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Women's Economic and Maternal Role Combination: A Study of Coping Strategies and Consequences in Urban Ghana

by

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ABSTRACT

FACULTY OF HUMAN AND SOCIAL SCIENCES

<u>Social Statistics and Demography</u>

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WOMEN'S ECONOMIC AND MATERNAL ROLE COMBINATION: A STUDY OF COPING STRATEGIES AND CONSEQUENCES IN URBAN GHANA

Philippa Jayne Waterhouse

May 2014 marked 20 years since the advent of the United Nations' International Day of the Family. The central theme underlying this anniversary was the necessity of the family to be at the heart of development agendas with work-family balance being identified as one of three critical areas in which member states need to focus effort. In the last three decades a substantial volume of literature has investigated the interface between work and family, yet this has focused predominantly on affluent Western countries and more recently the East. Sub-Saharan Africa in particular has been identified as a context in which a paucity of research exists.

This thesis explores the intersection between women's economic and maternal roles in urban Ghana. The focus is on biological mothers who are co-resident with their children. The thesis is formed of three main papers. The first paper presents qualitative research conducted in the Accra Metropolitan Area. This investigates work-family coping strategies used by mothers to ensure the care of their young children, and uncovers women's subjective experience of their role combination. Findings from this qualitative study motivated the two quantitative papers of this thesis. The second paper, using panel data from the Women's Health Study of Accra, explores the relationship between women's role combination and health among those with young children. Both physical and mental dimensions of health are considered. Last, the third paper uses a sample from the 2010 Ghanaian Population and Housing Census to investigate the association between maternal employment and children's educational progress. Three levels of educational progress were defined; the completion of primary education among those aged 12-14 years, the completion of junior secondary schooling among those aged 15-17 years and the attendance of senior secondary schooling among this latter age group.

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DECLARATION OF AUTHORSHIP

I, Philippa Jayne Waterhouse, declare that the thesis entitled 'Women's Economic and Maternal Role Combination: A Study of Coping Strategies and Consequences in urban Ghana' and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;

- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

- where I have consulted the published work of others, this is always clearly attributed;

- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

- I have acknowledged all main sources of help;

- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

- none of this work has been published before submission, or [delete as appropriate] parts of this work have been published as: [please list references]

Signed: ....

Date:...

Acknowledgements

Definitions and Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AMA	Accra Metropolitan Area
ASFR	Age-Specific Fertility Rates
AUFNS	Accra Urban Food and Nutrition Survey
BECE	Basic Education Certificate Examination
BP	Bodily Pain (SF-36 Health Scale)
CCA	Complete Case Analysis
CREATE	Consortium for Research on Educational Access, Transitions and Equity
CSSPS	Computerised School Selection and Placement System
DHS	Demographic and Health Survey
EAs	Enumeration Areas
ERPs	Economic Recovery Programs
FCUBE	Free, Compulsory, Universal Basic Education
FGD	Focus Group Discussions
FHH	Female Headed Households
GDHS	Ghana's Demographic and Health Survey
GH	General Health (SF-36 Health Scale)
GHS	Ghana Health Service
GLSS	Ghana Living Standard Survey
GSS	Ghana Statistical Service
HBE	Home Based Enterprises

HIV	Human Immunodeficiency Virus
IC	Index Children
ICT	Information and Communication Technology
IFPRI	International Food Policy Research Institute
IPW	Inverse Probability Weighing
ISSER	The Institute of Statistical, Social and Economic Research
JSS	Junior Secondary School
MAR	Missing at Random
MCAR	Missing Completely at Random
MCS	Mental Component Summary Score
MH	Mental Health (SF-36 Health Scale)
MI	Multiple Imputation
MNAR	Missing Not at Random
MOS	The Rand's Corporation's Medical Outcome Study
NER	Net Enrolment Rate
NMIMR	Noguchi Memorial Institute for Medical Research
PCIC	Principle Care-Givers of Index Children
PCS	Physical Component Summary Score
PF	Physical Functioning (SF-36 Health Scale)
PSU	Primary Sampling Units
SES	Socio-Economic Status
SF	Social Functioning (SF-36 Health Scale)
SF-36	The Short-Form 36

SM1	Selection Model 1
SM2	Selection Model 2
SM3	Selection Model 3
SSA	Sub-Saharan Africa
SSI	Semi Structured Interviews
SSS	Senior Secondary School
RA	Research Assistant
RLE	Role Limitations due to Emotional Problems (SF-36 Health Scale)
RLP	Role Limitations due to Physical Problems (SF-36 Health Scale)
TFR	Total Fertility Rate
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNHABITAT	United Nations Human Settlement Program
UNICEF	United Nations Children's Fund
VT	Vitality (SF-36 Health Scale)
WHO	World Health Organisation
WHSA	Women's Health Study of Accra
WFB	Work-family balance
WFS	World Fertility Survey

1. Introduction

15 May 2014 marked 20 years since the advent of the United Nations' International Day of the Family; an annual day devoted to the promotion of awareness and reflection upon issues faced by families globally (United Nations 2014a). The central theme underlying this anniversary was the necessity of the family to be at the heart of development agendas with work-family balance (WFB) being identified as one of three critical areas in which member states needed to focus effort. Whilst it is recognised that work-family policies in less developed countries compete with more immediate development concerns (Aryee 2005), a more integrated approach is required due to the intersections between WFB and development outcomes. Despite its importance for achieving many development goals, such as reducing child mortality and improving child education, women's role in unpaid family and household work is frequently absent from agendas such as the Millennium Development Goals (United Nations Research Institute for Social Development 2010). This is despite a focus on women's labour force participation as a core poverty reduction strategy. The potential impact of family responsibilities for the uptake of economic and employment opportunities by women, as well as the consequences of policies related to female employment for women's family roles, makes the consideration of WFB and interventions to support this an important research and policy consideration globally.

In the last three decades a substantial volume of literature has investigated the interface between work and family (Eby et al. 2005), with particular focus being given to the predictors and consequences of conflict between these two spheres (Hill et al. 2004). The majority of this work has been conducted in affluent Western countries motivated by challenges to the dominant male-breadwinner female-caregiver model caused by shifting gender roles and the increase in single parent families, and due to changing values of employers in recognition of the impact that work-family issues have for organisational functioning (Byron 2005). A limitation of this research is its narrow geographical focus, partly the outcome of assumptions of the greater compatibility of work and family in other cultural contexts due to differences in the importance attached to work and family, support provided by extended

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family and the predominance of the informal economy (Mokomane and Griffiths 2014). In particular sub-Saharan Africa (SSA) has been identified as a particular context in which a paucity of research exists (Aryee 2005, Mokomane 2013). Research from the West has highlighted the complexity of the links between multiple role commitments and individual outcomes, and has revealed a diversity of coping mechanisms used in the performance of daily life. However, the experience of combining work and family is likely to have a spatial dimension resulting from differences in cultural values, national policies and employment and family structure. Consequently, Western research may not fully capture the challenges and opportunities faced in the SSA context (Ayree 2005).

Whilst Ayree's (2005) discussion of the work-family interface in urban SSA suggests he perceives the challenge of balancing work and family in the region to be a new phenomenon restricted to women in formal wage employment, a review of the literature reveals concerns were first voiced in the late 1980s/early 1990s and were not limited to women of any occupational class. These anxieties are reflected in the emergence of concepts such as the *reproductive/productive squeeze* (Whitehead 1996 as in cited Oppong 2001), *zero sum game* and *time poverty* (McGuire and Popkin 1990). These arguments speculate that women in both the formal and informal labour sectors make trade-offs in order to fulfil their multiple roles to the detriment of their own and their children's wellbeing (Popkin and Doan 1989). Whereas in the West initial concerns about work-family issues of women were driven by women's increasing participation in the labour market, in SSA the weakening of extended family ties are central to these arguments. For example, Oppong (2001) highlights 'excess strain, conflict and vulnerability for working mothers' as a result of 'diminished opportunities for delegation and support' (p29) as processes contributing to the crisis of child malnutrition in the region. She attributes difficulties faced by mothers in providing adequate care to their children to their work demands (role conflict) and due to reduced access to support from members of the extended family. However, changes in women's economic roles are also noted in the region. Although female labour force participation in some African countries has a long history, structural readjustment policies are stated to have intensified women's economic roles (Overa 2007) contributing to issues of work-family combination (Oppong

2001). These changes will be evaluated and discussed in further detail in the background chapter of this thesis.

This thesis explores the intersection between work and family life among working mothers in the urban SSA setting using Accra, Ghana as a case-study. The thesis is primarily concerned with women as mothers, rather than women as members as households. However, in the discussion of roles attention is given to the domestic area as the performance of tasks such as cooking, cleaning and washing of clothes are also tied in with the upbringing of children. It is important to clarify that our focus is primarily on biological mothers' co-resident with their children. Women in SSA may have responsibilities for non-biological children, whether children of their partners by other women, or children that live in the same household, or through women temporarily or more permanently taking on the care role for fostered children. The mobility of children can also be an important part of how women themselves respond to the exigencies of work and caring for their children. The focus on a particular group was decided to allow for in-depth investigation; however research into the demands faced by other groups of women is no less valid. Please not refers are made in this thesis to the work (family) role, family (work) role, economic (maternal) role and economic (maternal) role. Where this terminology it is used it represents the relationship being considered is bi-directional. For example, role conflict is when the family (work) role affects the performance in the work (family) role. This sentence represents that role conflict includes the conflict that work causes to the performance of the family role, but also the affect that the family role can have on an individual's work role.

1.1   Study objectives

This thesis takes a mixed methods approach, with both qualitative and quantitative methods being undertaken to gain a greater understanding of the intersection between women's economic work and maternal roles. The research had four objectives:

1. to investigate the work-family coping strategies used by mothers to ensure the care of their co-resident biological young children. In

particular the study considers the influence of social categories and resource availability and constraint on the type of coping strategy adopted;

2. to examine the subjective experience of facilitation, conflict and balance of economic and childcare roles and understand the meaning of this experience for the lives of working mothers co-resident with their biological young children;

3. to explore quantitatively the consequence of women's combination of their economic and maternal roles for their own wellbeing through considering its association with women's mental and physical health, and

4. to explore quantitatively the consequence of women's combination of their economic and maternal roles for children's development through considering its association with co-resident children's educational outcomes.

This research was an exploratory and stepwise process whereby the third and fourth quantitative research objectives were the outcomes of findings discovered during the qualitative fieldwork which investigated women's coping strategies and lived experience.

1.2   Justification

This study is important for policy and research reasons. The scarcity of literature concerned with the interface between work and family in SSA has resulted in calls for research into the antecedents, impacts and coping strategies in this region (Aryee 2005). Through focusing on the combination of economic work and childcare in Ghana, this research will contribute to the understanding of a component of the operation of the work-family interface in a relatively understudied cultural context. In particular the qualitative dimension of this research will provide insights into women's perceptions of how well their economic and maternal roles fit together and how they manage the combination of these roles. These findings will assist in identifying specific difficulties, but also opportunities, faced by working mothers and the support mechanisms and successful strategies currently available and being used. Such

information will assist in formulating programs and interventions that are able effectively to assist women in the combination of their roles. The consideration of differences by women's social category membership and the availability of resources will help identify vulnerable segments of the population, and assist in the development of appropriate interventions sensitive to the different circumstances and requirements of specific groups.

Through increasing awareness of women's combination of roles, this research has the potential to promote the importance of taking a holistic perspective of women's lives. Policy makers often target women in either their roles as generators of income or as the primary care-takers of children (Glick and Sahn 1998), failing to recognise the reality of women's simultaneous performance of these roles. For example, in their investigation of survivorship of childhood kwashiorkor in Accra, Ghana, Douglass et al. (2007) discuss the highly demanding nature of nutritional rehabilitation programs in terms of time commitment. They highlight the importance of extended family support in ensuring compliance to programs and ensuring child survival, and although no direct evidence is gathered they conclude the likely inability of isolated working mothers to fulfil the program. In the sphere of child health, programs need to consider the central role of women as economic providers in addition to their roles as mothers and consequently the value of their time. The United Nations' Children's Fund (UNICEF) *The State of the World's Children Report 2008*, devoted to child survival, highlights the importance of empowering communities and households to participate in the healthcare of mothers, children and infants. However, time constraints are not acknowledged as a potential deterrent to the engagement with health services or the performance of health behaviours. It is not just UNICEF, but the public health establishment in general that does not acknowledge women's combination of roles.

1.3 Structure of thesis

The remainder of this thesis is organised into six chapters of which three are empirical papers.

Chapter 2 presents background information to the study. The geographical location is described and assumptions concerning social, economic and

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demographic transformations and their implications for women's workloads are reviewed. In particular, changes in labour markets, marriage and partnering, childbearing and family relations and household living arrangements, and their association with women's economic and childcare roles in Ghana will be considered.

Chapter 3 presents the conceptual framework underpinning this research. The chapter introduces concepts of the work-family interface developed initially in the West, such as role conflict, role balance and role enhancement, considering the mechanisms underlying these concepts and giving examples of their operation. The salience of these concepts is considered for the context of women's lives in Accra, Ghana, through a deliberation of women's contemporary domestic, childcare and working roles.

Chapter 4 presents the first empirical paper of this thesis 'Caring for young children: the experience of working women'. This chapter explores the daily negotiation of work and child-care and the lived experience of this role combination among women with young children using a mixed method approach. The Accra Urban Food and Nutrition Survey is used to identify the main childcare arrangements used by working women, and to detect differences by demographic and socio-economic characteristics (objective 1). Analysis of qualitative fieldwork conducted by myself is subsequently explored to investigate women's coping strategies beyond childcare arrangements and to gain an understanding of the micro-level processes and interpersonal relationships involved in women's strategies. Thirdly, results from the qualitative fieldwork are used to examine the subjective experience of facilitation and conflict and to gain an understanding of the meaning of this experience for the lives of working mothers (objective 2).

Chapter 5 presents the second empirical paper 'Childbearing and economic work: the health balance of women'. Connected to the third objective of this thesis, this chapter quantitatively explores the relationship between mental and physical health and work and maternal role performance among women with young children (objective 3). Data are used from Wave I and Wave II of the Women's Health Survey for Accra (WHSA); a longitudinal community based survey of women aged 18 years and over. Pregnancy histories are used to identify women who had given birth in the survey interval and still had a child

alive at the time of the WHSA II. Their change in health between survey waves was compared to women who did not have a child alive at WHSA II born in the survey interval.

Chapter 6 presents the last empirical paper of this thesis 'Intra and inter-generational relationships: influence of maternal employment and siblings on youths' educational outcomes'. This chapter quantitatively examines the relationship between maternal employment and children's educational progress, considering the status and sector of employment of mothers in addition to their work status (objective 4). Due to the emerging literature on the financial contribution that siblings can also provide, attention is also given to children's birth position among co-resident siblings and whether they have any non-co-resident siblings. Three levels of educational progress were defined; the timely completion of primary and Junior Secondary School (JSS) and the timely attendance of Senior Secondary School (SSS). Data are used from a 10% sample of the 2010 Ghanaian Population and Housing Census restricted to urban areas of the Greater Accra region.

Chapter 7, the concluding section of this thesis, summarizes the main findings and discusses the limitations of this research: first, the problematic definition of a household used by quantitative data sources of this survey; second the narrow focus on women's economic and maternal roles and the consequent implicit assumption of the validity of women's time use; and third the limitation in the modelling strategies.

2. Background to study

This chapter presents background information to the study, describing the geographical and social context of the study site and reviewing the literature concerning social, economic and demographic change and its implication for women's combination of their economic and childcare roles. In particular changes in the labour market, marriage and partnering, childbearing, family relations and household living arrangements will be considered.

2.1   Study location

Ghana is located along the Coast of West Africa bordering Cote D'Ivoire, Burkina Faso and Togo. Results from the 2010 Population and Housing Census places the population at 24,223,431, a 28% and 97% increase since 2000 and 1984 respectively (Ghana Statistical Service; GSS 2011). The country is divided into ten administrative regions: Upper West, Upper East, Northern, Brong-Ahafo, Volta, Ashanti, Eastern, Western, Central and Greater Accra. The broad geographical scope of this thesis is urban areas in the Greater Accra region. Whilst this is the smallest of Ghana's regions in terms of land surface, it is has the second largest population after the Ashanti region with 4,010,054 people (GSS 2011). The region is divided into ten districts; Ga South, Ga West, Ga East, Accra Metropolis, Adenta, Ledokuku/Krowor, Ashaiman, Tema, Dangbe West and Dangbe East. This region contains the capital of Ghana, Accra. As discussed in the introductory chapter different datasets are used in this thesis and consequently the precise geographical spread of each analysis differs (Table 2.1).

