, exploit the relationship for their own end" (Madhavan 2001, 505). Where good relations exist, there may be a higher inclination toward cooperation for the health, nutrition and care of all children and for women when they fall pregnant, increasing their ability to claim a larger share of resources. In like manner, a woman's access to household resources may be constrained when the pregnancy brings shame upon the household or where the relationship between the pregnant woman and household members of high status is strained.

The type of relationship and whether one is related biologically or through law may also affect the dynamics of the relationship. For example, household members may have different access to resources depending on whether they are step children, foster children, adopted children or orphans. In many cases of distant or nonrelative relationships, it is revealed that there is lower affinity by the household head. In a study of 10 countries, Case et al. (2004: 506) conclude that outcomes for children are indicative of the degree of relatedness to the household head. This is consistent with Hamilton's rule, a theory that ties biological relatedness to altruistic behavior of the household head. This means that the affinity of the household head with household members is biased toward relationships of

one's own children over grandchildren or nieces, and especially over more distant relations or nonrelatives. Children and grandchildren of the household head tend to fare better than other household members or other types of relationships. For example, "research has indicated that household expenditures on child-related goods- particularly healthful foods- are lower when a child's mother is absent and that mothers invest more in children's health than do stepmothers" (Case et al. 2004, 485). Intra-household discrimination against more distantly related or unrelated household members may only be exacerbated in households where no-one in the household has their absolute needs met.

In the context of South Africa, there is empirical evidence that relationships within the household matter. For example, there are data revealing that the relationship between a grandmother and granddaughter is important, yielding increased nutritional status in young girls in the case of the Old Age Pension. Duflo (2000: 396) finds that "girls born after January 1992 are taller if they live with an eligible woman (but not with a man). This is not true for boys. This suggests that the pension had an effect on the nutrition of girls, but only when it was received by a woman". These findings suggest that women and men may allocate resources differently and income in the hands of women may lead to increases in children's health and nutrition. The study may also reveal that household relations are important in South Africa, particularly between the grandmother and her granddaughter in terms of care and food allocation.

## **Income**

Income refers to both earned and unearned sources and tends to be easier to measure empirically than other variables when discussing intra-household allocation. The intra-household bargaining framework "predicts that inequalities in income will produce inequalities in household members' levels of well-being" (Woolley and Marshall 1994, 421). Higher earnings tend to translate into greater threat points, improving the bargaining position of an individual and in turn their level of well-being. This is because higher earnings increase the ability of one to be financially independent, increasing his/her bargaining power by making the threat to exit the household more credible (see McElroy and Horney 1981).

When income works to improve status or bargaining power of women there is a positive impact on expenditures biased toward food and nutrition (Simister and Piesse 2003).

Whitehead (1981: 106) argues that “women more frequently report satisfaction at having a source of income of their own but their relation to its disposal is quite different from that of men in many ways”. Evidence reveals that income in the control of women tends to have a positive association with expenditure patterns that are inclined toward nutrition, health and education (Simister and Piesse 2003; Thomas 1990; Woolley and Marshall 1994). When power differentials separate women’s production of income or resources from her ability to influence the distribution of those resources, it decreases the effect of budgetary control in the hands of women as well as the rate of impact on nutritional status. To the “extent that women have a higher propensity to spend on children than men, mothers’ access to income is a more important determinant of children’s health [and nutrition] than the total household income” (Woolley and Marshall 1994, 416). Women’s access to income and their control of it tends to be subject to powerful sets of values that impact the direction that women dispose and distribute income. Reasons for women’s propensity to spend income on nutrition, health and education may be altruistic e.g. caring for others more, or out of self-interest, e.g. buying favor for retirement, or submission to expectations and norms placed on her, or a combination of all these. As discussed, the empirical evidence within South Africa, particularly evidenced by the Old Age Pension that suggests women may have a greater tendency to purchase bundles of goods that are child, health and nutrition-oriented.

## **Education**

Level of schooling completed also plays an important role in the bargaining framework, and particularly through the acquisition of enhanced fallback positions and threat points. Education has the ability to increase skill and capacity to bargain for household resources and/or manage the household, including the household finances. Education may also increase a member’s status within the household. Thus, an individual’s attainment of education may increase his/her ability to influence both the household’s acquisition of resources, i.e. through gainful employment, as well as to influence intra-household allocation of resources through increased management of the household by virtue of being more educated and skilled, or by bringing income into the household or both.

Education specific to nutritional requirements is important to assist the process of orienting household expenditures toward greater nutrition intakes. In the case of poverty, education plays an important role. “Poverty is correlated with lack of education, and there is an



intimate connection between nutrition and poverty.... [as] access to food, in most situations, is the same as access to income” (Ray 1998, 289, 273). There are many studies that reveal the association of improved socio-economic status with educational attainment (see for example Gobotswang 1998). Those with an education are more likely to find employment and the returns in the labor market tend to be more for those who are educated. In Chobe, Botswana, Gobotswang (1998: 45) found that the “educational background of the head of the household had an important influence on child nutrition”, where mothers who are educated are more likely to have adequately nourished children.

The outcomes of attained education are important, and maybe even more so when discussing gender-based outcome differentials. The “difference in education levels between men and women seem to reveal something about the balance of power between them, such that where women are more educated than their partners, household expenditure is biased toward food purchases and away from alcohol” (Simister and Piesse 2003, 179). Many studies indicate that improvement in women’s education increases their autonomy and decision-making position, enhancing her ability to influence the household’s acquisition of resources and nutrition as well as influence intra-household allocation toward greater nutrient intakes (see for example Simister and Piesse 2003; Gobotswang 1998). This benefits the health and welfare of the woman and in turn other household members as well. These implications are especially important for women who have fallen pregnant. Specific to South Africa, Labadarios et al. (2005:535) report regarding the 1999 National Food Consumption Survey (NFCS) that “improved maternal education was associated with a significant reduction in the prevalence of stunting, underweight and wasting in all age groups of children. A significant correlation (Spearman’s) was found between the level of maternal education and stunting at the national level ( $r= 0.17$ ;  $P<0.0001$ ) and for children living in urban areas ( $r= 0.20$ ;  $P< 0.0001$ )”. These are significant measures. As argued previously the prevalence of stunting, underweight and wasting is intimately connected to maternal nutrition before and during the pregnancy period. And thus, improved outcomes are possible when maternal education starts early, enabling a greater nutritional impact for both the mother and her child.

## **2.4 Conclusion**

This chapter has provided a survey of the literature on nutrition and intra-household allocation substantiating the significance of this study. It provided evidence that the unitary

model falls short of the complex reality that exists within South African households. By outlining the bargaining framework and examining the variables of household composition, income and education, it is revealed that power differentials matter and that there are conditions that affect the bargaining power of women and their ability to claim a larger share of household resources. When women do have relatively more bargaining power than other household members, they may be able to better meet their increased nutritional needs required by pregnancy.

## **Chapter 3: Research Methodology**

### **3.1 Introduction**

This chapter describes the research methodology, the study area, the method of data collection and data entry and analysis. I also discuss measures taken to ensure validity and reliability of the research methodology. Limitations of the study are also included in this chapter as well.

### **3.2 Research Methodology**

This project is an exploration of the lives of poor rural pregnant women and their self-expressed nutritional needs. The overarching goal is to gain a deeper understanding of the allocation of food and nutrition within rural households to discover whether nutritional priority is given to pregnant women. It is an exploratory project as not much has been written on this subject within South Africa. The methodology used in this dissertation involves case study research which includes both quantitative and qualitative research methods. Basic household information was collected from each respondent in a quantitative questionnaire. Qualitative information was gathered through in-depth interviews. These methods are suitable to the case study research methodology. The combination of quantitative and qualitative research methodology enables the results to be presented within a rich narrative. The small sample is not intended to be representative, but offers opportunity for more textured understanding of what is happening within rural households when a woman falls pregnant. Thus, this “study is not the generalization of results, but a deeper understanding of experience from the perspective of the participants selected for study” (Maykut and Morehouse 1994, 44). The research methods are “designed to discover what can be learned about some phenomenon of [curiosity. It is] interested in investigating and responding to exploratory and descriptive questions” (Maykut and Morehouse 1994, 44). The design was flexible to allow the project to emerge and develop throughout the research process.