Table 2-1: Datasets used by this thesis and their study locations

Chapter	Dataset	Research Objective	Geographical location
4	Accra Urban Food and Nutritional Security Survey	Variations in the childcare strategies used by working mothers	Accra Metropolitan Area, Tema, Ga West and Ga East
5	The Women's Health Survey for Accra	The influence of maternal employment on women's own health	Accra Metropolitan Area
6	Ghanaian Population and Housing Census	The influence of maternal employment on youth's educational progress	Ga South, Ga West, Ga East, Accra Metropolitan Area, Adenta, Krowor, Ashaiman, Tema, Dangbe West, Dangbe East

2.2   Social background

As the basis of social organisation, ethnicity embodies norms and beliefs that influence household organisation and everyday behaviour and interaction (Takyi 2001). The Greater Accra region is one of the most ethnically diverse areas of Ghana inhabited by all the major ethnic groups. The Akan (39.7%), Ga-Dangme (27.4%) and Ewe (20.1%) form substantial parts of the population (GSS 2011). Upon birth every Ghanaian becomes a part of a lineage bound by either common flesh or blood acquired through the mother or through a spirit derived from the father (Awusabo-Asare 1990). The Akan are organised by a matrilineal descent system whereby membership is determined through the mother. The Ga-Dangme and Ewe are partrilineal where descent is traced through the male line.

In terms of religion both Christianity and Islam have experienced considerable diffusion in Ghana. Islam is thought to have first emerged in the North of Ghana before the 17th Century (Nukunya 2003) and has roots in the trans-Saharan trade which bought contact with Muslim Arabian traders and traders from East African countries (Ardayfio-Schandof 2006). Increased migration flows from North to South Ghana have spread Islam to urban areas of the South such as Accra. In contrast Christianity is a relatively newer religion to Ghana. Although Europeans first arrived in Ghana during the 15th century it

was not until the early 19th century that a formal church opened (Nukunya 2003). The establishment of formal schools by missionaries marked attempts to introduce Christianity and this was located mainly along the Coast of Ghana. In contemporary society Christianity is the predominant belief system in the Greater Accra region constituting 83% of all religious affiliation (GSS 2011). Pentecostal (45%), Protestant (22%) and Catholic (7.5%) membership is prevalent. Islam forms the second largest religious group with 12% of the population being identified as Muslim. 3.4% of the population stated in the 2010 Population and Housing Census they had no religion whilst less than 2% identified themselves as being traditionalist or having a religion specified as 'other'.

2.3   Socio-economic trends

2.3.1   Economic recovery programs

Female labour force participation is relatively high in Ghana at 67% (World Bank 2013). Female engagement in economic activity has been strong historically (Overa 2007) with women having a long past in trading as shown by this first description dating back to 1600.

"Women buy, and carrie them to other towns within the land to get some profit by them, so that the fish which is taken in the sea is carried at least an hundred or two hundred miles up into the land."

De Marees (1600) cited in Robertson (1984)

By the 17th century, Ghana was a major commercial player in the West African region and Accra being located on the coast placed it on a main trade route (Robertson 1984). Due to the lack of expertise of European traders, women in Accra were important intermediaries with producers and consumers further in-land, for example the intercontinental Asante traders (Clarke 1994). During the colonial period women's prospects in trading were further expanded. The introduction of Western education opened up opportunities in colonial administration, whilst the system of extracting and exporting natural resources created wage employment in the mines. Although gender ideologies restricted women from this formal employment, the movement of men into

this sector opened up previously male dominated areas of trading to women (Overa 1992). As trading became defined as a feminine occupation marketplaces evolved into organised systems, for example with the emergence of 'commodity queens' (Clarke 1994). It should be noted that whilst in the colonial period inequalities existed between women traders, it is argued the economic crisis of the 1970s and the introduction of Economic Recovery Programs (ERPs) in the 1980s limited opportunities for women within trading further, a process which will be described further below.

Upon independence in 1957, Ghana had one of the most promising economies in Africa having a strong infrastructure, an educated workforce, an established system of primary exports and clear development plans (Konadu-Agyemang 2000). However, by the 1970s Ghana's economic prospects had dramatically changed. The economy recorded an annual average growth of -2.2% between 1975 and 1982, with an average annual inflation of 64.9% and a balance of payment deficit of $6.8 million (Baah-Boateng 2004). In this context World Bank and International Monetary Fund sponsored ERPs were implemented in 1983 to manage the crisis. Although it is argued that the ERPs rescued the Ghanaian economy from near collapse, the implications of such policies at the micro level are debated due to their influence on employment trends (Konadu-Agyemang 2000) which has occurred along gendered lines. Between 1985 and 1991 employment in public workplaces fell by 60% as a result of government retrenchment (Hilson and Potter 2005). Traders are consequently facing competition from women who in previous times would have entered waged employment or been supported by their husband's earnings (Overa 2007). Furthermore the characterisation of trading as feminine has become distorted as men 'lacking other opportunities, mingle with female hawkers in the streets' (Overa 2007, p542). This overcrowding combined with the lower purchasing power of customers has reduced the potential profits of enterprises resulting in longer working hours being required to generate basic incomes.

Additionally the modification of the role of women as mothers to provide economically for their children has occurred due to the intersection of macro-economic restructuring and changing gender relations. Using rural and urban Tanzania as a case-study Silberschmidt (2003) documents the gendered response to economic instability. Whereas unemployment and

underemployment have undermined the male role of a breadwinner, women have been active agents increasing their contributions to the household economy. Where women have to allocate an increasing proportion of their earnings to the household economy, this hinders their ability to accumulate financial capital to investment into their businesses (Overa 2007). This phenomenon of increasing female financial input is also recogniSed by Whitehead's (2002) longitudinal case studies of household livelihood strategies in the North-East of Ghana. The increased importance of mothers' incomes has additionally been influenced by neo-liberalism through the retrenchment of government spending increasing the costs of basic services for households (Overa 2007). This has happened despite recent shifts, for example the introduction of the Capitation Grant in 2006 which abolished school fees at the basic level (Osei et al 2009). This disruption of traditional gender roles has been noted by Silberschmidt (2003) to have resulted in new social identities in rural and urban Tanzania as reflected in the emergence of the image of 'strong women' (p662).

2.3.2 Education

Upon independence, Ghana was a leader in education in SSA (Akyeampong 2009, Little 2010, Peil 1995). The 1945 10-Year Education Expansion Plan and the 1951 Accelerated Development Plan invested in infrastructure and abolished tuition fees at the primary level. Nkrumah's 1961 Education Act, under the new independent government, expanded this focus and investment to middle schools, technical schools, polytechnic institutions and universities (Little 2010). The 1960s saw the most rapid increase in school enrolment recorded in the post-colonial era. Nonetheless, poor economic growth in the 1970s, described in Section 2.3.1, resulted in a fall in government spending on education from 6.4% of revenues to 1.5% between 1976 and 1983 (Akyeampong 2009). This declining investment saw educational standards decline dramatically and bought the educational system near to collapse. The poor economic context also resulted in the emigration of trained teachers out of the country reducing the ratio of qualified to unqualified teachers (Little 2010). This decline in quality contributed to the lowering demands for education as seen in the negative growth rates of enrolment between 1981/82 and 1985/86. For example, for the year 1985/86 the growth rate for primary

school enrolment was -9.50% (Akyeampong 2009). The ERPs introduced in 1983 also meant continued difficulties faced by households in affording education for children. Retrenchment in government spending saw the transfer of the costs of education to parents with the reinstatement of fees at the primary level and increases at higher levels, increasing the cost of education in a period that per capita income was declining (Akyeampong 2010). The consequence of the economic crisis on education, like employment, also occurred along gender lines. Due to prevailing cultural norms and segmented labour markets, where parents were faced with a choice (due to financial constraints) of which children to educate, males were frequently favoured (Shabaya and Konadu-Agyemang 2010).

Educational restructuring formed the basis of the 1987 reforms which aimed to improve and equalise access to education. JSS (3 years) replaced middle schools (4 years) and was combined with primary schooling to form basic education. SSS was reduced from 7 to 4 years (Little 2010). Whilst enrolment did start to increase in the late 1980s it was not until the late 1990s and 2000s that progress became considerable. 1996 saw the launch of the Free Compulsory Universal Basic Education program (FCUBE), which like previous policies aimed to improve quality through curriculum redevelopment, teaching training and the provision of free education. It should be noted whilst the government abolished school fees at the basic level, this level of schooling still incurred access costs due to schools charging various levies (Akeampong 2009). It was not until the introduction of the Capitation Grant Scheme in 2005/06 that this issue was addressed through the payment of US$3 to schools for very child enrolled in basic education. In conjunction with these policies there has been particular focus on increasing the access of girls as seen in the creation of the Girls' Education Unit in 1997 (Tuwor and Sossou 2009). Whilst the male primary gross enrolment ratio[1] increased from 87% in 1987 to 109% in 2013, the female rate has seen a greater increase from 62% in 1987 to an equal 109% in 2013 (United Nations Educational, Scientific and Cultural Organisation; UNESCO 2013). Similar trends have been seen at the JSS

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[1] The gross enrolment ratio is the number of students enrolled into a specified level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education. This ratio can consequently exceed 100% as children who are younger or older than the official age group may be attending specified levels of schooling.

level with gross male and female enrolment increasing by 22% and 27% respectively since 1999.

This extensive increase in educational enrolment in the last two decades, especially of girls, could have had consequences for women's combination of their maternal and economic roles. Gender norms have specified domestic activity and childcare as female tasks, and consequently older female children and youth are important sources of assistance (Chimombo 2005, Glick and Sahn 2000, Lloyd and Gage-Brandon 1994). Whilst education has not diminished this role of children, it is likely there has been a change in the temporal patterns of assistance with this being restricted to the periods after and before school, weekends and holidays. Whilst flexibility exists in the performance of certain tasks, youths' time restrictions in the ability to provide childcare may have resulted in new childcare arrangements and negotiations being made by mothers.

Despite the deterioration in education in the 1980s, combined with gender inequality in both this institution and the Ghanaian labour market, females are present in the formal sector including professional and managerial fields, although as a minority. Most opportunities for this form of employment exist in the capital Accra due to the high concentrations of major organisations and institutions (Sackey and Sanda 2009). In 2000 of women aged 15 years and older employed, 6.9% were in professional/technical, administrative/managerial or clerical occupations, compared to 4.3% in 1984 (Agyeman-Duah et al. 2006). Sackey and Sanda's (2009) study of mental health among lower and middle management professional women in Accra found these women conform to social norms of childbearing and have a strong sense of family orientation resulting in the requirement of women to negotiate a 'delicate balance between home and career' (p885). Institutional factors which could influence the combination of this form of formal labour with women's maternal role, such as schedule inflexibility and restrictions on bringing children into work, will be discussed in Chapter 3.

2.3.3 Human Immunodeficiency virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS)

HIV/AIDS is an important consideration for the combination of economic work and childcare in the SSA region. SSA is disproportionately affected by HIV/AIDS with 68% of the global population (approximately 22.5million) with this disease residing in the region (UNAIDS 2013). Community/home-based models of care, placing families at the centre of care of those with HIV/AIDS, have developed and become a primary strategy in many countries (Ncama 2005). There is a deficiency of quantitative studies that document time spent on HIV/AIDS related care, as often care-work is aggregated into a single category, however Akintola's (2008) review of the qualitative literature suggests care-giving for an HIV/AIDS infected individual is an intense process with between 3 to 12 hours of care a day being provided for bedridden patients. The majority of this time is devoted to nursing activities. Gendered connotations of care roles suggest that women will make up the majority of HIV/AIDS carers, a proposition supported widely by the literature. For example, a quantitative survey of four home-based care organisations in South Africa found that 78% of primary caregivers were women (Homan et al. 2005). Therefore women face opportunity costs in terms of restricted time available to participate in economic labour but also to provide care to their biological children. For example, Akintola's study of rural South Africa found that some families face reductions to household incomes due to absenteeism and the reduced economic working hours of caregivers. However, Akintola also noted frequently those providing care are not in employment. Heymann et al. (2007) also show these issues are faced for family members taking on the parental role for children who have been orphaned by HIV/AIDS. Using the Botswana Family Needs Survey they discovered women caring for HIV/AIDS orphans reported having to take unpaid leave from work and being unable to participate in supplementary income generation through overtime or weekend work due to these responsibilities. Women caring for HIV/AIDS orphans were also found to be spending fewer hours caring for their own biological children compared to mothers who did not have parental responsibilities of orphans.

However, it must be recognised that SSA is not homogenous with respect to the HIV/AIDS epidemic. Prevalence is highest in Southern Africa, 17%, 12% and 14% of adults aged 15-49 years are HIV positive in South Africa, Zambia and

Zimbabwe respectively for example (UNAIDS 2013). In comparison West Africa has a relatively low prevalence. In the country of interest of this study, Ghana, HIV prevalence is 1.2% suggesting a lower importance of the consideration of the impact of HIV/AIDS on the combination of work and childcare of women in comparison to countries with higher prevalence levels.

2.4 Demographic trends

2.4.1 Fertility

Ghana is considered a leader in the tropical African fertility decline. At the national level between 1988 and 2008 the total fertility rate (TFR) fell from 6.4 to 4.0 (GSS, Ghana Health Service (GHS) and ICF Macro 2009). However this statistic hides divergent trends and levels between urban and rural fertility. Urban fertility began to decline slowly in Ghana from 1965, picking up speed from 1975 (Garenne 2008). The onset of the rural decline was delayed by 20 years starting to fall in 1985. Differences in fertility levels are still evident today with the TFR in rural areas being estimated as 4.9 compared to 3.1 in urban areas (GSS, GHS and ICF Macro 2009), whilst focusing on the Greater Accra region fertility is near replacement level (WHSA Writing Team 2011). Although the number of biological children a woman has is declining, it is argued the role of biological mothers in activities of childrearing are intensifying with there being a shift towards greater personal responsibility in parenthood (Oppong 1983). This is firstly reflected in the decline in the prevalence of fostering in the last three decades (discussed in Chapter 3), but it is also occurring in the everyday care of co-resident children. The interaction of national and global trends at the household level has resulted in the development of several household strategies designed to protect the household from increasing vulnerability (Oberhauser and Yeboah 2011). Feminisation of rural-urban migration has emerged as the female dominated occupations of trading and small-scale agriculture in the Northern region has been the most affected by the changing economic environment. Oppong (1983) highlights the dispersal of kin as one component contributing to the changing roles of mothers. As noted previously friends and neighbourhoods can be important sources of assistance, and this is especially true in the urban

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Ghanaian context where compound residence is common and as reflected in the elevation of individuals to kin status (Hansen 2005). Nonetheless, the deepening of neighbourhood connections and building of trust takes time to develop. Secondly, livelihood strategies have involved increasing the number of household members engaged in productive labour (Owusu 2007) which has been argued to have reduced the availability of kin. Nonetheless, as will be discussed in further sections physical dislocation or commitments of kin has not completely eroded this form of assistance.

There are increasing concerns in the SSA region regarding rising levels of pre-marital childbearing (Gage-Brandon and Meekers 1993). Longer durations of schooling are widening the gap between the onset of menarche and marriage for females, yet at the same time the diffusion of Western notions of romantic relationships and the erosion of parental authority is argued to be increasing sexual activity among youth. In the context of low contraceptive use sexually active non-married women are at risk of pre-marital childbearing. Although Ghana exhibits low levels of premarital fertility compared to Southern Africa, apprehensions of a rising trend of out-of-wedlock births have been noted (Agyei et al. 2000, Kwankye 2005, van der Geugten et al. 2013). Whilst the median age of first sexual intercourse among women aged 25-49 years has increased in the last decades, this has been to a lesser extent than the median age at marriage, increasing the duration between these two transitions (GSS, GHS and ICF Macro 2009). In line with this the level of premarital childbearing as recorded by the Ghana Demographic and Health Surveys (GDHSs) has risen from 9% in 1988 (Gage-Brandon and Meekers 1993) to 14.2% in 2003 (Gareene and Zwang 2009).

Premarital fertility is leading to concerns about women's combination of their work and childcare responsibilities due to potential isolation from kin. Yet it should be noted that tolerance of premarital childbearing varies between ethnic groups in Ghana (Addai 1999). Premarital fertility has been less stigmatized among the matrilineal Akan where children belong the maternal line regardless of mothers' marital status at the time of birth (Addai 1999). Among patrilineal groups, where children belong to the paternal line, a father's recognition of his offspring is more important. Nonetheless, among Nkyi's (2013) support intervention for single parents in Ayeldu Ghana participants were found to have small concerns regarding social isolation, an outcome

attributed to these individuals being embedded in extended family networks. Whilst engagement in premarital sexual relations has been found in some circumstances to be based on material provision from men to females (van der Geugten et al. 2013), a further concern about premarital childbearing is the intensification of the economic role of mothers to provide materially for their child due to deficient support from fathers. The case study of Mamuna, a 16 year old from Accra, in Kumi-Kyereme et al.'s (2007) fieldwork among youth gives the example of the father refusing to take responsibility, including of the financial kind, for their illegitimate child. Mamuna's problem was further compounded by the loss of accommodation due to the negative attitude of her landlady's husband towards unwed mothers. Van der Geugten et al.'s (2013) qualitative study also revealed the repudiating of responsibilities by fathers, and their families, due to their questioning of the virtue of the mother and the biological parentage in cases of premarital childbearing.

2.4.2 Urbanisation and migration

Ghana is urbanising rapidly, whilst 15% of the population resided in urban areas in 1940, this figure had grown to 51% by 2010 and is projected to rise to over 70% by 2050 (UN 2011). The Greater Accra region is the most urbanised with 87% of its population living in urban areas (Songsore 2009). Its capital Accra is one of the fastest growing cities in the West African region (Grant and Yankson 2003). Regional disparities have roots in the colonial period when the Northern region was deemed of little economic value resulting in the underdevelopment of this area. Instead this population was seen as an important labour reserve for the cocoas and mining industries in the South (Isaac and Raqib 2013). This migration was frequently not permanent but seasonal reflecting the peak and off periods of agriculture in the North. It was the major industrial development initiated upon independence which sparked rural-urban migration in addition to immigration from neighbouring African countries. Development was concentrated in Accra, Tema, Kumasi and Sekondi-Takoradi in Southern Ghana building upon the infrastructure put in place during colonialism. The extension of road infrastructure during this period also encouraged migration through reducing transport costs, but also through lowering the risk of migration as increased communication flows increased knowledge of destinations. Between the 1960 and 1970 censuses, Greater

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Accra's share of Ghana's population increased from 7.3% to 10% despite this region experiencing the smallest natural increase (Anarfi et al. 2003).

Urbanisation, however, has not been a linear process in the Greater Accra region. The percentage living in urban areas experienced a decline between the 1970 and 1984 Census (Songsore 2009). The economic crisis of the 1970s, described earlier, stimulated the emigration of workers from Ghana to Nigeria and the Cote d'Ivoire and reverse migration to rural areas, with policies favoring agricultural trade introduced in 1983 reinforcing the latter process. More recent analysis reveals that urban migration is again the predominant movement in contemporary Ghana. Using the Fifth Round of the Ghana Living Standards Survey, Ackah and Medvedev (2010) found 80% of migrants identified by households had moved internally, and 70% to urban areas. The northern regions, where levels of poverty are concentrated, have been identified as an origin of rural migrants in the Greater Accra region (Canagarajah and Portner 2003). Ackah and Medbedev (2010) highlight that whilst the majority of migrants come from rural areas (75%), most migrants originate from the southern regions.

A core argument surrounding the intensification of women's childcare roles in SSA (Oppong 2004) is the decline of instrumental support as a result of the dislocation of kin. Whilst the expression of cooperation between kin may be made difficult by increasing physical separation of residence, it does not necessarily result in the absence of support. For example, in Badasu's (2003) study of childcare among Ewe migrates to Accra, the case-study of Enyonam describes how for two months after childbirth her mother, who lived in another village, visited, and how after the hospitalization of her children her husband's sister came to stay to provide assistance with childcare. These examples show whilst kin may be restricted in their ability to provide daily support, assistance is still provided in critical periods. Maqubela's (2014) PhD fieldwork into parenting among formal workers in South Africa presents the case study of Tiki who described how childbirth strengthened her kinship ties despite initial physical distance. In this circumstance Tiki travelled to her mother's home prior to childbirth and stayed throughout her maternity leave, bringing her mother to her home upon the resumption of her job until her child was 18 months. Migration may also result in the changing of relations in terms of

support being provided by nearby kin who under normal circumstances would have not been the main source of assistance.

The two major urban centres in the Greater Accra region are Tema and Accra. Accra existed as an urban centre prior to the colonial period due to its importance as a coastal port. The urbanisation of Accra is a different process from that experienced by Europe, as it occurred outside the context of economic development (Henderson et al. 2013, Songsore 2003). Accra is a site of administration and consumption, a result of being the central location of the colonial government. Due to a deficiency of production and industry, Accra has become a site of concentrated poverty as well as affluence (Songsore 2009) as the formal sector fails to absorb a large majority of labour. This, combined with the speed of urban population growth and deficient urban planning has resulted in haphazard development. This characteristic of disequilibrium in Accra has roots in the colonial period where urban planning was only applied and financed by the colonial government in areas inhabited by expatriate and civil servant workers. Such areas were segregated from the haphazard growth of indigenous and later migrant communities. Focusing on Accra, Brand (1972) reveals the spatial organisation of residential areas showing the existence of concentrated differences in development indicators such as population density, unemployment, the schooling of children and the education of adults across the city. In contrast to Accra, Tema is a relatively new urban centre whose growth emerged as a result of the construction of the Tema Habour in the 1960s (Nukunya 2003). As a result economic activities are dominated by industry. Unlike Accra, housing has been highly regulated with accommodation only being provided to government employees and those employed by large industrial firms. Nonetheless, the exclusion of some workers from this accommodation has resulted in the development of satellite settlements on the fringe of Tema and the construction of temporary dwellings at the harbour.

A consequence of rapid urbanization on the urban landscape is the emergence of slums. In Accra 38.4% of the population are estimated to be living in slums with 78 slum settlements being identified (United Nations Human Settlements Program: UNHABITAT 2011).The settlement of Ashaiman, population 150,000, in the Tema district is seen to be one of the largest slums in Ghana. Whilst it is widely seen that slums consist of an absence of

infrastructure and amenities, insecurity of tenure status and overcrowding, little literature exists concerning the enumeration of slums, and what authors or agencies believe constitutes a slum is often vague (Milbert 2006). The United Nations' operational definition of a slum house consists of the absence of any of access to safe water, security of tenure, sanitisation, sufficient living area, and structural quality and durability. However, Jankowska et al. (2012) notes if this criterion is used only 6% of households in Accra would be classified as non-slum. The creation of a dichotomous variable, slum or non-slum, additionally does not recognise that a diversity and variability of conditions exists within settlements brushed with slum status. For example, in Accra 83% of slum settlements have secure tenure status meaning their residents are not at the risk of eviction (UNHABITAT 2011).

Despite identification and definitional issues, environmental hazards, insufficient infrastructure and poor access to basic services in some urban landscapes have put strains on women's time (Tacoli 2012). The 2008 GDHS reports access to an improved drinking water source is high in urban areas at 98% (United Nations Development Program 2012). However, this statistic does not capture issues such crowding at service points, reliability of service, seasonality and price variations which all can influence use of a water source (Songsore 2009). For example, Yankson and Gough (1999) found that in Accra the supply of piped water can be poor. In public facilities the demand for water can outstrip supply so even where families have access to taps provision can be unreliable. Focus group discussions found these issues had the biggest impact for women whose responsibility it is to source water. There is also a reliance of low-income households on vendors for water, a cost that can amount to 10% of the household's monthly income (Songsore 2009). This cost may put significant pressure on the economic role of mothers. Conversely, urbanisation, through placing strain on access to housing, could unintentionally result in the continuing of instrumental support for childcare, easing role combination. The housing deficit in Ghana has been estimated to be between 750,000 and 1.3 million units (Arku et al. 2012). Issues in the provision of adequate housing in urban areas contribute to the existence of multi-generational households. The sharing of compound housing is common among both migrant and non-migrants due to cheaper rent. Co-residence with

other households could provide new opportunities for sources of informal support.

2.4.3 Ageing

In the SSA region Ghana is a country with one of the highest proportions of its population aged over 60 years (Mba 2010) with a figure of 5.4% for 2010 (United Nations 2014b). By 2050 this figure is expected rise to 10.5%, representing an absolute increase from 1.3 million to 4.8 million. This ageing population has the potential to create opportunities or strains for women's combination of their work and childcare roles. The longer survival of women in particular could result in it becoming easier for mothers to combine roles through the provision of instrumental support by older relatives. Apt's (1996) study of social change and the older population in Ghana concluded that grandmothers remain key for the functioning of family life, contributing significantly to childrearing as well as domestic activities such as food preparation. Mba's (2007) exploration of living arrangements of individuals aged 60 years and over reveals that 70% of older women in Ghana are living in the extended family setting suggesting the potential of these individuals to assist in day-to-day childcare

However, whilst there has been an increase in the numbers over the age of 60 years in Ghana these individuals may not necessarily be entering older age in good health. The WHSA, the first panel survey of health in urban Africa, revealed substantial health issues for older women in Accra. 42% and 8% of the sample had been diagnosed with hypertension and diabetes respectively, whilst 56% and 46% self-reported chronic pain and blurred vision (Duda et al. 2011). With limited social security and social and health services available the family is the main source of care (Apt 1996). Whilst previously the extended family provided support for the elderly, changes in relations has seen this responsibility shift to the nuclear family, particularly children (Aboderin 2004, Annor 2014). This may be creating a sandwich generation where adult children are responsible for financially and instrumentally caring for their children and elderly parents simultaneously. Mba's (2007) analysis of living arrangements in Ghana found that the oldest old (those aged 80 years +) are more likely to be living in the context of the extended family than the youngest old (those aged

60-69 years). The oldest old are those who are more likely to be in the need of assistance and the most limited in their provision of support due to the decline in functioning and health with age.

2.5 Social trends

2.5.1 Living arrangements

Living arrangements are often unique to a particular ethnic community (Axinn and Ghimire 2013) with a diversity of compositions being identified in Ghana. In patrilineal groups residence is normally patrilocal, an arrangement where a married couple lives in the husband's family compound resulting in generations of men from the same family living together. Alternatively residence is virilocal, an arrangement where a couple lives in a house provided by the husband and is located near his family. However, the patrilineal Ga depart from this pattern practicing duolocal residence where man and wife live separately after marriage in their natal homes. Male compounds are referred to as hiiamil, whilst females live in yeiamli (Nukunya 2003). Among the matrilineal Akan matrilocal and uxorilocal residence is custom. In matrilocal residence couples live together in the wife's family compound resulting in the co-residence of the extended family based on maternal relatives, whilst in uxorilocal residence a couple takes up residence near the wife's family. Although rules of residence exist, which vary according to ethnicity, complexities and alterations are bought in by the realities of daily life. For example, among groups practicing patrilocal living arrangements daughters may return to the parental home with their children after marital separation (Nukunya 2003).

Annim et al. (2013) argue that as a result of modernisation, migration and urbanisation, a process of physical nucleation is occurring whereby household living arrangements are moving away from an extended family structure to being formed of a couple and their biological children only. A consequence of this movement could be a decline in the flexibility of kin to provide instrumental assistance to women with the care of their children and associated domestic responsibilities such as the preparation of food. Despite separate residence kin may remain living in nearby households being able to maintain support. Furthermore, Annim et a.'s (2013) descriptive analysis of the

GDHSs does not support this conclusion. Focusing on children under the age of five, in 1993 the percentage of households of a core or semi-nuclear composition was 62% whereas in 2008 this figure was 64%. An increase of 2% over a 15 years period does not signal a considerable shift in living arrangements.

Associated with concerns of rising levels of divorce and premarital childbearing in Ghana are anxieties over the escalating number of female headed households (FHHs). Lloyd and Gage-Brandon (1993) note that in the 27 year period between 1960 and 1987/88 the percentage of households headed by a female increased by 7% to 29%. However, using more recent data from the GLSSs, and focusing on urban areas, there appears to be a stabilisation in the percent of FHHs with levels being recorded as 35% in 2005 (GSS 2006) compared to 36% in 1991 (GSS 1992). FHHs are not a recent phenomenon. Among the Ga-Dangme customarily men and women, even when married, live separately in compound residences with male children living in the mother's household until the age of ten (Levin et al. 1999). Consequently, in these households the heads may be older women who are often the grandmothers of any co-resident children (Lloyd and Gage-Brandon 1993).

Headship in Ghana is usually defined by age and sex with women only assuming this position when there are no males present in the household. This has led to concerns that women are maintaining these households alone without male support (Oppong 1999). This could influence the combination of work and childcare of mothers through intensifying their economic roles. Investigating the demographic characteristics of households with children resident using the First GLSS, Lloyd and Gage-Brandon (1993) found that 67% of households headed by a female aged 15-59 years contained no males aged 15-59 years. Similarly Levin et al.'s (1999) study of food security in the Greater Accra region found that 89% of FHHs with children under the age of three present contained no male adult. These differences in household demography are likely to influence the labour resources of household members due to gender inequality in labour markets. In Levin's study of the Greater Accra region, whilst 75% of women's primary income-generating activities involved self-employment, 60% of men's primary activities were waged employment suggesting the greater vulnerability of incomes of FHHs. Nonetheless, the

absence of men from the household does not necessarily mean an absence of male financial support to the household. Levin et al. (1999) reveal the reliance of FHHs on inter-household transfers, which may include flows from male to female members of a family. In this study remittances and transfers made up 43% of FHHs' incomes in comparison to 8% of the incomes of male headed households. This finding is also supported by Lloyd and Gage-Brandon (1993), although they reveal a difference by the marital status of the head further suggesting the financial linkages between non-resident spouses. 62.5% of married female heads aged 15-59 years received remittances in comparison to 36% of female heads who were divorced or separated.

2.5.2 Family relations

Nukunya (2003) defines the extended family as a social arrangement in which individuals are embodied in a network of relations outside the immediate family characterised by duties, obligations and responsibilities. Although members of the extended family may be co-resident, these ties also extend over space with the domestic boundaries of a household in reality not being restricted to a single location. Parental responsibilities in Ghana cover nurturance, training and sponsorship to adulthood, but in practice these activities have customarily been supported heavily (or in some circumstances assumed wholly) by members of the extended family. However, it is argued that social, economic and political factors have resulted in the compression of genealogical ties as seen in the narrowing of reciprocal obligations to the immediate family (Nukunya 2003). This increasing isolation of mothers from traditional support networks is at the core of arguments of women's role intensification in SSA. Oppong (1977, 1999, 2001) writes extensively on the disintegration of the lineage system resulting in the functional isolation of the nuclear family, and the consequent outcome of women facing the dilemmas of enacting their economic work and childcare roles without the assistance of kin.

Modernisation theory posits that a weakening of family ties has occurred as a result of greater unwillingness of kin to be involved in networks of reciprocity (Aboderin 2004). In support of this Van Donge (1992 as cited in Campbell et al.1995) writes of Dar es Salaam an atmosphere of resentment among some due to the increasing number of kin dependent upon them. Oppong's (1974) study of male civil servants also observed their resistance to providing support

to extended family members. The primary driver for this is seen to be the adoption of Western values such as individualism partly as an outcome of Western education. Simultaneously education has undermined the traditional system of authority reducing the enforcement of kin's duties. Whilst age was previously the basis of respect and leadership, with education, especially literacy skills, the position of youth within the family is being heightened. Mead (1970) (as cited in Nukunya 2003) notes that with changes in education the system of knowledge transfer is being transformed from a post-figurative style (learning by children from the generations above them) to a pre-figurative style (the dependency of kin on youth for their literacy skills). The influence of the family is also being replaced by that of peers as schooling results in greater interaction with these individuals. Alongside education the process of commodification has also undermined the authority of the family through reducing the dependency of youth on kin for economic survival. Nukunya (2003) notes this process began with the introduction of a monetized economy during colonialism. The resultant uniform currency gave individuals the ability to sell their own labour, whilst the growth in mining, cocoa and fishing provided economic opportunities. Amanor (2010) also discusses how increasing scarcity of land in the 1970s also encouraged the economic independence of youth as their labour no longer guaranteed them access to family land and property due to competition between family members. In contrast to modernisation theory, the political economy perspective believes the driver of changes in kin relationships is changing economic circumstances. The capacity of family members to provide support has been reduced due to an increase in the scarcity of resources. With respect to instrumental support to mothers, Cassirer and Addati (2007) have noted the greater requirement of individuals to participate in labour force activity reducing their ability to provide childcare assistance.