### **3.3 Study Site and Sample**

The research took place in the area of Inchanga. The site was chosen because it is a rural area with easy access and proximity to the University of KwaZulu-Natal. Ward Councillor,

Mr. Shozi, Fredville Government Clinic Director, Mrs. Magcaba and Ms. Leppan of the 1000 Hills Community Helpers Community Center granted permission to conduct research in the area and were supportive of the project. The site is located approximately 40 kilometers from Durban and 30 kilometers from Pietermaritzburg in the area of the Valley of 1000 Hills in the KwaZulu-Natal Province of South Africa. The community of approximately 21,000 people is predominantly isiZulu speaking. Inchanga is a rural area that is better developed than most rural areas within the province, reflecting its geographic location between two major urban hubs and input from numerous organizations. The area of Inchanga remains characteristically rural and zoned within Ward 4 of the eThekweni Municipality and for Rural Zone Development. According to the 2001 Census, 73 percent of the people in Ward 4 are unemployed or not economically active, while 27 percent of all households do not have an income. In this area 43 percent live in traditional dwellings and only 26 percent has access to flush toilets. Over half the population is female and the largest age group is between ages 15-34, which accounted for 37 percent of the area's population (Corporate Policy Unit 2007).

The Fredville Government Clinic is the only government sponsored health facility in the area. They serve the entire community of Inchanga and conduct an antenatal clinic. Cases that require greater medical care, medications or expertise are referred to out-of-area hospitals. The Fredville Government Clinic and the 1000 Hills Community Helpers Community Center (a private non-profit organization) are in close proximity and collaborate in order to provide a wider range of services to the area. For example, all pregnant women are referred to the antenatal clinic at Fredville, while the community center attends to most of the infants at their well-baby clinic. The majority of interviews for this project were conducted at the Fredville Government Clinic during the antenatal clinic.

### **3.3.1 The Sample**

Pregnant women were involved as the principal respondents on a voluntary basis and in response to a call for volunteers at both the Fredville Government Antenatal Clinic and the 1000 Hills Community Helpers Community Center. Households were identified by the fact that there was a pregnant woman and at least one other adult (male or female) in the household with whom nutritional comparison could be made. The intention was to observe the links between individual and household characteristics, and the pregnant woman's

access to nutrition and food within the household. Pregnant women who came to the antenatal clinic were asked if they were willing to participate in the interview in the time they normally spent waiting to see the nurse. Volunteers at the community center were invited to participate in the time they waited for services for themselves or other family members. A total of 36 pregnant women engaged in the interview process; however only 32 women successfully fulfilled all requirements and completed the interview.

### **3.4 Method of Data Collection**

This project utilized the methods of household questionnaire and in-depth interviews. Data collection and questions were informed by the literature and the theoretical framework of the bargaining models of the household. It was designed in two parts. The first part was quantitative in nature while the second part was qualitative. The pregnant woman was the principal respondent for both sections. There were two days of pilot interviews. The first day tested both methods on seven respondents. The questionnaire and interview guide were revised accordingly to include changes determined during this phase of the study. These respondents were not included in the main study. Following the second day of pilot study the questionnaire and interview guide underwent only minor revision and these respondents are included in the analysis.

#### **3.4.1 The Questionnaire**

Basic demographic and socio-economic information on resident household members was collect through administering a household questionnaire (refer to appendix 1). The survey instrument collected demographic data such as age, education level completed, relationship to the head of household, as well as socio-economic data. Questions were also asked about the purchase, preparation and allocation of food and on the broader definition of nutrition such as energy sources, clean water and sanitation, transportation and access to food markets, clinics and hospitals. The questionnaire was structured to obtain information on all individual household members as well as household level information in a format that would be comparable across households. If differences were found between the experiences of pregnant women, this questionnaire would be able to indicate whether these differences were a result of their household and its composition.

### **3.4.2 The Interview**

An in-depth interview augmented the household questionnaire (see appendix 2). The interview guide collected more descriptive answers to explore the conditions and perceptions of pregnant women participants relating to nutrition, allocation, and decision-making power. This section collected data on the typical daily food intake for pregnant women in the sample, the quantity and quality of food available in the household, the distribution of food and resources within the household and a comparison of the respondent's current pregnancy to any previous pregnancies if she had been pregnant before. The in-depth interview method was chosen because it allows an understanding of the informant's perspectives on their lives, experiences or situations (Kirk and Miller 1989).

### **3.4.3 Field Work**

Field work took place throughout the month of May 2009. The majority of household questionnaires and in-depth interviews were administered at the Fredville Government Clinic, while a handful was conducted at the 1000 Hills Community Helpers Community Center. The household questionnaire was 26 questions and the in-depth interview guide had 23 questions. The entire process took just over one hour to complete. Interviews were conducted in isiZulu and translated immediately into English. This was done by two mother-tongue isiZulu speakers who have significant work experience in qualitative research and with whom I spent more than four hours training and bringing clarification for this specific case study. Having two female translators provided many benefits to the project, including collaboration and clarification between the two of how to best conduct the interview in isiZulu. The director at the Fredville Clinic granted us use of a private examination room to conduct our research. The community center provided two tables set up in the shade of a car park, in a private area of the facility. All participants were informed that the household questionnaire and in-depth interview were strictly confidential and on a voluntary basis where they were allowed to withdraw from the study at any stage. Each gave their consent either verbally or in writing to participate in the process. Upon completion, volunteers were remunerated for their time and assistance with a healthy meal and fruit juice. All questionnaire forms were checked immediately following the interview for accuracy, completeness and consistency. Two women chose not to complete the process, one woman became physically unable to complete the process and it came to my

attention after the fact that one woman did not fulfil the requirement of having another adult in the household. In total 32 household questionnaires and in-depth interviews were successfully completed and used in the data analysis.

### **3.5 Data Entry and Analysis**

All households and individuals were given identification numbers. The completed survey instrument was numerically coded and entered into an excel sheet which was then transferred into STATA, a statistical software program. Once data was entered into STATA analysis commenced. Descriptive commands were created, variables of interest were analysed and patterns between pregnant women and their households were sought. The findings are discussed in chapter four.

### **3.6 Validity and Reliability**

Validity and reliability of the case study methodology was endorsed throughout the entire research process. The methods of the quantitative household questionnaire and the qualitative in-depth interview are appropriate for case study research and work together to help provide validity and reliability. Furthermore, the two days of pilot interviews were vital to this project. The first day tested the survey instrument on seven respondents. These respondents were not included in the main study. The translator I was working with on this day was not trained in qualitative research methods and the survey instrument did not measure what it was intended to measure with enough precision. Also, the translator was a male and it became obvious in this day of pilot interviews that a female was preferred in order to enable pregnant women more freedom to share their experiences. The survey instrument was then revised accordingly to include changes determined during this phase of the study and two trained female translators were hired. The respondents on the second day of pilot study are included as the survey instrument underwent only minor revision. The translators had a three hour training session and ongoing clarification sessions for this particular questionnaire. Additionally, I closely supervised the questionnaire and interview process to ensure it was “administered in an appropriate, standardized manner according to prescribed procedures” (Patton 2002, 14). Immediately following an interview, I conducted a post-interview review with the translator and recorded details, observations, elaborations, and clarifications. A considerable amount of time was spent reading the transcripts and developing themes according to the aims of the study and items covered in

the interview. Data were also cross-checked ensuring reliability of numeric coding and variables.

The sample size of 32 was chosen due to time and resource constraints, as well as consideration of the expectations of a master's dissertation. With a small sample size, "the validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information richness of the cases selected and the observational/analytical capabilities of the researcher than the sample size" (Patton 2002, 245). Therefore, the size and non-randomness of the sample was an intentional choice in an effort to provide in-depth insight into what is happening in the households of this particular group of pregnant women.

### **3.7 Limitations of the Study**

The women interviewed represent a non-random sample. The information received is limited to households containing women who utilize the services provided by either the Fredville Government Clinic or the 1000 Hills Community Helpers Community Center. As such there is the possibility of sample bias of pregnant women who may not be representative of all pregnant women in South Africa. This sample may be a select group of women who care particularly about antenatal care, which may be an indication that they are more willing or able to claim nutritional priority in households than other women. Or utilization of these services may be an indication that the women in this sample have more information than average pregnant women in similar circumstances and therefore may be able to use this information to claim a larger share of nutrition within their household. Both facilities conduct informational sessions about nutrition. The nursing sisters at the Fredville Government Clinic provide women with information specific to their increased needs during pregnancy, in addition to providing government-sponsored antenatal vitamins. Women who do not use these facilities may not have this information nor take antenatal vitamins. Furthermore, this study covered a limited geographical scope of a rural area that is in relatively close proximity to urban cities, thus generalisation of results to other rural areas or the entire province of KwaZulu-Natal cannot be drawn.

The study also acknowledges the possibility of reporting bias among respondents. The household questionnaire asked for information on income and expenditure. It is widely acknowledged that there are practical issues associated with the sensitivity on income



information that may result in underreporting and recall bias. Perhaps most prominent in this study was incomplete knowledge of all income sources. During many of the post-interviews I conducted with the translator, it was acknowledged that the respondent was not entirely certain of the amount of household income or expenditure. When probed about reasons why a respondent did not know the value of income or expenditure, the majority claimed that it was because they were either the daughter or granddaughter of the household head and did not have complete information. This is an indication that information is not equally shared among all household members.

Another limitation of this study is that it does not directly address HIV/AIDS. This study acknowledges the presence of HIV/AIDS in the area of Inchanga and the high prevalence of the disease throughout South Africa. The impact of HIV/AIDS infection on the nutritional status of pregnant women is less understood as few studies have examined this relationship, but the reinforcing nature of malnutrition and HIV/AIDS usually result in even greater losses and exacerbated poor pregnancy outcomes. However, due to the limited scope of this project and ethical considerations, the in-depth interview does not address the issue. Additional studies are recommended to attend this gap.

### **3.8 Conclusion**

The case study research methodology and design suits this study. I acknowledge the trade-off between depth and coverage. I have chosen to utilize the household questionnaire and in-depth interview methods on a smaller sample size to collect data of greater depth. A description of the study site and sample of pregnant women has been presented in this chapter, along with an explanation of data entry and analysis. Validity, reliability of the methodology as well as the ethical considerations approved by the Ethics Committee at University of KwaZulu-Natal was maintained throughout the study. Study limitations were also acknowledged. The next chapter will present an analysis of the research findings.

## **Chapter 4: Analysis of Research Findings**

### **4.1 Introduction**

This chapter presents the findings of the case study research. It starts by detailing the demographic characteristics of the 32 pregnant respondents, including individual and household level information. The analysis then compares the characteristics of pregnant women and the households in which they live according to whether or not the absolute and relative nutritional needs of pregnant woman are reported as having been met.

### **4.2 Demographic Characteristics of the Sample**

#### **4.2.1 Individual Characteristics of Pregnant Women**

In this case study, 32 pregnant women successfully completed the household questionnaire and in-depth interview. In table 4.1 I describe the demographic characteristics of pregnant women in this sample. For 41 percent of respondents this pregnancy is their first and 47 percent are in their third trimester. Only one of these women is married and none is the household head herself. Four women or 13 percent of the sample are partners to the head of household, while 19 of 32, representing more than 59 percent of the sample are either children or grandchildren of the household head. Pregnant women who are related to the household head through an extended family relation, e.g. niece, or an in-law relation, e.g. daughter-in-law, account for 19 percent of the sample.

On average the pregnant women in this sample reported more years of education completed, 9.09 (standard deviation of 3.23), than other adult women in the sample who have completed an average 5.44 years of schooling (standard deviation of 4.21). There are two pregnant respondents who did not report the number of years of schooling they had completed. In one case she reported that she had been expelled as a result of her pregnancy; in the other case the pregnant respondent lives in a household where the two females in the household reported that neither had any schooling, even as the males in the household did receive education. Of the total sample (including all pregnant women and the members of their households), only two people reported a post-matric education, one of whom was a pregnant woman respondent. The generally higher levels of education within the sample of pregnant women may be due to the fact that the pregnant women are younger

(average age is 22.03 with standard deviation of 4.47) than other women in their household (the average age of these women is 28.09 years with a standard deviation of 19.21). As such, differences in educational attainment may reflect an age cohort effect.

**Table 4.1 Demographic characteristics of pregnant women**

Indicator	Number	Percent
Average age (years)	22.03	--
Average level of education attained (years)	9.09	--
First pregnancy	13	41
First trimester	4	13
Second trimester	13	41
Married	1	3
Partner of the head	4	13
Daughter of the head	15	47
Granddaughter of the head	4	13
Sibling of the head	3	9
Head is other relative (aunt/uncle/in-law)	6	19
Incomplete primary education	1	3
Primary education	3	9
Incomplete secondary education	20	63
Matric education	5	16
Post-matric education	1	3
Has employment/work	1	3
Receives a child support grant	7	22
Receives another grant (foster grant)	2	6
Receives money from other household members	4	13
Receives financial support from the father of the child	21	66
Receives support from their current partner	5	16

With only one exception, none of the pregnant women in the sample is working. This is compared to about 27 percent (or 22 of 82) of other adult women in the sample and to 45 percent (or 13 of 29) of adult men in the sample. Although only one of 32 pregnant women reported a source of income from employment, 31 of 32 women reported having individual access to income. Pregnant women were allowed to identify multiple sources for their own spending money and seven women did report having access to two sources of financial support. Important sources include financial support from the father of the child (66 percent) and the Child Support Grant (CSG) (22 percent). Only one pregnant woman reported no money of her own to spend. She is in her third month of pregnancy and had not yet informed her entire household that she is pregnant.

#### 4.2.2 Household Characteristics

Household characteristics are described in table 4.2a and 4.2b. In this sample the mean size of the household is 5.5 (standard deviation of 2.23). The smallest household size is three

members (accounting for 22 percent of households) while the largest household in the sample has eleven members. Within this sample of households the mean number of children (aged 17 and younger) per household is 2.03 (standard deviation of 1.56). There is one household without children and one household with eight children. There is an average of 2.56 female adults per household (standard deviation of 1.13). This accounts for 34 percent or 11 households where there is only one adult male identified as a household member. More frequently, accounting for 40 percent or 13 of 32 households, there is no adult male in the household.

**Table 4.2a. Household characteristics**

<b>Indicator</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Standard deviation</b>
Average household size	3	11	5.50	2.23
Average number of female adults in household	1	5	2.56	1.13
Average number of male adults in household	0	4	.91	.96
Average number of children in household	0	8	2.03	1.56
Proportion female-headed households	0	1	.75	.44
Average number of employed household members	0	3	1.09	.86
Average child support grants received by households	0	5	1.06	1.29
Average household income (Rands)	250	5500	2208	1586.67
Average household income for female-headed households (Rands)	250	5500	2134	1443.47
Average household income for male-headed households (Rands)	250	5500	3181	1656.78
Average per capita income in the household (Rands)	63	1833	447	427.66
Average per capita income if household is female-headed (Rands)	183	1833	323	431.31
Average per capita income if household is male-headed (Rands)	63	1833	670	264.95
Average household expenditure (Rands)	200	3750	1047	738.70
Average per capita household expenditure (Rands)	50	1250	211	212.63
Average household food expenditure (Rands)	250	2000	689	449.02
Average per capita food Expenditure (Rands)	23	333	135	73.06

The majority of households in this sample are identified as being female headed (24 of 32 households or 75 percent). This figure is higher than national estimates of female-headship. Posel and Rogan (2009) identify that in 2006, about 38 percent of all households in South Africa were female-headed and yet this also remains consistent with the emerging trend in KwaZulu-Natal where Posel (2001: 659) identified a rise in the proportion of rural African female-headed households from just over 60 percent in 1993 to 75 percent in 1998.

Important sources of income for households in the sample are both employment and social grants. Although the mean number of people per household employed is 1.09 and there are 34 people in this sample who reported employment, there are seven households (22 percent of households) who did not report employment for any household member, all of whom are female-headed households. Of the 25 households who reported employment of household members, 19 households reported employment of one household member and the other five households reported employment for multiple household members. In 12 households, the employed adult was male. Thus, in the remaining 20 households (63 percent) there was no male household member employed. This sample characteristic is consistent with national figures presented by Posel and Rogan (2009: 7) who find that in “2006, almost 60 per cent of all females were living in households in which there were no employed men”.

In this sample, 63 percent of respondents identify the head of household as having employment. Employed heads of household who are female account for 41 percent or 13 of 32 households and in every case but one where the head of household is male (a total of eight households) he is also employed. The one exception is in the case where the grandfather is head of household and is receiving the Old Age Pension. On average household heads are 47 years old (standard deviation of 12.04) with 5.84 years of education completed (standard deviation of 4.02). Consistent with characteristics of household heads in South Africa, there are 75 percent of households in this sample where the household head is both the oldest member and the highest income earner (Posel 2001, 656).

**Table 4.2b Sources of household income**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
Household receives at least one social grant	23	72
Total number of grants received by all households in sample	47	--
Household receives Child Support Grant	18	56
Household receives Old Age Pension	5	16
Household receives Disability Grant	4	12.5
Household receives income from employment/ work activity	25	78
Men employed (of total adult men)	13 of 29	45
Women employed (of total adult women)	22 of 82	27
Household engages in some type of farming activities	21	66

Government grants, including the Child Support Grant (CSG) and the Old Age Pension (OAP), are also an important source of income for households in this case study. The majority of households (23 of 32, or 72 percent) reported receiving at least one social grant. This is higher than the national rates of social grant support coverage identified in the 2006 General Household Survey, where just over 40 percent of all households reported receiving at least one social grant (Posel and Rogan, 2009), but consistent with the higher rates of social grant recipients among rural African households. In part, this is explained by the nature of the sample of low income African households; and it may also reflect the growing coverage of social grant support in South Africa.