In addition to the modernisation and political economy perspectives, it is argued that family ties have been undermined by changes in statutory law concerning inheritance which has strengthened bonds between conjugal partners. Under customary law the deceased's estate is devolved to his extended kin. Inheritance rules differ between matrilineal and patrilineal groups, but a common feature is the absence of widows' rights to their deceased spouse's property (Kutsoati and Morck 2012). Under matrilineal

norms, where descent is through the female line, a man's children are not seen to be his blood relatives and property is passed to maternal relatives. The Akan adage 'wofe woho nti me nye egye ma', 'I have a rich uncle, I don't need a job' reflects the common practice of property being transferred to the deceased sister's son – the closest blood kin in the next generation. Among patrilineal groups property is passed down through the male line. Nonetheless, not every child of the deceased may gain access to inheritance but this, and the share distributed, is determined by the lineage (Kutsoati and Morck 2012). Whilst under both systems widows and children are meant to be maintained by the deceased's family, abuses of this customary law are noted to be widespread with cases of wives and children being left destitute being observed (Laird 2011). Whilst customary law only applies to where an individual dies intestate, the practice of leaving a will is rare in Ghana (Kutsoati and Morck 2012). In recognition and response to this reality the Intestate Succession Law was introduced in 1985. Under this law household chattels or household belongings in regular use, such as furniture, are left entirely to the nuclear family. Where the deceased also owned properties the nuclear family has right to the inheritance of one of these, with the remainder being distributed to the extended family. Residual assets, or business and investment assets, are distributed between the extended and nuclear family according to Section 5-11 of the Law. Where all spouses, children, parents and the lineage are surviving property is distributed as 3/16 to the spouse, 9/16 to children, 1/8 to parents and 1/8 to the lineage.

Despite the suggested decline in family relations, evidence is found in the literature of continued kin support in relation to childcare. For example Douglass et al.'s (2007) qualitative investigation of kwashiorkor survival in Accra uncovered the active participation of extended female kin in both collective decision making and childcare. In Cock et al.'s (1984) study of working mothers in Soweto, South Africa, 50% of participants with preschool children were being supported by kin. Furthermore whilst modernization theory suggests a disinclination of kin of provide support to family members in contemporary society, research by Aboderin (2004) suggests instead that ties are becoming increasingly based on reciprocity which could suggest a strengthening of family bonds. This qualitative study of material support for older people in urban Ghana found that adult children felt no obligations to

support their elderly parents with this support being conditional on their perception of the support and assistance provided by their parents to them previously. However, similarly to the argument put forward concerning children's increasing educational attendance, the greater economic commitments of kin outside the family does not necessarily mean the removal of their support but instead it might just result in a change in the temporal pattern of their assistance. Lastly, the effect of the introduction of the Intestate Law on kin relations is likely to be restricted. Despite the enactment of this Law two decades ago customary law still frequently governs the distribution of estates after death due to lack of knowledge of the Intestate Succession Law and lack of access to the judicial system (Kutsoati and Morck 2012). For example, a survey in Accra, Kumasi and Koforidua, by the International Federation of Women's Lawyers revealed that 40% of respondents (all female) had no or an inaccurate understanding of the Law (FIDA 2007 cited in Kutsoati and Morck 2012). The Intestate Law is also restricted in that it applies only to self-acquired property accumulated by the deceased or his nuclear family during their lifetime and not to lineage property that was previously under their management.

2.5.3 Marriage

Marriage in the Ghanaian context is not a single event or act, but instead a process encompassing negotiation, rituals and transactions which may span several years (Gyimah 2009). A number of marriage forms exist which are recognised by Ghanaian law. Although the Marriage Ordinance was first introduced in 1884, 80% of marriages still occur under customary law (Awusabo-Asare 1990, Salm and Falola 2002). This form of marriage begins with a ceremony where the bridegroom's family formally asks for the bride's hand in marriage through the payment of a bride-price and the provision of alcoholic and soft drinks to the bride's family. An essential aspect of this form of marriage is the consent of both families. Polygamy is valid with there being no legal limit to the number of wives a man can take. The practice of polygamy is nonetheless in decline as prestige derived from the number of children and wives is being replaced by success in education and employment, in addition to increasing constraints restricting the number of brides men can financially afford to support and provide bride-price for (Nukunya 2003). Islamic marriage

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is contracted under the Marriage of Mohammedans Ordinance whereby in accordance to Ouranic Law males are allowed to take up to four wives. Marriage under Ordinance Law focuses more on the contract between a man and a woman, and consent by the wider family is not required. A feature of Ordinance Marriages is that they must be monogamous. Lastly, consensual marriage is a term which applies to couples who are living together as married but are yet to complete their marriage rites.

Marriage remains an important social institution in Ghana (Gyimah 2009, Salm and Falola 2002) reflected in its near universal coverage. Among women aged 45-49 years in the 2008 GDHS, only 0.5% had never been married (GSS, GHS and ICF Macro 2009). Changes have occurred in the process of negotiation of marriage and in the nature of conjugal bonds between husband and wife. In the past, arranged marriages were common with marriage being used to tie families together for social, political and economic reasons (Salm and Falola 2002). With increased migration and schooling, males and females are able to interact together to a greater extent without the close supervision of their families. In 1992 the Ghana Female Autonomy Micro Study revealed that over two-thirds of individuals had chosen their partners without assistance from their family (as cited in Cox et al. 2013). Although today partner selection is increasingly based on individual choice, it should be noted the continued popularity of customary marriage means family consent is still largely required (Ardayfio-Schandorf 2006, Nukunya 2003).

Perhaps as a consequence of the shift from arranged to romantic marriages, relations between husband and wife are seen to be changing. As noted previously, marriage under customary law goes beyond the ties between man and wife, and individuals are encourage to maintain links with their kin. Central to this is the idea of the lineage and the ownership of children. In matrilineal groups children are seen to belong to the mother's (female) line, whilst in patrilineal groups children belong to the father's (male line). However, Axinn and Ghimire (2013) theorise that a process of emotional nucleation is occurring in SSA whereby conjugal bonds are becoming stronger relative to each partner's ties to their lineage. This idea is reflected in Oppong's (1977) study of male senior civil servants and their wives in Accra where she described the emergence of companionate or joint conjugal relationships as evidenced by reductions in financial assistance provided to kin, the pooling of finances and

the participation in joint decision making by spouses. The provision of governmental accommodation in the form of bungalows helped generate these closer marital ties of this 'elite class' as labelled by Oppong. This is in contrast to the description by Clarke (1999) of the strength of matrilineal bonds between female Akan in both rural and urban areas and across class divisions. Stronger conjugal bonds may have an influence on the maternal combination of work and childcare through translating into more egalitarian relationships in terms of the division of domestic labour including childcare. A limited number of studies have examined relationship quality in contemporary Ghana, however Cox et al.'s (2013) study of relationship quality and contraceptive use in Kumasi found both men and women rate their relationships highly on scales related to commitment, trust, constructive communication and satisfaction. Nonetheless, results from the GDHS 2008 suggest that joint relationships as described by Oppong are not the norm. For example, the data suggests that joint decision making is not the predominant model. When considering decisions regarding health care, major household purchases, purchases for daily household needs and visits to family and relatives, only 41% of married women aged 15-49 years in the Greater Accra region reported they participated in all four decisions. The survey also suggests that pooling of incomes is not widespread in the Greater Accra region with only 35% stating that both husband and wife jointly decide how the wife's earnings are spent compared to two-thirds stating the wife mainly determines the use of her earnings (GSS, GHS and ICF Macro 2009).

2.5.4 Divorce

Despite the centrality and near universal occurrence of marriage in contemporary Ghanaian life, observations suggest marital instability is becoming more common (Salm and Falola 2002). Data limitations must be noted due to the poor registration of customary marriages. Nonetheless, survey data suggests an increase in divorce between the 1970s and 1980s. In the 1980s among ever-married women aged 40-49 years 61% reported a marital breakdown in comparison to 40% in the 1970s (Gage and Njogu 1994). Focus is often on the role of economic disruption or social disorganisation as causes of increased marital instability. For example, Mikell (1992 as cited in Takyi and Gyimah 2007) attribute increased marital instability during this

period to increased marital tensions resulting from the economic crisis described previously raising the basic costs of living for households whilst increasing difficulties in earning an income. The rise in romantic marriages, replacing the tactical family selection of partners for alliance, is also thought to have reduced families' motivation and involvement in keeping marriages together (Takyi and Broughton 2006).

Nonetheless, the occurrence and high incidence of marital separation in the colonial period has also been noted by ethnographic studies. For example, in the context of Northern Ghana Goody (1973) observed the practice of marital separation amongst the Gonja and describes how although formal divorce was rare, the ending of a marriage was signalled by the prolonged absence of the female from the home and her subsequent remarriage. More recently Takyi and Gyimah's (2007) investigation of the influence of matrilineal family ties on marital dissolution suggests a stabilisation or decline in divorce. Using GDHSs, the percentage of ever-married women (excluding widows) who had ever been divorced was shown to have declined consistently from 34% in the 1988 survey to 26% in the 1993 survey.

In contradiction to the studies cited above concerning the emotional nucleation and the increased strength of conjugal bonds, recent research on the determinants of divorce in Ghana suggests the continued importance of lineage ties. Partners' continued attachment to their lineages can cause disputes in marital relationships concerning the allocation of resources and division of labour (Lloyd and Gage-Brandon 1993). In contexts where the lineage remains important it is hypothesised those of a matrilineal descent are more likely to experience divorce compared to those of a patrilineal descent. The reasons for this are multiple. Firstly, membership to a lineage through the maternal line means that upon marriage women retain close ties to their lineage; this includes access to land, financial support and instrumental assistance. In comparison women of a patrilineal descent join their husbands' families upon marriage with any children born belonging to father's lineage. The continued obligations of matrilineal women to their own lineage in marriage can undermine conjugal relations, whilst the retained close ties to the maternal lineage reduce dependency on their husbands and consequently the costs associated with divorce (Takyi 2001). Secondly, the bride's family has an economic interest in the survival of the marriage due to the requirement to

repay bride-wealth upon divorce among both patrilineal and matrilineal groups. However among patrilineal groups, where the husband's family takes in the bride by custom, bride-wealth is more expensive in comparison to matrilineal matches (Tayki and Gyimah 2007). Consequently, among patrilineal groups families may be more influential in keeping marriages together through the regulation of the wife's actions due to divorce incurring the family a larger financial cost. Tayki and Gyimah's (2007) multivariate analysis of the 1993, 1998 and 2003 GHDSs found that the risk of divorce is higher for women of a matrilineal Akan ethnicity controlling for observed characteristics, a finding which has persisted over time suggesting the continued importance of kinship in daily life.

Divorce is a concern for the combination of work and childcare of Ghanaian mothers due to the possible absence of fathers' financial support. Laird's (2011) research with social workers deployed in the Greater Accra, Volta, Ashanti and Northern regions revealed paternal child financial maintenance to be an issue in Ghana where fathers are non-co-resident to their children, especially where mothers and fathers are separated or divorced. This varying degree of paternal financial responsibility is also reflected in Lloyd and Gage-Brandon's (1993) analysis of FHHs using the 1988 GLSS. Britwum et al.'s (2004) review of child maintenance cases handled by formal institutions between January 2000 and March 2002 revealed that child maintenance difficulties are frequently attributed to disagreements between the father and mother and/or the child or the father beginning a new relationship and family resulting in the neglect of payment of school and medical fees. Women's divorced status could consequently add strain to the balance of their work and childcare roles through intensifying their role to provide materially for their children due to absence of partner support. Both customary and statutory laws highlight the duty of fathers to maintain their children regardless of marital status, although the definition of child maintenance is not specified (Britwum et al. 2004). Traditionally elders would enforce customary law; however physical separation of the family as well as the weakened economic attachment of individuals to the lineage undermines this system. Under statutory law the Matrimonial Cause Act 1971 Act 367 deals with matrimonial cases including child maintenance in the circumstance of divorce. However, the majority of customary marriages are not registered making recognition of the marriage

difficult (Awusabo-Asare 1990). The effectiveness of statutory laws is also limited due to lack of public awareness and deficiency of enforcement by government officials (Britwum et al. 2004). The Social Welfare Department in Ghana compromises only 800 staff making it difficult for authorities to clear caseloads (Laird 2002).

2.6   Conclusion

In the paper '*Globalisation and the disruption of mothercare'* Oppong (2001) concludes "African mothers' work burdens and constraints are increasing more rapidly now, just at a time when many of their traditional kin and conjugal supports are dwindling" (p20). Whilst the literature on social change and its consequences for women's combination of economic work and childcare in contemporary SSA, or more specifically Ghana, is sparse, a detailed picture can be built up when piecing together the literature. Our review suggests that Oppong's statement is too simple. Whilst women's presence in the Ghanaian labour sector has historically been strong, in line with Oppong's argument there is consensus of the intensification of women's economic role in response to structural readjustment. Nonetheless, the literature does not unequivocally show a decline in the assistance of the family even in urban communities. In terms of living arrangements, the co-residence of the extended family still exists. Whilst family members may be restricted in their ability to provide assistance due to educational and work commitments, resilience is suggested with the family remaining an important component in women's lives through its adaption to external pressures. Drawing upon the perspective of Aboderin (2004), the fact that interconnections of family members are more and more voluntary and are based on relationships that have built up over time between individuals, suggests instead a strengthening of familial support in contemporary society compared to the past where assistance was based more on forced obligations.

In addition to dwindling kin support Oppong (1999) notes that "there is evidence of increasing fragility and segregation of conjugal roles and deprivation of marital support as witnessed by escalating numbers of households maintained/headed by women alone following conjugal separation and lack of marriage" (p510). It is important to note that SSA is heterogeneous in levels and trends of social circumstances such as premarital fertility,

marriage, divorce and living arrangements. Levels of female headed households have to be placed in the context of the customary separate living arrangements of spouses of certain ethnic groups in Ghana even after marriage. Under these circumstances female headship does not necessarily equate the sole maintenance of the household by females. Nonetheless, the literature does suggest the isolation of divorced female heads who are less likely to receive inter-household financial transfers. Marriage remains universal in Ghana, and whilst there are concerns about the growing incidence of divorce these assertions seems to be based on unfounded idealised notions of the stability of marriage in the past. Along these lines the importance of HIV/AIDS for the consideration of women's work and childcare combination also varies across countries. Where prevalence is high, such as in Southern Africa, the consideration of the care-work that family members provide and also its impact on the availability of kin assistance may be important in understanding how women combine their work and their childcare.

3. Conceptual framework

The literature on the interface between work and family examines how an individual's enactment of their work (family) role affects the performance of their family (work) role. In over half a century of research a magnitude of theories attempting to explain the linkages between these two roles have been introduced, reformulated and contested. In our examination of Ghanaian women's combination of their economic and maternal roles we draw upon concepts frequently used or developed in this broader research field. The concepts of role conflict, enhancement, balance, strain and ease will be introduced with attention given to the mechanisms underlying these concepts and examples given of their operation. Most importantly the salience of these concepts will be considered for the context of women's lives in Accra, Ghana, through a deliberation of their contemporary maternal, domestic and economic roles. Additionally a typology of coping devised by Hall (1972) will be outlined. Lastly, using this review a model of the interface between women's economic and maternal roles in Ghana will be devised and presented.

3.1 Roles

In discussing concepts important for our consideration of women's combination of their maternal and economic roles we must define what is meant by role. The related concept of social position refers to an achieved or ascribed location in society (Linton 1945). A role is the conduct and behaviour associated with a social position (Sarbin and Allen 1954). Social positions can be linked, for example teachers, parents, students and board members, creating complementary roles or 'role-sets' (Merton 1957). The process of acquiring and enacting a role involves three features:

1. Structurally given demands: role expectations from outside the individual define the rights and obligations associated with a social position (Sarbin and Allen 1954). Expectations are historically and culturally variable with content being dependent on time and space.
2. Role conceptions: the expectations that individuals hold themselves concerning the behaviour and attitudes required for the position they are fulfilling.

Conceptual Framework

3. Action: the behaviour of individuals that may or may not conform to their own or others' expectations.

(Levinson 1957)

Early thinking on roles, for example Weber (1947), took a structural functionalist perspective with little consideration given to the part of the individual in role acquisition. Congruence between the three features of role enactment were seen to exist resulting from tightly specified external expectations and the conformity of individuals to these due to a well-defined system of rewards and sanctions. However, the involvement of the 'self' in role acquisition has become increasingly recognised. In contrast to previous thought, lack of clarity of expectations resulting from factors such as generality of acceptable behaviours and vagueness and discrepancies in expectations, is acknowledged (Levinson 1959, Sarbin and Allen 1954). This lack of clarity and consensus in role expectations give individuals the opportunity for choice in selecting behaviours (Levinson 1959). In recognition of the interaction between the self and role expectations Thornton and Nardi (1975) developed a theory of role acquisition consisting of four stages ranging from the passive acceptance of role expectations to the active shaping of role behaviours. These four stages are:

Anticipatory: the period prior to the occupancy of a social position in which an individual begins to develop their own role conceptions and gain knowledge of the expectations of others. This information often consists of idealised notions coming from generalised sources.

Formal: in the early stages of social position occupancy individuals are subject to codified or formal expectations. Individuals do not attempt to modify their behaviours as they are not aware of the flexibility in acceptable conduct.

Informal: unofficial expectations and knowledge of elasticity in acceptance is learnt through interaction with others in the role-set.

Personal: individual personality and previous experience interact with role expectations resulting in the modification of behaviour.

In social life individuals occupy more than one social position and consequently enact different roles simultaneously.