In this sample a total of 47 social grants were received meaning that some households received more than one grant. The most prevalent social grant reported was the Child Support Grant, accounting for 72 percent of all grants received (34 of 47 total grants received in this sample). Households where a female is identified as the head of household tend to receive more social grants than those headed by a male. The households with the highest number of social grants received tend to be the largest households, with the two of the three largest households (of ten and eleven household members respectively) receiving five social grants each.

The mean monthly income of households in the sample was approximately 2208 Rands. However, this average conceals a large variation in household income, from 250 Rands to 5500 Rands. Controlling for household size, average monthly household per capita income was 447 Rands, with a minimum of 63 Rands and a maximum of 1833 Rands. The majority of households (21 of 32, or 66 percent) also reported engaging in some form of farming activity, although the questionnaire did not elicit information on the value of this activity.

Female-headed households in this sample have lower average household income than male-headed households, 2134 Rands compared to 3181 Rands, a finding which mirrors that reported in national studies (see for example, Budlender 1997; Posel 2001; Bhorat and van der Westhuizen; Posel and Rogan 2009). Because households headed by women are also larger (6.7 members as compared to 5.1 members), differences in per capita household income between female- and male-headed households are even more pronounced. Average per capita income in households headed by men in the sample was 670 Rands, twice as large as per capita income of 323 Rands reported for households headed by women.

In table 4.3 I discuss household decision-making. Consistent with arguments that challenge the unitary model of the household, there are only six households who reported pooling all income and resources into a common pot. Rather, 44 percent of households (14 of 32) indicate that members contribute only a portion of their income into a common pot, which is then distributed by a household member who is most often the head of household. When asked about control over decision making and managing of household income and resources, 56 percent of the respondents reported that the household head is also the person who controls income and resources. The household head is more likely to make decisions that involve money or quantities of food. This includes decisions regarding how much money is spent on food (in 81 percent of households) and the purchase of food (quantity bought) (in 50 percent of households). On other decisions within the household, the person identified as person two on the household questionnaire, who is the partner of the head in the majority of households in this sample, more frequently makes the decision. This is in terms of what food is going to be prepared (in 50 percent of households) and who prepares it (45 percent of households). These data therefore suggest that there are differences in control over decision-making within the household, where household heads are much more likely to make the “big” decisions such as how much is spent on food, and less likely to make “smaller” decisions about what food is prepared on a daily basis.

**Table 4.3 Household decision-making**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
All contribute all resources into common pot	6	19
All contribute a specific amount for basic household expenses	14	44
Each member keeps their own money and makes own purchases	11	34
Do not know how household money is used	1	3
Household head brings in the most money	18	56
Household head decides amount of food expenditure	26	81
Household head purchases the food (quantity bought)	16	50
Household head dishes the food	10	31
Household head decides food to be prepared	10	31
Household head prepares the food	6	19

The location of Inchanga presents an interesting scenario concerning access to services and transportation to food markets, hospitals and clinics. This case study affirms that there has been service delivery to the area (see table 4.4). A high response of 97 percent of households reported having access to a clean water source, with 78 percent of the sample having access to piped water on-site. Water had to be fetched from the river in only one household. Almost every household (94 percent) uses electricity as their main source of energy, 88 percent have a stove, and 66 percent use a refrigerator. In this sample, 72 percent of households (23 of 32 households) make food purchases in Pinetown. The majority of pregnant women state that they travel by taxi for an average 33 minutes to get to the food market. The majority seek hospital care at Marianhill where 91 percent of women travel by taxi an average of 55 minutes one way, with one woman stating that it took her between 111-120 minutes. Not unexpectedly, the majority of women in this sample walk to attend the Fredville Government Clinic (with an average of 21 minutes taken to reach the clinic).

**Table 4.4 Household access to services**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
Clean source of water	31	97
Access to water in a tap on site	25	78
Presence of stove	28	88
Presence of refrigerator	21	66
Use of electricity as main source	30	94
Walk to clinic	21	66
Taxi to clinic	11	34
Average time travelled to clinic (in minutes)	21	--
Attend Fredville Government Clinic	29	91
Taxi to food market	32	100
Average time travelled to food market (in minutes)	33	--
Food market located in Pinetown	23	72
Taxi to hospital	29	91
Car to hospital	2	6
Bus to hospital	1	3
Average time travelled to hospital (in minutes)	64	--
Hospital located in Marianhill	21	66
Hospital located in Pietermaritzburg	4	13

### **4.3 Women and Nutrition**

Nutrition and eating habits of pregnant women are described in table 4.5. With the exception of two women, all respondents reported they have knowledge that pregnancy increases the need for nutrition and care. The majority of respondents in this sample (66



percent) obtained this information at the Fredville Government Clinic while 25 percent received this information from people in their household. Of the 32 pregnant women, 27 women (84 percent) report a difference in the way they eat now compared to how they ate before they fell pregnant. To discover the nuances of what women meant by eating differently, women were asked about three aspects of nutrition: whether they ate more; whether the quality of the food was different; and whether they drank more liquids. The majority of respondents (22 of 32, or 69 percent) affirmed that they eat larger quantities now that they are pregnant. Almost every woman (94 percent) stated that the quality of food she consumes has improved since falling pregnant, reporting the greatest increase for consumption of vegetables (by 15 women) and meat (by 11 women). Since falling pregnant, 30 of 32 women reported that they were drinking more liquids, specifically water, juice and tea. The majority of women eat three times a day, with 41 percent also eating a fourth meal at night. Over the course of the day, the most commonly consumed items are bread, vegetables and meat (including chicken, pork, beef, fish and polony) as well as mealie meal.

**Table 4.5 Eating habits of pregnant women**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
Aware that pregnancy increases nutritional needs	30	94
Obtain information from Fredville Government Clinic	21	66
Obtain information from their household	8	25
How many eat differently	27	84
Eat larger quantity of food since falling pregnant	22	69
Eat better quality of food since falling pregnant	30	94
Drink more liquid since falling pregnant	30	94
Eat in the morning	31	97
Eat in the afternoon	32	100
Eat in the evening	28	88
Eat at night	13	41
Take vitamin tablets	23	72
Take two vitamin tablets	9	28

Every woman who attends the Fredville Government antenatal clinic has access to prenatal vitamins. Of the 24 pregnant women who had previously visited the clinic, 23 respondents are actively taking their vitamin tablets, nine of whom are taking two tablets. Tablets include BCOHH5, iron or folic acid. However, there is one woman who has access to vitamins from the clinic but does not take them because her she stated her “stomach is too small”.

The reaction of household members to the announcement of the respondent's pregnancy is informative to understanding women's ability to meet their nutritional needs during pregnancy. These reactions are reported in table 4.6. Of the 32 pregnant women, only seven women are part of a household that was supportive of their pregnancy from the outset. Rather a majority of 56 percent (18 women) experienced an initial period of time where they felt that household members were angry and unsupportive, but where things eventually "smoothed over" and the women gained their household's support. For four women, however, the household remained unsupportive of the pregnancy at the time of the interview, with two women who left their own household to join the household of her boyfriend in order to find support. Reasons pregnant women gave for the lack of support by members of their household include: the current pregnancy is not their first pregnancy (7 households), the head of household is unsupportive of their pregnancy (3 households), women are too young (2 households) and pregnant with an illegitimate child (1 household). At the time of the interview, a further three women had not disclosed their pregnancy to their household because they feared their household's reaction.

**Table 4.6 Pregnant women and their household's reaction to her pregnancy**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
Household was supportive from the start	7	22
Household was initially upset, but turned supportive	18	56
Household remains upset and unsupportive	4	13
Woman has not disclosed because of fear	3	9
<b>Reasons for lack of support</b>		
Not the woman's first pregnancy	7	22
Household head is unsupportive	3	9
Woman is too young	2	6
It is too early for household members to be supportive	2	6
Woman is pregnant with an illegitimate child	1	3
Woman is pregnant and not working	1	3
Woman does not get along with some household members	1	3
Woman is not married and pregnant again	1	3
Don't know/didn't answer	4	13
Woman had not yet disclosed due to fear of reaction	3	9

The majority of women who have been pregnant previous to their current pregnancy (16 of 19 respondents) state that there are differences in the way their needs are met now when compared with their previous pregnancy experience(s). These differences are described in table 4.7. Of the positive changes reported: four women stated that it is beneficial to be older and to have already experienced pregnancy before as this increased their knowledge and ability to meet the needs of the current pregnancy; two women reported the current

pregnancy is “lighter on the tummy”; and one woman now receives support from the father of the child, which was not the case in her previous pregnancy and she reported this increases her ability to meet the needs of her current pregnancy. Half of the women who reported a difference in the circumstances of their current pregnancy reported a negative change. Of these: five women identified greater difficulty in meeting their needs due to less money or no employment during the current pregnancy period; two women reported that they are less able to meet their current pregnancy needs due to increased childrearing and household responsibilities brought on by the presence of children from previous pregnancies; and one woman experienced a change in the ability to obtain sufficient food and is now eating for survival during this pregnancy period.

**Table 4.7 Ability to meet current pregnancy needs, compared with previous pregnancy experiences (of 19 respondents who have been pregnant before)**

<b>Indicator</b>	<b>Number</b>	<b>Percent</b>
Women who have been pregnant before and state there are differences in ability to meet needs of current pregnancy	16	84
<b>Reasons for the difference</b>		
Increased knowledge and experience	4	21
Lighter on the tummy	2	11
Receives support from father of the child	1	5
Better health/ lower blood pressure	1	5
Not working/ have less money	5	26
Increased responsibilities	2	11
Eat for survival	1	5

Pregnancy outcomes are also affected by the amount of work women undertake. Requirements for developing tissues of the fetus and maintenance of the woman’s body increase the body’s need for energy during the pregnancy period. These nutritional requirements increase further when women expend energy cooking, cleaning and fetching water (Butte and King 2005, 1011). Changes in the allocation of household responsibilities to pregnant women therefore also give some indication of the extent to which women’s increased pregnancy needs are accommodated. Just over half of the pregnant women in the sample (17 of 32, or 53 percent) reported that they do less work in the household now that they are pregnant (refer to table 4.8). When asked what work is less, ten women stated that they only have to clean the house and either cook or do dishes and one stated that all she has to do now is eat. Other household members are reported to take care of the other necessary household tasks such as the laundry and fetching water. Of those who reported that they do less work now that they are pregnant, four are in their second trimester and 11

are in their third trimester. At the same time this means there are also 15 women who reported that they are required to do the same amount of work as before they fell pregnant, nine of whom are in their second trimester and four who are in their third trimester.

**Table 4.8 Differences in amount of work required of women now that they are pregnant**

Indicator	Number	Percent
Do less work now they are pregnant	17	53
Only clean the house and cook	7	22
Only clean the house and do dishes	3	9
Do less work, did not specify	4	13
Only do dishes and fetch water	1	3
Only cook	1	3
Only eat	1	3

#### **4.4 Correlates of Access to Nutrition Among Pregnant Women**

To measure access to nutrition among pregnant women, I first use information collected on the incidence of hunger among pregnant women. Respondents were asked to identify if they had experienced hunger during their pregnancy, on a scale of five responses from never to always. Perhaps surprisingly, only six pregnant women reported sometimes or always being hungry during their pregnancy. These women were then classified as living in households where the pregnant woman's absolute nutritional needs were not met; and the remaining 26 women were classified as living in households where their needs were met. I then distinguish among pregnant women according to whether or not they reported receiving more resources with pregnancy, indicating relative access to nutrition. Of the 32 women, 20 women stated that they are currently given more food, money and/or resources now they are pregnant. These women were then classified as living in households where their relative needs (including nutrition) were prioritized; and the remaining 12 women as living in households where their needs were not prioritized.

##### **4.4.1 Pregnant Women's Absolute Access to Nutrition**

In Table 4.9a and Table 4.9b, I compare the individual and household level correlates of the two groups of pregnant women, according to whether the women reported experiencing hunger. Of the pregnant respondents whose needs are not met, all but one has been pregnant before. The majority of those whose absolute needs are not met (4 of 6 women)

were in their third trimester at the time of the interview. This group of pregnant women tends to be older (average age of 23.0) and slightly more educated (9.5 years of schooling) than pregnant women who reported that their absolute needs are met (average age of 21.8 and 9.0 years of schooling). All six respondents whose needs are not met are aware that their needs have increased now that they are pregnant. They all receive nutritional information from the clinic and have access to vitamin tablets, however only five women actively take their vitamin tablets.

**Table 4.9a Individual correlates of nutritional access among pregnant women**

<b>Indicator</b>	<b>Pregnant women who sometimes/always experience hunger</b>	<b>Pregnant women who do not experience hunger</b>
Average age of pregnant (years)	23.0	21.8
Average level of education completed (years)	9.5	9.0
Aware that pregnancy increases their nutritional need (%)	100	92
Pregnant before (%)	83	54
Woman in her third trimester (%)	67	42
Woman in her second trimester (%)	33	42
Access to vitamin tablets (%)	100	92
Take vitamin tablets (%)	83	69
Not in relationship with the father of the child (%)	33	0
Woman is not supported by her household (%)	17	8
Does same amount of work now they are pregnant (%)	50	46
Partner of the head of household (%)	0	15
Daughter or granddaughter of the head of household (%)	50	58
Sibling of the head of household (%)	33	4
In-law to the head of household (%)	17	4
Sample size	6	26

Pregnant women's relationship to the household head, other household members and the father of the child correlates with whether or not they experience hunger. Support of the pregnancy by the household head and the father of the child are more likely to increase women's access to food and resources to meet their increased nutritional needs during pregnancy. Pregnant women who are the partner of the head of household do not report hunger. Those who are the granddaughter or daughter of the household head are less likely to report hunger, while women who are siblings of the head or who are in-laws to the head are more likely to experience hunger. This suggests that the type of relationship and level of relatedness with the household head has an effect on the experience of pregnant women. Half of the pregnant respondents who experience hunger live in a household where at least

one member and as many as every member in the household is unsupportive of the pregnancy. Pregnant women who go hungry are also less likely to be in relationship with, or to be supported by, the father of the child. Where women do not experience hunger, they are more likely to receive financial, material or emotional support from the father of the child. Within the group of women who report sometimes or always experiencing hunger during their pregnancy, they also tend to report having to do the same amount of work as before they were pregnant, indicating the extent to which members of the household are unable or unwilling to accommodate the needs of pregnant women.

Household income appears to be an important correlate of households in which pregnant women experience hunger. These households are less likely to contain an employed household member (only two of six households have employed members as compared to 22 of 26) and five of the six households are engaged in subsistence farming activity (compared to 16 of 26). Consequently, pregnant women who go hungry are in households that have lower income on average than households where pregnant women do not go hungry (1692 Rands compared to 2332 Rands). Because these households are also bigger, differences in average per capita income between the two groups of households are even larger. Average per capita income is almost twice as large in households where pregnant women do not experience hunger (494 Rands compared to 252 Rands). These differences in household income translate into differences in food expenditure. Pregnant women who reported experiencing hunger lived in households where per capita food expenditure was almost half that of households where women do not report going hungry (79 Rands compared to 149 Rands).

Differences in access to resources also explain why pregnant women are more likely to report hunger in female-headed households, where average income is lower than in male-headed households. All six households where pregnant women's absolute needs are not met are female-headed and the average per capita household income is one and a half times less than in female-headed households where women do not go hungry (252 Rands compared to 380 Rands).

The majority of households (five of six) where pregnant women report hunger, also report that all or a portion of household income and resources are pooled into a common pot for expenses. In every case the head of household is identified as the one who distributes the resources. Households that do not pool income tend to have fewer pregnant women who

experience hunger. This suggests that where women retain some control over their own income and resources they tend to be better able to provide for their needs during their pregnancy than those who have to bargain for resources from the household head.

**Table 4.9b Household correlates of nutritional access among pregnant women**

<b>Indicator</b>	<b>Pregnant women who sometimes/always experience hunger</b>	<b>Pregnant women who do not experience hunger</b>
Household is female-headed (%)	100	69
Households have at least one employed member (%)	50	85
Average household income (Rands)	1692	2332
Average household size	6.8	5.2
Average per capita income (Rands)	252	494
Per capita food expenditure (Rands)	79	149
Household engaged in farming activity (%)	83	62
Average per capita income if female-headed (Rands)	252	380
Average per capita income if male-headed (Rands)	--	736
Household pools all income and resources (%)	17	19
Household pools portion of income and resources (%)	67	38
Households do not pool income and resources (%)	17	38
Don't know whether household income is pooled (%)	0	4
Sample size	6	26

To get some indication of whether pregnant women experience hunger only because of absolute resource constraints in the household, respondents were also asked whether children and other adults in the household had experienced hunger in the previous month. Responses to these questions may suggest that pregnant women in the sample experience hunger not only because of absolute resource constraints, but also because of how food resources are allocated in the household. In only two households was there an absolute resource constraint where all household members, including the pregnant woman, experienced hunger. In the other three households, the pregnant woman and either children *or* adults (but not both) reported also experiencing hunger, and in the sixth household, only the pregnant woman reported hunger.