3.2 Role experience

3.2.1 Role strain

In the seminal work on role strain Goode (1960) described difficulties in fulfilling role obligations as a normal aspect of daily life. Taking a holistic approach Goode saw strain resulting from individuals' total role systems (their combination of roles) as being over-demanding, making the exploration of this notion vital in any consideration of multiple roles. Strain felt by individuals is seen to arise through several possible mechanisms. Firstly, issues of compatibility between activities performed in the fulfilment of role obligations may exist in terms of location, time and resources. It should be noted that this non-compatibility is not restricted to activities associated with different roles (inter-role conflict) only but also activities of the same role (intra-role conflict). For example, a mother with children may be required to take and pick them up at the same time from different schools perhaps as a consequence of their different ages. Within a role conflict can also occur due to the existence of role-sets (Merton 1957). For example, a teacher has role-relationships and linkages with other teachers, students, parents, head-teachers, parent-teacher associations and the school board. Through having their own interests these actors may have different and contradictory expectations from the teacher. Activities within a single role or across roles can also result in overload through demands exceeding available resources. Such reasoning is based on the scarcity approach where time and energy are seen as constrained and which the performance of activities consumes. Instead of stability of society being based on normative consensus, role conformity and commitment as assumed by the previously dominant functionalist perspective, social order according to the role strain theory is maintained by individuals controlling entry into and exit from role relationships and role bargaining. The latter refers to the negotiation between individuals and role-senders[2] regarding performance. This thesis focuses in particular on women's combination of their economic and maternal roles. In the circumstance of multiple role performance

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[2] Role-senders can be defined as the individuals who define the expectations of a role, for example in the workplace a role-sender could be managers.

strain could be expected to be greater or more likely due to the increased likelihood of experiencing time and energy pressures, having role-partners with contradictory expectations and performing activities that conflict in time, resources or behaviours (Sieber 1974).

Whilst Goode views strain as a physiological response to objective scarce resources, Marks (1977) argues in contrast energy and time are social constructions and strain a psychological perception. Considering energy he contends not all obligations drain individuals but instead where social relationships and activities are enjoyed they can leave individuals feeling vitalised. Additionally, whilst time may be finite in terms of the number of hours there are in a day an individual may manipulate this resource through using their time more efficiently. According to this modification of Goode's theory it is the level of commitment to roles that is important in determining whether strain is felt. According to Marks, Goode's (1960) opinion of the normality of role strain is a reflection of his Western perspective of the hierarchal nature of society where it is inevitable that individuals over-commit to roles with higher prestige, in this viewpoint the occupational role. Drawing upon the work of James and Mead, Marks (1977) sees that a single role, or self, does not need to be selected by the individual to take priority. Instead individuals can commit equally to roles through role management. For example, in a course of a 'normal' day a woman may wake up, prepare and take her children to school performing her role as a mother, go to work transitioning into the role of a worker, finish work and pick her children up from a friend, relative or paid help resuming her role of a mother. This system frequently becomes a routine and conscious decision is not required unless an interruption occurs (Marks and MacDermid 1996), for example a child is sick on a work-day. Through the individual's knowledge of their role system adjustments and reconstructions can be made in reaction to situations. In the scenario of child sickness, for example, a mother can negotiate with a relative to provide childcare. In his theory of role strain Marks (1977) classifies three forms of commitment:

Type I: individuals are equally positively committed to their work and family roles. As commitment is related to the desire to perform role activities individuals are creative in the management of resources to ensure the completion of all tasks. Enjoyment experienced in the engagement of both

roles may minimise feelings of drain and result in the construction of energy. Commitment can also reduce strain due to cognitive restructuring where demands and conflicts are viewed in a positive light. A working mother, for example, instead of focusing on incidences when hours of work take away from time spent with children may instead concentrate on the income which work provides allowing her to provide materially for her children. It must be noted there are limits to the manipulation of time and energy so even in cases of high commitment there are restrictions to the number of roles, or activities within roles, that can be performed. Nonetheless, the social construction perspective suggests the bounds of this expansion are wider than previously conceived.

Type II: individuals are equally negatively committed to their work and family roles. Whilst conflict between work and family may exist lack of interest in roles may result in low or non-performance of work or family activities reducing strain.

Type III: individuals are under-committed to family (work) and over-committed to work (family). Where individuals are over committed to a role, activities can increase to such an extent that time cannot be manipulated further or compensatory energy produced through enjoyment. Time and energy spent in their under-committed role increasingly becomes seen as a burden and due to desire these resources are re-directed to the work (family) role resulting in under-performance of the family (work) role. Taking Marks (1977) viewpoint, scarcity is not an objective reality but a culturally acceptable justification for the release of responsibilities and sub-standard performance in an under-committed role. In the West work demands and responsibilities are often seen as a tolerable excuse for the failure to fulfil family activities, for example the parent who misses parents' evening due to work commitments.

Using a sample of parents with pre-school children in California O'Neil and Greenberger (1994) tested Goode's and Marks' theory of role strain. High commitment to both work and family roles (defined as above median sample scores measured using scales capturing the centrality of work (family) to identity, the importance of work (family) activities in relation to other role obligations and aspirations to perform well in a role) was not associated with

strain. When using Goode's scarcity perspective those with high commitment could be expected to experience higher strain due to increased performance draining limited resources. However, these results also do not lend support to Marks' (1977) hypothesis of those with high commitment manipulating their time and energy to lower strain. Gendered norms concerning the nature of involvement in work and family have changed substantially over the course of the latter twentieth century in the West. As females have become more predominant in the labour market the central image of the stay-at-home wife/mothers has eroded and the male role in the family has moved away from being just a breadwinner to there being an expectation of interaction with the family. Marks (1977) hypothesis may have been more relevant for an earlier era in the West (O'Neil and Greenberger 1994) also raising the question of the suitability of transferring the theory across cultures where the meaning of roles may differ.

Whilst O'Neil and Greenbergers' (1994) analysis does not buttress Goode and Marks' hypotheses of the mechanisms underlying strain, the importance of identity in strain generation was advocated. Where women had high commitment to work and low commitment to the family, being in a professional or managerial position eased strain. In contrast, where women had low commitment to work and high commitment to the family being in a lower status occupation lessen strain. Such results can be explained by identity theory, the idea that strain is caused by interruption to the identity control process (Burke 1991). The maintenance of an identity is a continuous loop in which an individual's perception of their identity (the identity source) is compared to the individual's opinion of how others perceive them (input meaning). Where the identity source and input meaning are different the individual changes their behaviour (output) with the aim of altering input meaning. The continuous operation of this cycle means incongruence between the identity source and input meaning is normally slight. Interruption to the cycle however can widen the divergence between an individual's identity and how others perceive them resulting in strain. Using O'Neil and Greenberger's results as an example; professional and managerial occupations frequently demand individuals to work long hours and think about work problems outside these hours which may distract individual attention away from the family when at home or can cause individuals to delegate certain family responsibilities, for

example, picking children up from school. Where an individual has low commitment to work and high commitment to family the display of such behaviours can cause outsiders to perceive the opposite causing strain as the identity process is broken. Changing behaviours to alter perception may be difficult for these women due to their work contracts and conditions.

3.2.2 Role conflict

Despite early theorising on role strain the majority of contemporary literature on the interface between work and family focuses/uses the term role conflict. This concept refers to inter-role conflict where the activities of work and family are incompatible in some respect so that participation in work (family) makes participation in family (work) difficult (Beutell and Greenhaus 1985). This concept is largely used interchangeably with role strain or seen as a narrow component of the latter concept, with intra-role conflict and overload from a single role excluded. However, others see conflict and strain as two independent concepts with strain being the cognitive appraisal of conflict (Voydanoff 2002). It is possible where conflict is experienced individuals may not necessarily perceive high difficulties in performing both their work and family roles overall. This research also perceives conflict and strain as two separate concepts, with conflict being the result of the cognitive assessment of the hindrance of roles on each other in terms of performance and strain being perceived difficulties in fulfilling roles.

Beutell and Greenhaus (1985) identify three forms of inter-role conflict. Time based conflict refers to circumstances where the devotion of time to one role can distract from the time needed to achieve expectations of the second role. Time can be conceptualised as the duration spent physically engaged in a role but also the attention directed to a role, for example, individuals may dwell upon family problems when at work. Both Goode's and Mark's hypotheses surrounding the mechanisms of conflict may be applicable in this scenario. Limits to the manipulation of time results in a dearth of time but also the over-commitment to a role may result in the perception of limited time. The second form of conflict that exists is strain based. This describes situations where stress from a role influences role performance in another domain. For example, working long hours in a job may produce fatigue

reducing energy available for family activities. Lastly, in cases where individuals are unable to adjust to domain specific behaviours when moving between roles they are said to experience behaviour-based conflict. As the examples show above, and as has been increasingly distinguished by the literature, conflict is bi-directional with the family role having the potential to interfere with the work role as well as vice versa. Accordingly this thesis recognises that the maternal role has the potential to infer with women's economic role and vice versa.

3.2.3   Role accumulation and enhancement

Whilst Goode (1960) perceived role strain as a normal outcome of daily life this perspective does not explain incidences in the literature where individuals do not show difficulties performing their roles. In response to the work on role strain Sieber (1974) introduced the idea of benefits arising from role accumulation which can balance strain and in some cases result in net advantage. Four mechanisms for enrichment have been identified; role privileges, compensation, the accumulation and the transfer of resources and enhancement of personality. Firstly, focus on roles has been directed to the obligations and duties with the rights and privileges associated with social positions largely ignored. Although increases in the provision of rights are normally accompanied by a growth in obligations and expectations, balancing out any net gain, liberties are normally separate from this process. For example, in the workplace liberties given may include freedom from dismissal. As this privilege is not dependent on others increasing their obligations to the individual a reciprocate rise in their duties is usually not necessary. Secondly, engagement in a role may protect individuals from failure or frustration felt in other life domains, a process known as buffering or compensation (Burke and Greenglass 1987). A common example is the worker who gets lost in their job in order to forget about family problems. Multiple roles may also result in the individual becoming embedded in a greater number of role-relationships. Role-partners are important sources of support for when strain is felt but also can satisfy needs not fulfilled by other role-partners. For example, work colleagues or friends may provide sympathy and understanding concerning work or family pressures. The cost of maintaining some role-relationships are low due to the expectation that obligations are only high in times of needs. For example,

some friendships may be maintained through sporadic contact. In terms of the accumulation and transfer of resources these can be generated through the engagement in one role promoting performance in the second role either through the direct transmission of these properties (instrumental pathway) or through the possession of such resources increasing mood (affective pathway). For example, social contacts developed through family, friends and social groups may be used to gain credit, win contracts or receive financial tips enhancing an individual's economic activity. In terms of affect an individual's role as a parent may increase their happiness improving their performance in their work. Lastly, the engagement in a role may result in personal enrichment especially where the role is associated with high status. The study by O'Neil and Greenberger (1994) described previously found that social context was important in mediating the relationship between commitment and feeling of strain. Women with high commitment to work and family engaged in managerial and professional occupations compared to women in other jobs expressed less strain. It could be these high status occupations provide women with stimulation and prestige resulting in the individual feeling fulfilled and confident lowering felt strain. A multitude of roles may also contribute to an individual's self-concept through being the basis of their identity. For example, being a worker and a mother may be important to a woman and her ability to perform both roles a source of esteem. Whilst much investigation has been on role conflict, it is gradually being recognised that the participation in both work and family roles can have positive influences on work and family outcomes (Greenhaus and Powell 2006). As with role conflict it is being increasingly recognised that whilst the family role can be enriched due to work participation (work-to-family enhancement) the family role can also positively impact performance in the work role (family-to-work enhancement). For example, money earned whilst working can be used to provide materially for children and having a good relationship with children can increase work performance due to feelings of happiness. This study defines role enhancement as the cognitive assessment by individuals of the engagement in the work (maternal) role enhancing performance maternal (work) role.

3.2.4 Role balance

Despite widespread use of the concept work-family balance (WFB), little research has focused exclusively on this term meaning this aspect of the work-family interface remains conceptually underdeveloped (Grzywacz and Bass 2003, Grzywacz and Carlson 2007). Following from his modification of role strain theory, Marks along with MacDermid (1996) conclude that role balance is the equal orientation and commitment to roles. Nonetheless, as noted previously O'Neil and Greenberger's (1994) analysis shows that predisposition to roles is not necessarily associated with reduced feelings of strain. Instead a more common definition of WFB is the combination of the lived experience of conflict and enhancement arising from the performance of work and family roles (Barnett 1998, Frone 2003). This definition places WFB on a continuum raising the question of whether there is requirement for this additional concept. Furthermore, if WFB is a combination of conflict and enhancement what combination of these experiences constitutes a balance?

In contrast to this approach Grzywacz and Carlson (2007) view WFB as a distinct concept to those of conflict and enhancement. These latter processes are the result of cognitive assessments of the influence of roles on each other in terms of the extent to which they hinder or enhance performance (Carlson et al. 2009). Consequently, if WFB is simply the combination of conflict and enhancement it could be seen to consist of subjective judgement of equilibrium. Grzywacz and Carlson (2007) criticise such an approach for lacking objective substance and separating the individual from the context in which they experience work and family. Instead Grzywacz and Carlson (2007) define WFB as the fulfilment of negotiated work and family requirements. Unlike conflict and enhancement this is based on the engagement in a role instead of personal experience. However, a question that arises from this definition is how is fulfilment defined? Is this not a subjective judgement which can differ between individuals? For example, two mothers who work full-time may delegate the responsibility of collecting their children from school to a childminder. One mother may view this as fulfilling their responsibility as a mother through ensuring her children are safe and cared for whilst another women may perceive she is failing to perform her role as a mother through not picking the children up herself. Due to this argument this thesis defines role balance as women's fulfilment of both their maternal and economic roles but

in contrast to Grzywacz and Carlson (2007) this is viewed as a personal perception.

3.2.5   Role ease

Role ease is a relatively less used concept in the work-family literature with most studies focusing on the absence of strain. However, similarly to the argument of role balance presented by Grzywacz and Carlson (2007) role strain and ease are not polar ends of a continuous scale. Marks and MacDermid (1996) define role ease as the effortlessness experienced in role performance. An individual may not perceive their family requirements as difficult to fulfil but at the same time they may not perceive ease as some work and management may be involved.

3.3   Roles in the Ghanaian context

The following section will explore the maternal, domestic and work roles of women in Ghana, although where relevant literature from the wider context of SSA will be drawn upon. A discussion of the maternal role first requires a consideration of the definitions of parental responsibilities and mothers and an investigation of the related but distinct concepts of mothering and motherhood.

3.3.1   Parental responsibilities

In '*Parenthood and Social Reproduction in West Africa*', Goody (1982) describes parental responsibilities as consisting of five broad activities; the physiological process of bearing and begetting, the endowment of civil and kinship status, nurturance, training, and sponsorship to adulthood. Whilst the latter three dimensions involve some overlap each has its own distinctive purpose. Nurturance is primarily concerned with the physical and emotional care provided to children which includes practices such as breastfeeding, food preparation and handling and hygiene behaviours (Engle et al. 1997). Training involves the acquisition of knowledge, skills and competencies by children through the guidance and discipline by others. Morality is a central area of training. From a young age mothers in Ghana teach children respect, for

example the appropriate language they may use to address elders (Twum-Danso 2009). Sex and age role expectations are also learnt from an early age from older siblings but also as parents begin to set children daily tasks. Lastly, sponsorship to adulthood is the provision of support and resources that contributes to children assuming adult status in society. Whilst this may involve educational and occupational training, sponsorship may also consist of rites of passage or the payment of bride-wealth for example. It should be noted in Ghana the fulfilment of parental responsibilities is based on reciprocity with the explicative recognition that children will adhere to their duties (Lloyd and Gage-Brandon 1994, Twum-Danso 2009). As children progress through the developmental stages the aspect of parental responsibilities at the fore will change as well as the tasks involved in each broad activity.

3.3.2 Mothers

Following on from the earlier discussion on roles, a mother is a social position. The Children's Act in Ghana defines a parent as having natural or adoptive ties to the child in question (Government of Ghana 1998). Under this Act the obligations of the parent(s) are to 1. protect the child from neglect, discrimination, violence, abuse, exposure to physical and moral hazards and oppression, and 2. provide good guidance, care, assistance and maintenance for the child ensuring survival and development. However, in Ghana due to divorce/widowhood and subsequent re-partnering, child fostering and lineage practices, the obligations of this act as well as the parental responsibilities described by Goody (1982) are frequently performed by others in addition to biological or adoptive parents. For example, children are often viewed as belonging to the wider kin group (Nsamenang 1992). In Ghana among ethnic groups of the matrilineage maternal uncles substitute fathers in the tasks of socialisation and discipline (Boakye-Boaten 2010). Childless women are seen as entitled to request children from kin (Levine et al. 1994). Such circumstances have led to the term 'social parents/parenting' in the literature (for example, Richter (2010) provides a discussion of biological and social fathers in South Africa). The definition of a mother presented by this study is the achievement of an identity based on the relationship between a child and a woman forged through the activities of either childbearing (biological mothers) or childrearing

(biological or social mothers). We focus on women who are co-resident with their biological children.

Ideological tactics ensure that women conform to societal expectations of becoming a biological mother. The attainment of this status is important in Ghana for gender identity formation with the bearing of children being a marker of full womanhood (Clarke 1999). Wilkinson and Callister's (2010) ethnographic study with childbearing women and key informants in the Ashanti region describes biological motherhood as the primary role in a woman's life. This is in part due to perception of children belonging to the wider lineage rather than their parents. In Northern Ghana among the Tallansi real personhood can only be achieved upon death when an individual has descendants to replace them (Meyes cited in Schnepel 1990). Stigma is attached to barrenness with associations being made to witchcraft and the devil. The biological mother status is consequently necessary for social acceptance and respect (Akujobi 2011). However, novels such as Ama Ata Aidoo's Changes' (1990) question whether the social position of being a biological mother has the same importance to educated urban Ghanaian women who have wider options for status achievement (Curry 2011). Johnston-Hanks' (2005) study of educated Bati women in Cameroon suggests this is not the case with honour still associated with childbearing for this sub-group. Qualitative work among infertile women in Moshi, urban Tanzania, found that even in a relatively low fertility setting being a biological mother is still the defining feature of womanhood and a central determinant of social treatment (Hollos and Larsen 2008). In Ghana this seems to apply with voluntary childlessness being rare with only a low percentage of women having borne no children by the end of the reproductive span (Table 3.1).

Conceptual Framework

Table 3-1: The percentage distribution of women aged 15-49 years having no borne children, Ghana Demographic and Health Survey 2008

	Percentage of women with no children borne	
Age	All women	Currently married women
15-19	90.1	36.4
20-24	50.7	19.1
25-29	21.6	9.0
30-34	8.1	4.3
35-39	5.6	3.4
40-44	2.6	2.5
45-49	1.5	1.3

Source: Ghana Statistical Service (GSS), Ghana Health Service (GHS) and ICF Macro (2009)

Although biological mothers are responsible for ensuring their children are cared for, consensus does not exist with the Euro-American ideal of co-residence and sole rearing by biological parents. Fostering, the transfer of children from the natal household to be raised by others, is nowhere as customary as in West Africa[3] (Goody 1982, Isuigo-Abanihe 1985). It must be noted that women with biological children may be responsible for the rearing of others' children as well as fostering out their own children. The institutionalisation and norms supporting fostering in this region are rooted in the embedment of parenthood with the lineage. Instead of being a reaction to crisis, fostering has evolved from the claim of extended kin on children and their obligations in the childrearing process (Goody 1978). In addition to kinship fostering, apprenticeship/educational fostering have been identified and as well as fostering being a method to strength political, economic and social ties (Fiawoo 1978, Goody 1978).

Table 3.2 shows fostering is still prevalent in Ghana. Age variations exist in the prevalence of fostering with 6.6% of children aged 0-4 years captured by the 2008 GDHS' household roster not living with their biological mothers, compared to 16.2% of those aged 5-9 years and 20.9% of those aged 10-14 years (GSS, GHS and ICF Macro 2009). Sources of foster carers and reasons for fostering are likely to vary by age of the child, connected to the changing

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[3] Fostering differs to adoption as ties with biological parents are not broken (Fiawoo 1978).

aspects of parental responsibilities important in each stage of childhood. For older children educational and apprenticeship fostering becomes increasing dominant. In Fiawoo's (1978) study of fostering in Accra among older children foster parents were equally likely to be relatives or non-relatives. The increasingly complex and diversified economic and occupational structure of society saw the advent of non-kin arrangements in the 1970s (Goody 1982). Where kin are not suitable to provide training or access to education parents turn to wider networks. For young children the source of foster-carers differs to that of older children with Fiawoo (1978) finding grandmothers to be the main fostering destinations for pre-school age children. Similarly Bledsoe and Isuigo-Abanike's (1985) study of fostering in Sierra Leone found those who are fostered young are normally only entrusted to close maternal kin who are known to have high knowledge and quality of care, reflecting the importance of nurturance for children of this age. This study's own descriptive analysis of the GDHS 2008 found marital status and the age of biological mothers to be associated with the residence of children. A higher proportion of children with mothers aged either 15-19 or 20-24 years and those not married were not living with their mothers. Mothers in the younger age groups may not have older children in the home to help them provide care for younger children leading the requirement of the redistribution of responsibilities among kin (Blanc and Lloyd 1990). Social expectations which place childbearing in the context of marriage (Langevang 2008, Wilkinson and Callister 2010) may result in fostering. In the case of separation and divorce fostering may occur to retain ties to families, due to economic difficulties or as a result of difficulties with childrearing faced by mothers (Blanc and Lloyd 1990). These reasons could be classified as 'crisis fostering'.

Conceptual Framework

Table 3-2: Percentage of children not living with their biological mothers, World Fertility Survey 1979/80 and the Ghana Demographic and Health Surveys 1988 and 2008.

	Percentage not living with biological mother		
Age of Child	WFS 1979/80	GDHS1988	GDHS 2008
0-4	12.4	4.2	9.6
5-9	24.5	18.2	24
10-14	33.3	29.3	30.9

Source: WFS 1979/80 and GDHS 1988 Blanc and Lloyd (1990), GDHS 2008 GSS, GHS and ICF Macro (2009)
Note: Data from the WFS provide estimates which include children of women over the age of 49 years and children whose mothers are dead – two groups which are not including in the GDHS1988 estimates. Whilst this variation in measurement cannot account for the difference in estimates for children aged 0-4 years fostered, the difference in percentages fostered in the other age groups can be largely explained by this.

Posel and van der Stoep's (2008) study of labour force participation of mothers in South Africa highlights the importance of considering different categories of mothers and the clear and precise definition of these individuals. Their study found labour force participation varied more among different groups of mothers (defined as women co-resident with their biological children and women not co-resident with their biological off-spring) then between mothers and non-mothers.

3.3.3 Motherhood

Motherhood is the role associated with the occupancy of the social position of a mother. Early writing on motherhood is ethnocentric viewing this as an universal role based upon nurturing activities performed in the private sphere. Hays (1992) coined the term 'intensive mothering' to describe the role of mothers as primary caregivers, with any work commitments coming second. However, with the emergence of black feminism it became argued and recognised that the notion of motherhood is culturally and historically variable (Hill Collins 1994) being entwined with norms and values associated with childhood (Ambert 1994) and the family (Arendell 2000). In the Ghanaian context, the event of childbirth only marks the beginning of motherhood (Schnepel 1990). Similarly to Comaroff and Comaroff's (2001) description of personhood among the Tswana of South Africa, motherhood is a continuous process based on relationships and exchange activities. Using life histories,

participant observations, informal and formal interviews and sample survey, conducted between 1978 and 1995, with Asante Kumasi market traders Clarke (1999) investigated gender and parenting practices in the urban Ghanaian context. In this study among biological mothers economic obligations were found to be central to motherhood with income-generation being a maternal responsibility. Whilst the word *obaatan*, the term used to describe motherhood, in English translation means the time spent recuperating from childbirth, in the Ghanaian context this refers to the resumption of economic activity after childbirth. The related term *obaatan adjusma* (translated nursing-mother work) also does not relate to the activity of caring but the dedication of mothers to providing materially for their children. So strong is this notion of motherhood is its flexibility across genders. Where fathers show economic devotion to their children they are called obaatan, however it should be noted that this label does not make males any less of a man and is used positively (Clarke 1999).

Despite the engrained meaning of motherhood among Clarke's sample, this definition is the relatively recent outcome of the economic crisis and the ERPs in Ghana, which as described in Chapter 2 has altered gender roles. Clarke's (1999) notes in her study that older women described readily how previously fathers were able to provide sufficiently to sustain family life leaving women's profits for their own personal items or for the investment into business. Although caution needs to be taken that here the past is not being seen through rose tinted glasses. In addition to race, Hill-Collins (1994) emphasises theorising about motherhood cannot be decontextualised from circumstances of class. Whilst Clarke (1999) described the ease at which mothers could delegate the tasks of mothering as they fulfilled their economic responsibilities of motherhood, Oppong's (2004) study of nurses and teachers in middle class families in Ghana observed the opposite picture. Among this group of women difficulties balancing children and economic work resulted in women withdrawing from the labour force. Different notions of motherhood among Ghanaian women can emerge due to the different contexts in which they are placed. In Clarke's study the collective responsibility of kin combined with the household's requirement of additional income for survival breakdowns the boundary between work and family for mothers. The availability of

childcare means for these women the greatest care they can provide for their children is to provide materially.

3.3.4 Mothering

Mothering is a set of activities associated with the caring and nurturing of children (Arendell 2000). Whilst in some contexts mothering is associated with the exclusive and isolated care of children by their biological mother, in the Ghanaian context mothering is a collective task with normative support existing for the extensive rearing of children by others. Matrilineal kin, in particular grandmothers, have been highlighted as frequent providers of childcare in some cases enhancing the health and survival of children. Among the Aka foragers in the Republic of Congo, Fouts and Brookshire (2009) found in terms feeding mothers and elderly female kin did not differ significantly in the amount of provision. In West Africa, Sear et al.'s (2002) event history analysis of child mortality in rural Gambia found lower risk when children were living with their maternal grandmother, a finding attributed to the care provided by these individuals. Similarly in Accra, Ghana, interviews with survivors of childhood Kwashiorkor and their families identified the knowledge and care of maternal grandmothers as vital in recovery (Douglass and McGadney-Douglass 2008). However, the negotiation of everyday childcare can involve relationships that extend beyond the boundaries of the household and kin. Bray and Brandt's (2007) ethnographic study of childcare in Masiphumelele, South Africa, found the preference of support from friends and neighbourhoods due to the perception of these individuals being more 'reliable' and involving 'less complication' (p9) than kin members. Mothering is furthermore not an activity restricted to interactions between adults and children, but children themselves can be important sources of childcare. Among the Grussi, Kenya, '*omereri',* who are usually closely related young girls, are used to provide care to children aged between 3/6months and two years old (Levine et al. 1994). Sear et al. (2002) study in Gambia also identified children without older sisters as suffering significantly higher mortality in later childhood, again a finding attributed to the assistance with childcare these siblings may provide.

Mothering and gender are highly interlinked with these nurturing activities being prescribed as women's activities. However, shifts in this division in the

urban SSA context have been noted. In urban Cameroon Kah's (2012) observations and interviews reveal the involvement of men, regardless of social class, in care activities such as bathing and feeding of children. Agorde (2006) argues that this transformation is only occurring among middle-class families in urban Ghana. The case-studies of Bondu and Frank are presented to describe how this new form of fatherhood goes beyond the enactment of physical tasks of childcare but includes the building of emotional relationships with children. In contrast to the above reports of the greater involvement of men in the family, Silberschmidt (2003) observes for Tanzania that the disruption of economic gender roles as an outcome of economic restructuring has led to males, including fathers, experiencing a crisis of identity. The enactment of behaviours such as extramarital affairs, excess drinking and domestic violence, in reaction to threats to masculinities, does not suggest male involvement in the customarily perceived female tasks of care. Whilst some studies suggest that a new social construction of fatherhood may be emerging in urban SSA based on greater involvement with biological offspring, as with motherhood the meaning of fatherhood is likely to be connected to circumstances and the intersection of factors such as class and marital status. For example, the discussion of premarital fertility and divorce presented in Chapter 2 suggests issues of non-involvement or denial of responsibilities of fathers in these circumstances.

Data on the everyday performance of childcare is limited as surveys frequently exclude this form of work or treat it as a secondary activity (Bray and Brandt 2007). The GLSS asks respondents how much time they spent on childcare in the week preceding the survey. Focusing on biological mothers co-resident with their children (less than 18 years) in urban areas of the Greater Accra region, the Fifth Round Survey reveals on average mothers spend just over five and a half hours a week caring for their children. In comparison to the average of hours that co-resident fathers spend on childcare suggests this task is still highly gendered. Men on average spent just over an hour on childcare per week. Yet caution should be taken with these averages. The definition of childcare in this survey is vague being defined as activities of taking care of children. This stylised question is likely to underestimate the true extent of childcare and result in variation in what is seen to constitute as care (Budlender 2007). Childcare especially in terms of being responsible for the child, which is

frequently performed in conjunction with economic and domestic tasks, is not likely to be counted.

3.3.5 The domestic role of mothers

Whilst this thesis is primarily concerned with women as mothers, rather than women as members of households, attention is given to domestic activities as the performance of tasks such as cooking, cleaning and the washing of clothes are intertwined with the care of children. Despite threats to the male breadwinner role (Silberschmidt 2003) and reports of resistance to patriarchy in the household (Carr 2008), domestic activity remains highly gendered with women performing the majority of activities (Awumbila 2006). Our descriptive analysis of the GLSS revealed that in urban areas of the Greater Accra region mothers co-resident with their children spend three times more per week on domestic activity[4] compared to fathers.

As with childcare, the questionnaire design of the GLSS means time spent on domestic activity is likely to be underestimated. For housework which is necessary but not fixed in time, respondents performing such tasks may not consider the time it takes. Nonetheless, these questions may indicate which tasks mothers spend the most time on (Table 3.4). Cooking is the domestic activity that consumes the majority of women's time. Sexual connotations of the evening meal links cooking to relationships (Clarke 1994). The quality and content of dishes can indicate the satisfaction of women with repeated carelessness and refusal to cook signalling intention of separation. These cultural values surrounding cooking mean that women hesitate to delegate this task to others. Just over 10% of the time that women spend on domestic activities is filled with shopping. Being able to prepare an adequate meal requires the right ingredients which in the urban market environment requires experience and social contacts to obtain high quality products at suitable prices (Clarke 1994). Washing clothes is also an activity that requires considerable time and energy reflecting the absence of modern household conveniences. In contrast, women on average spend 0.03 and 0.97 hours respectively on the collection of firewood and fetching of water. The former is

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[4] Domestic activities included the collection of firework, fetching of water, washing of clothes, ironing, cleaning the house, cooking, shopping for household goods, running errands, washing pans etc, caring for the elderly or sick and a residue category of other activities as defined by participants.

likely to reflect the low access to free sources of firewood in the urban environment and the latter the popular usage of charcoal (Schlag and Zuzarte 2008), whilst both activities are typically duties allocated to children (Blackden and Wodon 2006).

Table 3.4: Hours spent on domestic tasks in the last seven days among mothers co-resident with biological children (less than 18 years old) in urban areas of the Greater Accra region, the Ghana Living Standard Survey Fifth Round

Domestic task	Hours spent on task in last 7 days
Collecting firewood	0.03
Fetching water	0.97
Washing clothes	2.84
Ironing	0.49
Cleaning	1.67
Cooking	5.81
Shopping	1.89
Running errands	0.73
Elderly care	0.16
Caring for the sick	0.02
Other	0.51
Total	15.94

Author's own analysis of the Ghana Living Standard Survey (2005)

White's (1993) study in South Africa found the burden of women's domestic roles to be differentiated along class lines due to the cost of paid domestic help and modern household conveniences. Nonetheless Engberg et al.'s (1994) study of Osu, Accra, revealed that women working in the formal sector do not have lower domestic responsibilities but perform these activities in the morning, evenings and weekend. The use of improved technologies in Ghana has not occurred for domestic conveniences (Aryeetey 2000).

3.3.6   The economic role of mothers

Work is frequently conceptualised as activities that are for economic production. The United Nations System of National Accounts (2009) defines this production boundary as being where 'labour and assets are used to

transform inputs of goods and services into the outputs of other goods and services' (p2). Importantly in the African context this physical process does not have to be confined to the market or confer pay or profit to the individual. Focus on remunerated work in SSA is restrictive due to the occurrence of the production of goods for barter, household consumption and unpaid family workers, for example. The increased monetisation of economies in urban areas means the prevalence of these forms of work is likely to be less compared to rural areas. Consequently, a diversity of categories of workers exists including those in paid employment receiving wages in cash or kind, those self-employed with authority over business directives and receiving remunerations from their profits, paid and unpaid family workers and paid apprentices (International Labour Organisation 1982).