#### **4.4.2 Pregnant Women's Relative Access to Nutrition**

The sample of women who report sometimes or always experiencing hunger in pregnancy is small. In assessing nutritional access, however, what is important is not only absolute

access but also relative access to resources in the household. In the remainder of this chapter I investigate whether pregnant women reported that they receive more food, money and/or resources now because they are pregnant, and classify these women as living in households where their needs are prioritized. Of the 32 pregnant women, 20 reported receiving priority within their household; the remaining 12 households are classified as not giving pregnant women's needs priority.

There were two pregnant women who are identified as receiving priority who also reported they go hungry. This accounts for the two households where every household member, not only pregnant women experience hunger. This suggests that for these two households hunger is due to absolute resource constraint and not because of how food resources are allocated within the household, as suggested for the other four households in this group. Therefore, for the remainder of this discussion, these two women and their households will only be calculated as women living in households who give them priority, reducing the sample of pregnant women whose absolute needs are unmet from six to four. These four women are henceforth classified as living in households where both their absolute and relative needs are not met.

In tables 4.10a and 4.10b, I compare the individual and household level correlates of the two groups of pregnant women according to whether or not they reported receiving priority in their household now they are pregnant, as well as the sample of women who reported that they do not receive priority nor are their absolute needs met (thus, the second and third column in tables 4.10a and 4.10b, together represent the 12 pregnant women in this case study who do not receive priority). Pregnant women whose needs are prioritized tend to be younger (average age of 21.5), and have fewer years of schooling (8.8 years), compared to pregnant women who do not receive priority (with an average age of 23.25 years and 9.9 years of education completed) and also compared to women who do not have priority nor have their absolute needs met (22.25 years of age and 9.0 years of schooling). Only two of the women who stated they receive priority reported that they are not aware of their increased nutritional needs and four stated they did not take vitamin tablets.



**Table 4.10a Individual correlates of priority among pregnant women**

<b>Indicator</b>	<b>Pregnant women who report priority</b>	<b>Pregnant women who do not report priority</b>	<b>Pregnant women who do not report priority &amp; needs not met</b>
Average age of pregnant (years)	21.5	23.25	22.25
Average level of education completed (years)	8.8	9.9	9
Pregnant before (%)	55	50	100
Woman in her third trimester (%)	55	13	75
Woman in her second trimester (%)	40	50	25
Aware that pregnancy increases their nutritional need (%)	90	100	100
Access to vitamin tablets (%)	80	50	100
Take vitamin tablets (%)	80	38	100
In relationship with the father of the child (%)	100	87	50
Woman is not supported by her one or more household members (%)	35	50	50
Does less work now they are pregnant (%)	55	50	50
Partner of the head of household (%)	15	13	0
Daughter of the head of household (%)	50	50	25
Granddaughter of the head of household (%)	10	13	25
Sibling of the head of household (%)	10	--	25
In-law to the head of household (%)	15	25	25
Sample size	20	8	4

Of the 20 women who reported receiving priority, just over half, 55 percent, reported the current pregnancy was not their first, and that 55 percent of women receiving priority were in their third trimester of pregnancy at the time of the interview. However, women who were not given priority were more likely to have been pregnant before (fifty percent of pregnant women in column two plus every woman in column three). This may suggest that women who are in their first pregnancy tend to be given special dispensation compared to those who have been pregnant before. Furthermore, women who do not report priority and also experience hunger are more likely to be farther along in their pregnancy, with 75 percent stating they are in their third trimester. This is important to note as the third trimester is an important period of the pregnancy as weight gain and nutritional requirements become increasingly important as the pregnancy progresses (Picciano 2003, 1999S).

The relationship pregnant women have with the household head and other household members affect the experience of pregnant women. Pregnant women who are partners or daughters of the head of household are more likely to receive additional food, money and/or resources because they are pregnant, and in all cases where the woman is the partner of the household head, their needs are also reported as having been met. Women who identify themselves as the sibling of the head of household are less likely to report receiving priority. Those who receive additional resources during their pregnancy are also more likely to be in a household where every member supports her pregnancy (65 percent of those who receive priority), compared to fifty percent of women who do not report priority. Furthermore, just over half the women who receive priority also report a willingness of household members to accommodate to the needs of pregnant women by allowing them to do less work within the household.

The relationship with the father of the child is also an important factor. Of the 32 women, only six report living in the same household as the father of the child. However, their contribution of material, financial and emotional support is influential in the pregnancy experience for the women in this sample. Every pregnant woman who reported receiving priority also reported having a relationship with the father of the child. For women who do not receive priority within their household, 13 percent are not in a relationship with the father of the child, while half of the sample of women who do not receive priority nor have their needs met do not have a relationship with the father of the child.

Household income is a significant correlate of whether pregnant women are given priority of household food and resources. In households where pregnant women report receiving priority, average household income is double that of households where pregnant women are not given priority (although these women do not report hunger) (2747 Rands compared to 1398 Rands). This difference translates into differences in per capita income and per capita food expenditure of two times and 1.3 times more, respectively. Average household size for these two groups of women is about the same. This is in contrast to households where women's absolute and relative needs are not met, where household size is the largest and per capita income and food expenditure is the lowest. Average per capita household income and food expenditure for this group of women is 2.5 times lower than that in households where women report receiving priority in access to resources.

Household income includes income from employment and social grant income, although the value of social grant income is considerably lower than that of earned income. Households in which women receive priority are the least likely to rely on social grant income and the most likely to receive income from employment. In contrast, only two of the four households where women were not given priority and their absolute needs were not met, included an employed household member, and all four households reported receiving government grants.

**Table 4.10b Household correlates of priority among pregnant women**

<b>Indicator</b>	<b>Pregnant women who report priority</b>	<b>Pregnant women who do not report priority</b>	<b>Pregnant women who do not report priority &amp; needs not met</b>
Household is female-headed (%)	75	63	100
Households have at least one employed member (%)	80	75	50
Average household income (Rands)	2747	1398	1512
Average household size	5.6	5.7	7
Average per capita income (Rands)	558	276	225
Per capita food expenditure (Rands)	152	114	62
Household engaged in farming activity (%)	65	62	75
Average per capita income if female-headed (Rands)	419	239	225
Average per capita income if male-headed (Rands)	944	281	--
Household pools all income and resources (%)	15	25	25
Household pools portion of income and resources (%)	40	38	75
Households do not pool income and resources (%)	40	38	0
Don't know whether household income is pooled (%)	5	0	0
Household receives at least one government grant	50	75	100
Sample size	20	8	4

There is also some suggestion that the pooling of household income impacts on whether pregnant women receive priority in the household. Women who are not given priority (including the group of women whose needs are reported as not met) are more likely to be in households that pool all or a portion of household income and resources (9 of 12 households, 75 percent). In contrast, households who do not pool their resources tend to

have a greater number of pregnant women who are given priority, and in all these cases women's needs are also reported as having been met. This suggests that by retaining control over income, pregnant women may be able to allocate a larger share of their income to meet their nutritional needs than may have been allocated through income-pooling in the household.

#### **4.5 Conclusion**

This chapter presents the findings from the case study research which collected information on 32 pregnant women and the households in which they live in the area of Inchanga, South Africa. The objective of the research was to identify whether poor rural women's access to nutrition changed as a result of their pregnancy. I identified access in two ways: first I examined whether pregnant women's absolute nutritional needs were met. This group was classified by women who reported that they seldom or never experience hunger during their pregnancy. Second, I explored relative access to nutrition by investigating whether women receive relatively more food, money and/or resources in the household as a result of their pregnancy.

A very small sample of women, only six of 32, reported their absolute needs were not met. In two of these six households, pregnant women still reported that they received priority in nutritional access; but in the remaining four households, women's absolute needs were not met and nor did they receive any priority in nutritional access in the household. In total, 12 pregnant women reported that they do not receive relatively more food or resources; the remaining 20 women were classified as living in households that prioritize women's access to nutrition because they were pregnant.

The individual and household level correlates of nutritional access were the same across both measures. Pregnant women were less likely to experience hunger, and more likely to receive priority if the current pregnancy was their first, if they were the partner or the daughter of the household head, supported by all household members and if they were in relationship with the father of the child.