In the week preceding the 2005 GLSS 69% of mothers aged 18-59 years old co-resident with their children in urban areas of the Greater Accra region were engaged in work. The political-economic structure of Ghana means access to resources, social networks and skill development remains highly gendered resulting in the marginalisation of women to the peripheral of the labour market and the existence of gender inequality within the informal sector. Although the formal sector provides only limited opportunity for employment, men hold the majority of these positions (Heintz 2005). One factor for this is past gender inequality in educational access and completion (Table 3.4). Of those engaged in economic activity, 44% of the sample of fathers are employed in the private formal or public sector compared to 14% of mothers. Paid employment in the informal sector provides work for a further 31% of fathers, in comparison to 9% of mothers. The predominant employment state of mothers was self-employment (without employees) in the non-agricultural sector (65%). A further 11% of mothers were engaged in this form of work but with the hiring of employees.

Table 3.4: Highest level of education attended among mothers/father (aged 18-59 years) co-resident with their biological children (less than 18 years old), urban areas of the Greater Accra region, Ghana Living Standard Survey 2005

Level of education	Mothers	Fathers
None	13.63	4.00
Primary	13.47	6.00
JJS/Middle	46.97	44.75
SSS +	25.95	45.25

Author's own analysis of the Ghana Living Standard Survey (2005)

In addition to segregation between sectors, gender through influencing norms surrounding the body, relationships and interaction acts to disadvantage women within the informal sector. Since the introduction of the ERPs men have been increasingly entering traditional 'female' occupations such as trading (Overa 2007). In trading a hierarchy exists compromising of simple products requiring modest financial inputs to more costly sophisticated goods which yield higher profit margins (Asiedu and Agyei–Mensah 2008). Whilst the Poverty Reduction Strategy I (2002-2005) and II (2006-2009) aimed to increase the availability of financial inputs for all self-employed individuals through the Micro and Small Loan Centre (Awusabo-Asare and Tanle 2008), female access to formal credit institutions remains restricted to a greater extent than men. Furthermore, access to financial capital and markets are embedded in social networks which differ in nature between men and women. Hanson's (2005) study of livelihoods in urban Koforidua, Ghana, found although women typically have access to a greater number of contacts those frequently utilised are based on physical proximity with friends, neighbours and family being important. In contrast men are more likely to rely on associates formed on the basis of social group membership, alumni and economic engagement. The greater diversity of contacts in male social networks is likely to result in greater economic opportunities. As a result men are more likely to be found selling more profit intense products. Awumbila and Ardayfio-Schandorf's (2008) case-study of porting in Accra provides an additional example of inequality. Barriers to the use of trolleys, due to these being seen as a male tool, means female porters can only carry lighter loads compared to their male

counterparts. Furthermore, male porters are frequently able to negotiate the price of their services whilst women have to accept the price offered by their customers.

3.4 The maternal and economic role experience of Ghanaian women

This section will explore the possible salience of work-family concepts initially developed in the West for Ghanaian women's combination of their economic and maternal roles.

3.4.1 Women's economic role and role experience

Certain features of work have been found to be associated with role conflict and enhancement, although the majority of these studies have been conducted in Anglo and Asian countries. Working hours have been found to be significantly associated with role conflict across countries. In Asia Aryee (1992), Aryee et al. (1999) and Kim and Ling (2001) have focused on women in Singapore, India and Hong Kong respectively, whilst Cousin and Tang (2004) investigated an European cluster (Netherlands, Sweden and the United Kingdom). Spector et al.'s (2004) cross-national study of managers included samples from Anglo, Asian, Eastern European and Latin American countries. In the GLSS mothers co-resident with their children and recording their primary work status as in the informal sector, the mean hours worked per week was 55. 20% of mothers however worked over 70 hours per week. Mothers engaged in formal employment as their primary occupation were recorded to work on average 45 hours per week with 22% working over 70 hours. Long working hours can result in time-based conflict as time spent at work can take time away that can be spent on fulfilling childcare tasks. However, in Ghana where the meaning of motherhood is to engage in economic activity this poses the question of whether long working hours will conflict with the maternal role. In Clarke's (1999) study the notion of women staying at home with their children was seen to contradict the image of a good mother. Consideration of culture is gradually being emphasised in the work-family literature with distinctions being made between 'individualist' (Anglo and Western Europe) and 'collectivist' (Latin America, Asia, Eastern European) cultures (Hill et al. 2004,

Spector et al. 2004, Spector et al. 2007). As norms and values influence how individuals perceive their work and family roles this will consequently affect perceived fit and conflict between these demands. In individualist cultures, where work is seen as a means for personal development long hours are likely to be seen as conflicting with the family demands. In contrast, in collective cultures, such as Ghana, where the function of work is for family survival long hours can be seen as positive for the family.

Batt and Valcour's (2003) study of white-collar couples in New York found job insecurity to be positively related to role conflict. This dimension of conflict may be especially salient to Ghanaian mothers where their ability to provide materially for their children is central. Due to gendered access to formal financial institutions, the operation of many female enterprises is based on credit with this infusing the whole supply chain (Awusabo-Asare and Tanle 2008). Vulnerability characterises work as the ability to secure goods is based on trust and social relationships which can be threatened when one individual in the chain fails to make payment. In addition to insecurity of earnings, Ayree (2005) further identifies that low pay might be a source of strain in the urban SSA context. This is not an issue restricted to women in the informal sector. In Annor's (2014) study of work-family conflict among staff at the University of Ghana, a number of respondents in lower level positions highlighted their salaries were inadequate to survive upon forcing them to become involved in trading outside their formal work hours. Yet, despite the insecurity and unpredictability of earnings in the informal sector and low pay in some formal work too, it should be noted that mothers' engagement in this work may result in role enhancement whereby the generation of financial capital promotes the fulfilment of their maternal role. Awusbo-Asare and Tanle (2008) note despite their profits being low, women's involvement in palm kernel oil processing in the Central region of Ghana enriches their wellbeing through allowing them to contribute to the household. Through being able to fulfil this component of motherhood women's performance of their economic role may result in an enhanced personality as seen in increased self-esteem.

Focusing particularly on traders, the main source of employment among women, their negotiation of physical space leads to considerable contention for power amongst themselves and with the local authorities.

Conceptual Framework

Asiedu and Agyei-Mensah's (2008) study of traders in Accra found their strategic location of business along roadsides and by shops and offices is often at odds with regulations resulting in ejections, confiscation of goods and even arrest. In such incidences some individuals temporarily withdraw from work activity whilst they find new locations to trade or whilst they accumulate goods. Constant insecurity is faced due to the saturation of the market and individuals are required to come up with tactics to maximise profits in the face of increasing competition (Overa 2007). In addition to insecurity, strain is felt among traders due to their experience of harassment from the local authorities, the public and shop-owners as well as their battle against the natural elements (Asiedu and Agyei-Mensah 2008). These examples may illustrate strain-based conflict if these sources of stress affect performance of the maternal role. The work conditions of the informal market can be seen to make it difficult for women to fulfil their maternal roles as providers.

Whilst mothers engaged in formal work on average work less hours per week than those in the informal sector they are argued to have less control over their working hours or have standardised schedules making it more difficult for them to fit economic activity around changing family requirements (Abu 1994 cited in Derose 2002). Kim and Ling's (2001) and Aryee et al.'s (1992) studies in Hong Kong and Singapore found work schedule inflexibility to significantly increase the experience of work-family conflict. However, the flexibility of all informal work can be questioned. Clarke's (1999) study highlighted the need of informal wholesalers to be at sale yards at specific times of the day, for example early morning, in order to get the best stock at the best price. For other traders custom is also likely to come in flows at fixed points in the day, for example early morning and the evening. It is also argued institutional contexts restricting the presence of children in the modern workplace (Date-Bah 1986 as cited in Derose 2002) result in difficulties in combining work and childcare among women engaged in the formal sector. However, not all informal work provides women with the opportunity to integrate these activities. Using the example of wholesalers, the workplace can be dangerous environments posing health and injury risks to children due to their chaotic nature and also the requirement of mothers to focus on the negotiation of prices (Clarke 1999).

Women in the formal sector, unlike those engaged in informal activity, are protected by labour legislation which aims to address the conflict between work and family. For example, Act 651 of the Ghana Labour Act (2003) states the entitlement of at least twelve weeks of fully remunerated maternity leave, in addition to any usual period of annual leave, for pregnant workers. Furthermore, upon the resumption of work nursing mothers[5] are entitled to an hour paid interruption to work for the purposes of breastfeeding. Pregnant women and women with children less than eight months old cannot be engaged in overtime without their consent. Even where the above provisions are provided they do not take a life-course approach to the combination of work and children but instead focus on providing women with rights only in the period immediately after childbirth. Gaps exist in legislation with no formal agreements existing in relation to:

1. paternity leave: the availability of short-term, fully remunerated and secure leave to fathers in the period immediately after childbirth,
2. parental leave: additional leave after the exhaustion of earlier maternity leave, and
3. temporary leave: for the care of dependent family members.

There is additionally no right of employees, whether male or female, to request flexible working, for example in schedule and location. As a consequence of such gaps many women feel a lack of support and understanding from their workplaces in their roles of mothers and rely heavily on kin assistance (Mensah 2011). The absence of paternity leave also perpetuates gender inequality in childcare (Annor 2014).

3.4.2 Women's maternal role and role experience

For women in self-employment their maternal role can prevent them from being able to reinvest into their business. Clarke's (1999) study among Kumasi traders revealed that among the older generation when fathers were able to maintain children fully women's profits were used to grow their businesses further. The dependency of children on women's incomes also means that women are unable to take risks in business decisions. Additionally,

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[5] Nursing mothers are defined as a woman with a suckling child less than one year of age.

role conflict can contribute to strain as responsibilities of childcare may interrupt maternal economic activity. Clarke's (1999) study also provides evidence against the dominant perception of the compatibility of informal work and childcare, with children reported to interfere with business through interrupting the process of bartering and selling when being cared for in the market place. It should be noted that trading can also complicate mothering activities when this occurs simultaneously to work through the environment of markets creating risk for the health of children. Temporal restrictions in the ability of kin to provide assistance with childcare, as described in Chapter 2, could result in conflict between economic work and childcare among women engaged in formal sector who do not have the ability to exercise flexibility in their hours of work. The previously described observation by Oppong of the withdrawal from work of mothers in teaching and nursing occupations suggests the conflict between the work and family sphere for these women. Among staff at the University of Ghana in Annor's (2014) study daily conflict was described in the taking and picking up of children from school, whilst child sickness was seen to be a major interruption to work. Nonetheless, taking an identity process perspective conflict may only be felt by women according to the importance of their job or children for their identity and how they are perceived by others.

For both groups of women taking a scarcity of resources perspective, the question of whether mothers are becoming more involved in the activities of mothering due to temporal restrictions of kin, raises concerns of whether women are experiencing overload and thus are experiencing difficulties fulfilling demands due to limited time and energy resources. Asare and Tanle's (2008) study of palm kernel oil processors in the Central region described how women are 'stretched to the limit' (p62) with their work leaving them little time for their children. Long working hours may also result in strain-based conflict, apparent in affects such as fatigue, which can overspill into the family domain. In Annor's (2014) study of staff at the University of Ghana participants discussed how their workloads left them feeling exhausted affecting their performance in the family domain once they returned home. Nonetheless, the greater involvement of mothers in activities of mothering could have positive implications resulting from role enhancement. Where difficult economic

circumstances may make the fulfilment of their economic role difficult this involvement in mothering may act as a form of compensation.

3.4.3 Gender and role experience

It is argued that the experience of the combination of work and family is gendered as a result of the different normative responsibilities prescribed to men and women. For example, it is theorised that women are likely to experience family-to-work conflict, whilst men are more likely to experience work-to-family conflict. This difference is attributed to women's greater responsibilities within the domestic sphere. Martinengo et al.'s (2010) study of IBM employees across 79 countries found that consideration of the life-stage of the family is important. Gender differences in the experience of work and family is greatest in the central stages of life when children require the greatest time and economic resources from their parents. Hill et al. (2008) also reports the significance of the interaction between gender and life-stage. For mothers in the life-stage of having young children, particularly preschool children, have higher levels of conflict between family and work. Nonetheless, in the Ghanaian context due to the importance attached to economic work in the fulfilment of maternal responsibilities this relationship may differ. This study is focused on mothers only and therefore will not be able to explore gender differences in the combination of roles.

3.5 Work-family coping strategies

Marks (1977) hypotheses women will be motivated to find methods to overcome constraints when they have equally high commitment to their roles. Evidence suggests that coping strategies, actions and behaviours which individuals adopt to manage their multiple roles (Lo et al. 2003), can mediate the relationship between work and family characteristics and role experience and outcomes (Aryee et al. 1999, Matsui et al. 1995, Rotondo et al. 2003). Rotondo et al.'s (2003) survey of men and women in the USA of various professional levels and organisations found help-seeking and direct action behaviours, which are problem focused strategies, at home to significantly reduce conflict from family to work, however not in the reverse direction. Help-seeking in this study was defined as proactive efforts to mobilise support from

others, whilst direct-action was conceptualised as effort towards the resolution of work (family) problems that may cause family (work) to suffer. Positive thinking, placing conflict in an optimistic cognition, was not found to reduce conflict. Aryee et al.'s (1999) study of dual-earner parents in Hong Kong similarly found problem focused strategies to be negatively associated with conflict from both work (family) to family (work). Matsui et al. (1995) study of Japanese office workers found that husband's support (emotional and instrumental) and strategies involving changing demands in the home, for example removing domestic responsibilities through the hiring of help, significantly reduced conflict from family to work. It should be noted, however, these studies were based on women in formal employment with no studies being found relating to the effectiveness of coping strategies of women in informal labour sector.

The implementation of coping strategies depends upon resources available to individuals and families (Pearlin and Schooler 1978) and consequently a range of strategies exist (Rotondo et al. 2003). Not all strategies are equally effective in different circumstances making the distinction between mechanisms important. This section will outline a typology of coping devised by Hall (1972) commonly used in research and which will be used by this thesis to investigate coping behaviours of working mothers in Accra, Ghana. Given the three components of role acquisition discussed previously, structurally given demands, role conceptions and action, Hall (1972) theorised that strategies to cope with roles could intervene at any of these levels. Subsequently his classification of coping consists of three categories:

1. Type I – Structural role redefinition: individuals actively redefine the role expectations of others. For example, an individual may negotiate with others, such as their husband or older children, to reduce their childcare responsibilities through reallocating tasks.
2. Type II – Personal role redefinition: individuals change their perceptions and attitudes of the role demands made by others. For example, an individual may change their cognition towards the interaction of their multiple roles. They focus on the positive aspects such as an increased income allowing them to provide materially for their children rather than becoming preoccupied with negative

aspects such as work reducing the time which can be spent with children.

3. Type III – Reactive role behaviours: individuals see that definitions of roles are unchangeable and attempt to meet all demands and improve role performance. For example, individuals may try to manage their time more effectively.

Structural role redefinition involves the active communication between individuals to change role responsibilities. This is a long-term relief to reducing conflict (Kahn et al. 1969) as the environment in which one is placed is directly addressed. Through negotiating with others demands are reduced whilst the individual still fulfils role responsibilities. In contrast, personal role redefinition does not involve adjustment to the external environment. Instead there is a change in how individuals perceive the expectations of others and their own attitudes towards their roles. This strategy is likely to only bring short-term relief to conflict as expectations as defined by others are not changed. The failure to meet these expectations is likely to result in the build-up of stress (Hall 1972). Unlike both structural and personal redefinition, reactive role behaviours do not attempt to change either the objective or subjective definitions of roles but individuals attempt to meet all demands and improve their performance. This coping strategy is not likely to result in long-term relief as it places considerable strain on individuals' resources.

To validate and provide illustrations for his typology of coping Hall (1972) through a mail questionnaire sent to college educated women in Connecticut asked "*List any conflicts or strains you experience or have experienced between sub-identities or roles?*" and *"How do (did) you attempt to deal with these conflicts?"* (p475). Sixteen coping strategies were identified and classified as displayed by Table 3.3.