Household income is also an important correlate of both absolute and relative access to nutrition among pregnant women in the sample. The findings of this study suggest that in households with higher per capita income and food expenditures, pregnant women are less

likely to experience hunger and more likely to report receiving priority in nutritional access. However, there is also some indication that the income that ‘matters’ is the income over which the pregnant woman has control. Women are less likely to report hunger, and more likely to report receiving (or claiming) priority if they retain at least some control over their own resources, rather than pooling these resources into a common household pot for expenditures.

## **Chapter 5: Conclusion**

### **5.1 Summary of Case Study Research**

This chapter brings together the work done and the findings of the case study research. The aim of the research was to gain a better understanding of the allocation of food and resources within rural households to identify whether the onset of pregnancy changes women's ability to claim additional food and resources to meet their increased nutritional needs. The basis of this research is that nutritional requirements increase when women fall pregnant and that obtaining adequate nutrition is of particular importance for the maternal environment and fetal growth on both short-term and long-term outcomes, impacting everything from well-being of an individual to the growth of a nation. Nutrition is a complex and multi-faceted area of study. Intra-household allocation is one of many ways to study nutritional aspects of pregnancy. The various models of intra-household resource allocation reveal that differences in access to resources within households cannot be overlooked (see for example Katz 1997; Thomas 1990), especially as there is evidence that the unitary model falls short of the complex reality that exists within South African households (refer to Duflo 2000; Case et al. 2003).

The case study research utilized both quantitative and qualitative research methodology to collect individual and household level information of 32 pregnant women respondents. Households were identified by the fact that there was a pregnant woman and at least one other adult (male or female) in the household with whom nutritional comparison could be made. Household questionnaires and in-depth interviews were intentioned to observe the correlates between individual and household characteristics, and the pregnant woman's access to food and resources within the household. The aim was to identify whether pregnant women's absolute and relative nutritional needs were met in response to their pregnancy.

The sample of pregnant women in this case study was chosen to provide in-depth insight into what is happening in the households of this particular group of women. Case study research took place in May 2009 at the Fredville Government Clinic and the 1000 Hills Community Helpers Community Center in the area of Inchanga, South Africa. The location was chosen as it is a rural area in relatively close proximity to the University of

KwaZulu-Natal. The sample is neither a representative nor a random sample, but it does offer opportunity for more textured understanding of what is happening within rural households when women fall pregnant, and it provides motivation for further research.

## **5.2 Contributions of Findings**

The findings of this study were that a very small sample of the women, only six of 32, reported that their absolute needs were not met. Of these six households, two indicated that despite the fact that no-one in the household had absolute needs met, pregnant women still received relatively more than others. Findings are slightly higher in terms of pregnant women receiving a relative priority compared to other adult members of the household. Of 32 households, 12 (38 percent) women reported that they did not receive a relative increase in food and resources because they are pregnant. This means that the remaining 20 (63 percent) are classified as living in households that provide pregnant women with a relative increased allocation of household food and resources, indicating that in the majority of households, women's access to nutrition does change because they are pregnant.

### **5.2.1 Contributions to Literature**

There has been little research conducted in the area of intra-household resource allocation and pregnant women in South Africa, thus this case study research has much to contribute to the literature. Many findings in this study are consistent with national, provincial and ward figures in terms of service delivery, clean water and sanitation and access to the broader factors of nutrition, as well as general levels of employment, household income and headship.

The findings of this study support two of the three variables (household composition and household income, but not individual education level) that were highlighted in the literature review as influential in intra-household allocation of resources. These variables give insight into conditions under which this group of poor rural pregnant women are able to have their absolute needs met and their ability to claim a relatively larger share of household resources. In this study I identified absolute nutritional need as being met through the reporting of hunger incidence, and relative need according to whether the women reported receiving priority in terms of an increase in food, money and/or resources because they fell pregnant.

Consistent with literature on models of intra-household allocation, this study suggests that pregnant women's access to resources depends on the type of relationship and level of relatedness to the household head as well as on whether other household members are supportive of their pregnancy. Absolute and relative nutritional needs are most likely to be met for pregnant women who are the partner of the head, whereas women who are the sibling or in-law of the head of household are more likely to experience hunger and tend to report not receiving any priority in the allocation of household food and resources. Furthermore, support of the pregnancy by all members of the household and the father of the child correlates with women's access to food and resources to meet their increased nutritional needs during pregnancy, as women were less likely to report hunger and more likely to receive priority.

Household income is an important correlate for meeting pregnant women's absolute and relative nutritional needs. The findings in this study suggest that pregnant women's nutritional access depends on the level of resources in the household. Women in households with higher levels of per capita income and food expenditures are more likely to report that both absolute and relative needs are met. There is also some indication that women who are able to retain some control over income and resources are less likely to report hunger and more likely to report receiving (claiming) priority.

Perhaps surprisingly, I did not find a positive relationship between a pregnant woman's level of education and her ability to claim a larger share of resources. In this sample, those women who reported hunger or reported they did not receive a relative increase in nutrition, also reported slightly higher levels of education completed than other pregnant women. However, only one pregnant woman in the sample was working, and therefore higher levels of education did not translate into greater labour market access. Furthermore, 30 of 32 pregnant women in the sample, stated that they were aware that their pregnancy increased their nutritional needs, perhaps suggesting that the slight differences in years of formal education within this sample may be supplemented by information disseminated by the clinic, where a clear majority of respondents reported that they obtained their nutritional information.



### **5.3 Recommendations of the Study**

The findings in this case study research suggest further study. A clear majority of pregnant women in this sample, 81 percent, report that they seldom or never experience hunger. A slightly smaller group of women, 63 percent, reported that they received relatively more food, money and/or resources as a result of their pregnancy. However, the sample size for this study was very small and very specific in its location, in terms of both access to major urban cities and to community resources, including the government clinic and community center. Further studies are recommended in other areas of South Africa, including both rural and urban areas, to examine the same question over a more representative sample of pregnant women. In doing so individual and household correlates that enable women to claim more food and resources because they are pregnant can be identified. In the context of intra-household inequality, understanding existing patterns of intra-household resource allocation provides a more textured assessment of the effects of poverty, the impact of gender, and the ability of the state and various organizations to devise more effective, well-targeted poverty alleviation programmes.

Further studies are suggested to incorporate the impact of HIV/AIDS. While this study acknowledges the presence of HIV/AIDS in the area of Inchanga and the high prevalence of the disease throughout South Africa, as well as the diseases' ability to exacerbate poor pregnancy outcomes or access to resources, the limitations in scope, ethical considerations and time did not allow for adequate discussion of the issue. Additional study is recommended to fill this gap.

Also, more comprehensive or longitudinal studies may go into greater detail for groups of women who receive more food and resources when they are pregnant compared to a group of women who do not. These studies may be able to include more specific information on the diet of women both before, during and after pregnancy and may include anthropometric measurements, identifying more accurately the impact of intra-household allocation on pregnancy outcomes.

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## **Appendix 1**



# Basic Household Questionnaire- Quantitative

Household Number:

Name of Interviewee:

	Male/ Female	Age	Highest level of education completed	Relationship to head of household	Marital Status	How does this person support himself/herself or who supports
1 Head of HH						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

## For use in levels of education

1. No schooling
2. Grade R/0
3. Grade 1/ Sub A
4. Grade 2/ Sub B
5. Grade 3/ Standard 1
6. Grade 4/ Standard 2
7. Grade 5/ Standard 3
8. Grade 6/ Standard 4
9. Grade 7/ Standard 5
10. Grade 8/ Standard 6/Form1
11. Grade 9/Standard 7/Form 2
12. Grade 10/Standard 8/F. 3
13. Grade 11/ Standard 9/F. 4
14. Grade 12/Std.10/F.5/Matric
15. Certificate,diploma,degree
16. Don't know

## For use in relationship to head of household

1. Self
2. Husband/wife of HH
3. Partner of HH
4. Mother/father of HH

## 5. Son/daughter of HH

6. Stepson/ stepdaughter
7. Adopted or foster child
8. Brother/sister of HH
9. Step brother/sister
10. Grandparent/great grandparent
11. Other relative (e.g. uncle)
12. Non-related persons
13. Grandson/daughter
14. Great grandchild
15. In-law

## For use in Marital Status

1. Married
2. Widow/widower
3. Divorced or separated
4. Never Married/single

## For use in last column:

1. Employment
2. Sale of farm products
3. Supported by persons in HH. Who?
4. Supported by persons not in HH. Who?
5. Savings or previously earned money
6. Old age pension
7. Disability grant
8. Child support grant
9. Foster care grant
10. Care dependency grant
11. Grant in aid
12. Social relief grant
13. Other source,Specify?
14. No income
15. Refuse to answer
16. Supported by HHH only
17. Self employment

2. What means of transport are usually, or would usually be used by members of this household to get to each of these facilities? How long does it take to reach?

Destination	Type of transport (walk, taxi, etc)	Number of minutes travel	Destination/ location
Food market			
Clinic			
Hospital			

3. Are there any other people who contribute to the household who not listed as resident members? Who and what do they contribute? (i.e. relatives, neighbors, boyfriend, spouse who lives in different location)

4. What is the household's net income in an average month? (net= after taxes and before expenses)

- |                   |                      |
|-------------------|----------------------|
| 1. R0-R500        | 7. R7,001 – R9,000   |
| 2. R501-R900      | 8. R9,001- R11,00    |
| 3. R901-R1,300    | 9. R11,001-R13,000   |
| 4. R1,301-R2,000  | 10. R13,001 +        |
| 5. R2,001-R4,000  | 11. Don't know       |
| 6. R4,001- R7,000 | 12. Refuse to answer |

5. What was the total household expenditure in the last month? (*Include everything that the household and its members spent money on, including food, clothing, transport, rent and rates, alcohol and tobacco, school fees, entertainment and any other expenses*)

- |                   |                      |
|-------------------|----------------------|
| 1. R0- R399       | 7. R5 000- R9 999    |
| 2. R400- R799     | 8. R10 000 –R12 999  |
| 3. R800- R1 199   | 9. R13 000 or more   |
| 4. R1 200- R1 799 | 10. Don't know       |
| 5. R1 800- R2 499 | 11. Refuse to answer |
| 6. R2 500- R4 999 |                      |

6. In an average month, who is the person(s) who usually brings in the most money into the household?

7. How does the household use the income it brings in?

1. All income is put together into a common household pot where all resources are shared and one or two persons manages (controls) the money to care for every members' needs.
2. Most income is put together into a common household pot where each member contributes a certain amount to cover basic household expenses, e.g. food.
  - i. If answer is 'b', please state amount each member is expected to put in:
3. Income is not put together into a common household pot, but each member keeps their money and buys food and items that each needs
4. Other, please specify
5. Don't know

8. Who is the person who usually manages (controls) most of the household's income?
9. How much money did this household spend on food in the last month?
10. Who decides how much money is spent on food?
11. Who purchases the food?
12. Who decides what food is prepared?
13. Who prepares the food?
14. Who decides how much food is dished onto each plate?

15. Does the household own the following

	yes/no
Refrigerator	
Stove	

16. What is the main source of energy/fuel for this household?

1. Electricity from mains
2. Gas
3. Paraffin
4. Wood
5. Coal
6. Candles
7. Other, specify?

17. What is the main source of energy for cooking?

- a. Electricity from mains
- b. Gas
- c. Paraffin
- d. Wood
- e. Coal
- f. Candles
- g. Other, specify

18. What is the household's main source of water?

- a. Piped water in dwelling
- b. Piped water in yard
- c. Water tank on site
- d. Borehole on site
- e. Public tap
- f. Neighbor's tap
- g. River

- a. Who usually fetches the water?

- b. How many times a day does someone have to fetch water?

- c. If water source is off site, how long does it take members of the household to walk to the water source?

19. What type of toilet facility is available for this household?
1. Flush toilet
  2. Pit toilet
  3. Chemical toilet
  4. Bucket toilet
  5. No toilet
20. What farming activities, if any, take place on the land? Is it.....? (answer for all that apply)
1. Subsistence garden for household consumption
  2. Small livestock (poultry, goats, sheep)
  3. Large livestock
  4. Food grown to sale to neighbors/market
21. In the past month, did any adult (18 years and above) in this household go hungry because there wasn't enough food?
1. Never
  2. Seldom
  3. Sometimes
  4. Often
  5. Always
22. In the past month, did any children (17 years and younger) in this household go hungry because there wasn't enough food?
1. Never
  2. Seldom
  3. Sometimes
  4. Often
  5. Always
23. During your pregnancy, have you ever gone hungry because there wasn't enough food?
1. Never
  2. Seldom
  3. Sometimes
  4. Often
  5. Always
24. Have you been pregnant before?
25. How far along are you in this pregnancy?
26. When did you learn that you were pregnant?

## Appendix 2

### **In-depth Interview Schedule- Qualitative Probe**

1. Can you tell me everything you eat AND drink on a TYPICAL day? For example, what did you eat yesterday?

Morning:

Afternoon:

Evening:

Night:

2. Do you eat differently after becoming pregnant?  
If yes, how? In what ways have your eating patterns changed since falling pregnant?  
If no, why not?
  - a. Do you eat more food now that you are pregnant? If yes, what is more food?
  - b. Do you eat better quality food now that you are pregnant? E.g. do you eat more meat, colorful vegetables, etc? If yes, what is better quality that you eat?
  - c. Do you drink more liquid now that you are pregnant? If yes, what is more and which liquid(s) do you drink more of? Water, tea, juice, milk, etc?
3. Are there any specific foods that you try to eat now because someone told you it is good to eat when you are pregnant? Which foods and why?
4. Are there things you are not allowed to eat now that you are pregnant? (Not things they can't eat because of nausea). Which foods and why?

5. Are you aware that the body needs good care and a greater range of foods with more variety when you are pregnant? (i.e. increased caloric requirements, protein, a variety of foods for vitamins and micro-nutrients, etc) If yes, please explain how you obtain this information?
6. Do you have access to vitamins or supplements? If yes, which vitamins do you take? If no, please explain.
7. If this is your first time to the clinic, do you know that the clinic will give you vitamins? Do you intend to take them?
8. Can you describe the reaction of your household to your falling pregnant?
9. Who and in what ways do some household members support you?
  - a. Are some members not supportive of your pregnancy? Who and in your opinion, why do they not support you?
10. Does the father of this child support you? In what ways? (Use the following to probe)
  - a. With material items: clothing, food
  - b. Financially
  - c. Emotionally
  - d. Other
  - e. Does not know;
  - f. Does not want to respond
11. Do you continue to be in relationship with the father of this child?
12. When you need advice, who do you go to and in what kind of advice do they help you with?
  - a. Who gives you advice about your diet?
13. Do you have your own money to spend? Where does this money come from?
14. What kinds of things do you usually spend your own money on?

15. Can you recall a time when there was a food shortage within the household? If yes, what are some strategies you or your household use?
16. If your household was experiencing a shortage of food today, describe what you think would happen if the household got an increase in food tomorrow?
- a. In your opinion, who would be the first to receive an increase in food? Why?
  - b. In your opinion, do you think you would receive an increase in food? Why?
17. Have your needs for the following been met throughout your pregnancy?  
**If no, why not?** How often is the need not met?  
(use scale: never, seldom, sometimes, often, always, and probe the following areas)
- a. Amount of food you need
  - b. Amount of vitamins, carbohydrates, protein, etc you need
  - c. Your need of access to clean water and sanitation
  - d. Your need of adequate clothing, material items
  - e. Your need of information on your pregnancy
  - f. Your need of financial support
  - g. Your need of emotional support
  - h. Any other needs that are not met, specify
18. In the last month, have the following been met for every member of your household?  
**If no, who did not have their need met? Why not?** How often is need not met?  
(use scale: never, seldom, sometimes, often, always, and probe the following areas)
- a. Amount of food that every HH member needs
  - b. Amount of vitamins, carbohydrates, protein, etc that every HH member needs
  - c. Every HH member's need of access to clean water and sanitation
  - d. Every HH member's need of adequate clothing, material items
  - e. Every HH member's need for financial support
  - f. Every HH member's need for emotional support



- g. Every child in the HH need for school fees (if applicable)
  - h. Any other needs that are not met, specify
19. In a typical week, how often does your household have meat?
- a. Can you describe how meat is typically divided between household members? (For example, do adults all get the same amount? Do all children get the same amount? Does any person(s) get better portion of meat?)
20. After a meal has been prepared, please describe the process of dishing the food to each household member and how much food each person gets? (Probe: do adults all get the same amount? Do all children get the same amount? Does any person(s) get bigger portion or a better portion?)
21. In your opinion, is there any reason some members might receive a larger share of food or household resources than other members?
- a. In your opinion, is there any reason some might receive less than others?
22. Do you do less work in the household now that you are pregnant? If so, what work is less?
23. Are there any ways that you think you are given more food/money/resources because you are pregnant?
24. Are there other things you think influence whether you are able to receive a larger share of food or household resources?
25. If this is NOT your first pregnancy, describe any differences in your needs for this pregnancy compared to your first pregnancy?
26. If this is NOT your first pregnancy, describe any difference in the attention you give to your diet and self-care compared to your first pregnancy?