Conceptual Framework

Table 3-3: Hall's (1972) classification of coping strategies and illustrations from his study with educated women in Connecticut USA

Coping Mechanism	Definition	Example
Structural role redefinition		
Eliminating role activities	A reduced set of activities within a role are agreed with role senders.	Focusing on certain area of occupation and dropping some responsibilities.
Role support from outside the role set	Agreement with non-role senders to have help meeting role expectations. However, can occur costs in terms of payment for help and possible strain from worry about role performance.	Reduction of childcare responsibilities through hiring a 'babysitter' or through sending the child to a crèche.
Role support from inside the role set	Agreement with individuals from inside the role set to have help with meeting role expectations.	Receiving help from colleagues to complete work activities.
Problem solving with role senders	Communication with role senders on how to redefine role. Outcomes are mutually agreed.	Negotiating change in working hours to fit in with childcare demands, e.g. picking children up from relatives/crèches.
Role integration	Redesigning roles so they can be performed simultaneously. Redefinition of roles agreed upon by role senders.	Working from home so that children can also been minded at the same time.
Changing societal definition of role	Changing expectations of a role as seen by the wider society.	Questioning general social expectations for example the restriction of women entering certain professions.
Personal role redefinition		
Establish priorities	The ranking of role activities and the performance of those seen as most important.	Caring for a sick child takes preference over attending to economic work activities.
Partitioning of roles	Compartmentalization of roles which are not actively negotiated with role senders. If	Not thinking about work whilst caring for children and vice versa.

	decided with role senders defined as problem solving.	
Overlooking role demands	Ignoring the performance of certain aspects of a role without agreement with role senders.	Not meeting deadlines in work tasks
Changing attitudes towards roles	Altered perceptions towards responsibilities.	Instead of focusing on instances when work prevents the fulfilment of childcare and domestic tasks, focusing on how working provides an income to meet family needs.
Eliminating roles	Roles dropped are frequently those that an individual engages in for personal satisfaction. Involves personal reorientation and changing of identity.	To stop a hobby, for example a sport group.
Rotating among roles	Shifting time and attention between roles.	At work handling different tasks one at a time.
Develop self and own interests.	Having interests to provide a relief from demands.	Choosing to make time for leisure activities such as swimming.
Reactive role behaviours		
Planning, scheduling and organising	Management of time and demands.	Planning meals for the week and ensuring all ingredients are bought in one go/ cooking in bulk
No conscious strategy	Assumption of there being no way to cope with role conflicts.	-
Working harder	The active increase of energy inputted into roles to ensure expectations is met.	Working harder to make use of time.

Source: Hall (1972)

The specific strategies adopted to manage work and family may vary according to context due to the different contents of roles and the resources available to individuals. For example, the partitioning of roles is not possible for women who care for their children simultaneously to working. However, the

broad classification presented by Hall could be seen as applicable to different settings due to its evolvement from role theory. Hall's typology whilst based on observations from the USA has been used to investigate coping strategies in other contexts such as Hong Kong (Lo et al. 2003), Canada (Kirchmeyer 1993) and South Korea (Lee et al. 2004). A deficiency of knowledge exists concerning how mothers cope with their dual roles in the SSA context with most discussions focusing exclusively on childcare.

3.6 Conclusion: A conceptual framework of the interface between women's economic and maternal roles in Ghana

The literature review found one framework of the interface between work and family adapted specifically to SSA (Figure 3.1) developed by Ayree (2005, p263). His model theorises that work and family responsibilities are linked to individual and organisational wellbeing through the experience of conflict. The bi-directional conceptualisation of conflict is recognised with both work-to-family conflict and family-to-work conflict explicitly incorporated. The occurrence of conflict is predicted by identified stressors in both the work and family domains. This model differs to Western conceptions by including additional contextual influences particularly relevant to the SSA context. He highlights that the performance of the family role requires considerable more time and energy compared to the Western context due to the absence of modern domestic conveniences and the irregular supply of utilities. Furthermore, he believes extended family obligations to be of a greater intensity in the SSA context and as contributing to the challenge of combining work and family. Moderators are identified firstly as having the potential to lessen the negative linkages between domain stressors and the experience of conflict. In the work domain this moderator is identified as informal social support. The absence of formal support from his framework reflects in the SSA context organisational family friendly initiatives designed to assist individuals with the combination of their work and family roles are deficit. Furthermore, the majority of the population work outside the formal sector and are not protected by the implementation of such policies. In the family sphere social networks are identified. He argues that the literature in the West emphasises

spousal support, but in the SSA context extended family members are important. He also adds paid domestic labour to the model but notes that such assistance is normally restricted to the middle class. Moderators can also intervene in the relationship between the experience of conflict and outcomes of individual and organisational wellbeing. At this stage Ayree sees that social support can act as a buffer reducing the negative consequences of conflict through allowing one to manage with a stressful situation.

Our conceptual framework differs to Ayree's in a number of ways and is based on that of Voydanoff (2002) which explains the mechanisms through which work and family result in both positive and negative outcomes. Firstly, this thesis takes a narrower focus concentrating on women's combination of their economic work with their maternal role specifically. The maternal role, unlike Ayree's conceptualisation of family, is not seen to be a completely distinct sphere to work. Instead our conceptual framework incorporates an overlap to reflect the literature in Ghana surrounding the economic meaning of motherhood. We theorise role combination to be linked to individual outcomes through two stages, of which role conflict and role enhancement are first. Ayree's framework does not include the possibility of work(family)-family(work) enhancement, the absence which suggests he only perceives there to be difficulties with the combination of roles in this context. We include role enhancement as the literature suggests the salience of this concept in the Ghanaian context, for example the participation in work improving women's performance of their maternal role through allowing them to provide materially for their children. It should be noted that whilst it is not explicatively stated we acknowledge role conflict and role enhancement as being a bi-directional concepts. We define role conflict as the hindrance of women's economic (maternal) role on the performance of their maternal (economic) role. Role enhancement is defined as where the participation in the economic (maternal) role improve performance in the maternal (economic) role. In the second stage role strain or role ease is experienced which is defined as the difficulty or effortlessness in fulfilling roles respectively. An example of this operation could be whilst women's economic role enhances their ability to provide materially for their children difficulty could still be perceived in fulfilling this role due to conditions of insecure and low pay.

Conceptual Framework

Moderating the relationship between women's combination of their economic and maternal roles are coping strategies. In contrast to Ayree we allow for the possibility of a range of coping strategies that go beyond support, the investigation of which is the aim of Chapter 4. The adoption of certain coping strategies can also have feedback to the contexts of women's economic and maternal roles, for example the adjustment of working hours. The decision of which coping strategy to adopt depends on the resources available to individuals. For example, the arrangement of using a family member as a source of childcare is only possible if these individuals are available. The adoption of a coping strategy may be motivated through the experience of role conflict or a negative outcome. We also include social category membership. As noted gender is a well-researched moderator in the work-family interface. In our investigation of mothers we focus particularly on employment status but further considerations include marital status or household wealth. The meaning of women's maternal and economic role may differ by social memberships influencing how individuals perceive the combination of their roles. Social category membership also influences the coping strategy adopted by women through affecting resources. For example, occupation or household wealth could indicate the ability to afford paid domestic assistance or childcare.

Outcomes studied in this thesis are women's health (Chapter 5) and children's educational progress (Chapter 6). Greater explanation will be given in future chapters of the linkages between women's role combination with these outcomes.

Figure 3-1: Ayree's (2005) conceptual framework of the work-family interface
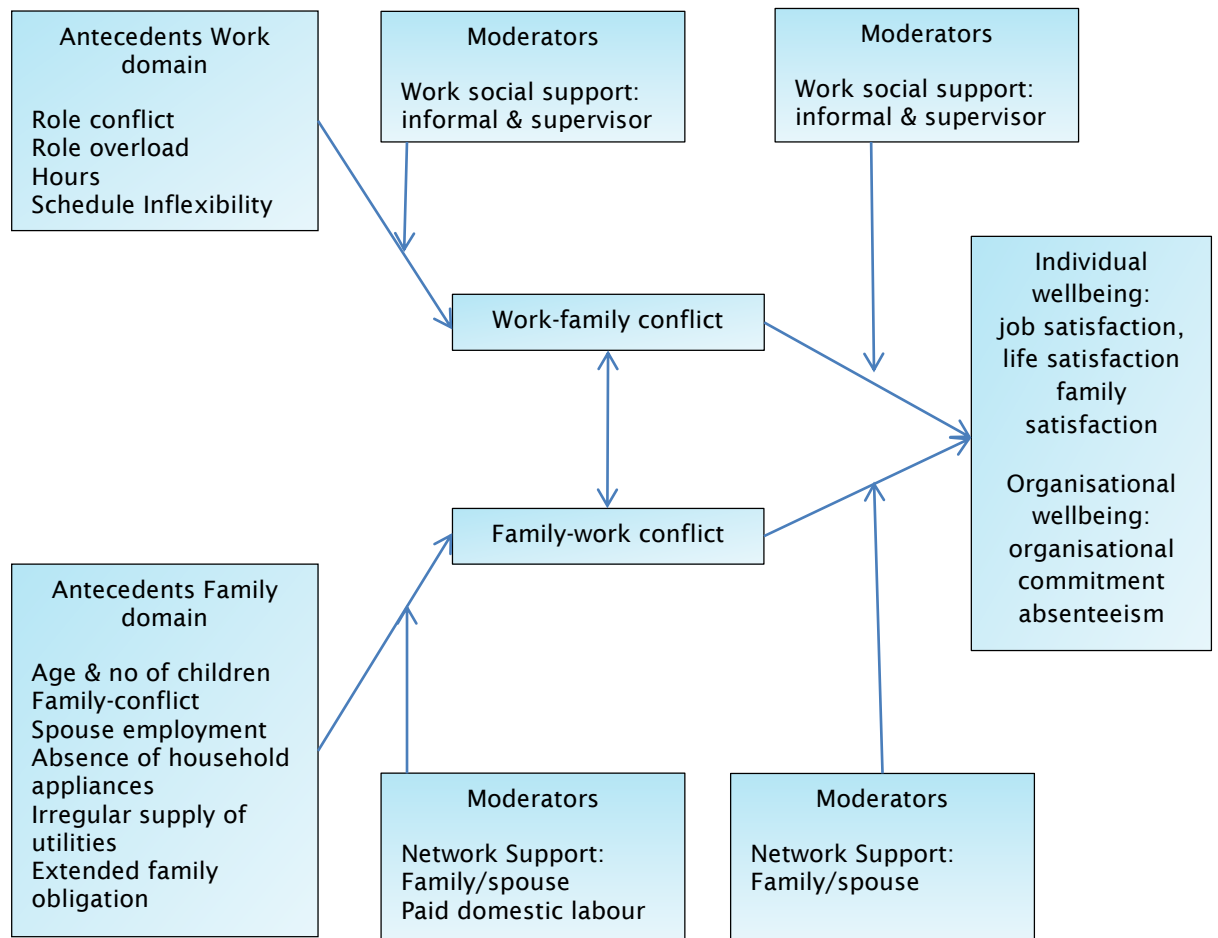
Conceptual Framework

Figure 3-2: Our conceptual model of the interface between women's work and maternal roles in Ghana
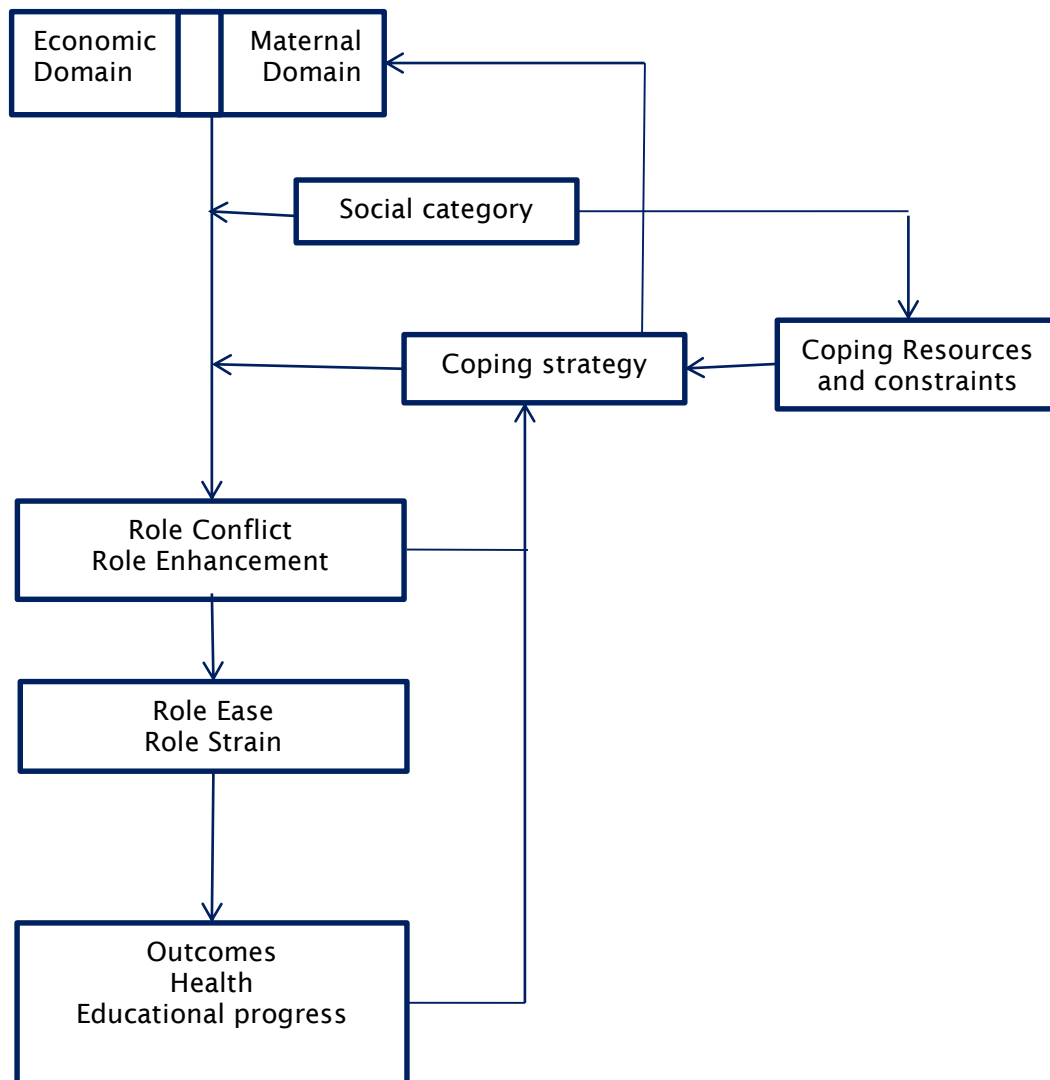
4. Caring for young children: the experience of working mothers

4.1 Introduction

Despite Oppong's (2001) concerns of the implications of maternal time demands to the burden of child under-nutrition in SSA, results from the Accra AUFNS reveal that maternal employment does not have a significant relationship with either childcare practices[6] or nutritional outcomes among children aged three years and younger in this urban context (Ruel et al. 2001). Such an outcome raises the question of how are women managing their economic and maternal roles to ensure the effective care of their young children? Individual and family coping strategies are expected to be especially important in urban Ghana where the majority of women are self-employed and not subject to organisational work-family policies. Evidence also suggests that women employed in the formal sector feel a lack of support and understanding from their employers upon the resumption of work after childbirth (Mensah 2011). Yet, little research in SSA considers the 'every-day dynamics' of childcare (Bray and Brandt 2007, p2), partly as a consequence of the neglect of childcare in household surveys concerned with economic activity (Budlender 2004) or the narrow focus on specific care practices such as breastfeeding and nutrition. Attention has also been restricted to crisis of care, for example arising from the HIV/AIDS epidemic (Bray and Brandt 2007). Through the use of both qualitative and quantitative methods, this paper aims to enhance understanding of this research gap through exploring the daily negotiation of work and childcare of women with young children in a SSA urban centre.

4.2 Literature

A deficiency of knowledge exists concerning how mothers cope with their dual roles in SSA with the literature in this context focusing on strategies used

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[6] Care practices investigated were feeding practices, the use of preventative care services and hygiene behaviours.

to protect the household against income and food insecurity. Where information does exist it focuses mostly on childcare. The practice of out-fostering, discussed in Chapter 3, is a mechanism which redistributes childrearing responsibilities. Isuigo-Abanihe (1985) and Fiawoo (1978) suggests fostering is used as a strategy to manage the demands of economic activity and childrearing. Using national data, Isuigo-Abanihe (1985) highlights the positive association between out-fostering and female economic activity, but notes this relationship only exists among waged employees. Fiawoo's (1978) study of school children in Abokobi-Pantang, Ghana, found the majority of fostered children had separated or divorced mothers residing in Accra who due to their occupational role believed they were unable to provide sufficient care and attention to their children. More recent quantitative work conducted in South Africa found that non-resident biological mothers are more likely to be engaged in economic activity compared to biological mothers and other women co-resident with children (Posel and van der Stoep 2008). It has been suggested that non co-residence of mothers and biological children in this context is likely to be the result of labour migration of parents (Ardington et al. 2010, Bray and Brandt 2007). Relating this strategy to Hall's (1972) framework of coping, fostering could be defined as a form of structural redefinition as through organisation with others a reduction in biological mothers' childrearing responsibilities is achieved. Depending on the source of foster parents this strategy can either be classified as role support from within the role-set or role support from outside the role-set, with family members being seen as being within the role-set. Nonetheless, Blanc and Lloyd's (1990) analysis of childcare arrangements of working women using the 1988 GDHS suggests that fostering is not the predominant childcare strategy when focusing on women with young children, defined in their study as under the age of six (Table 4.1).

Table 4-1: Percentage distribution of childcare arrangements used by working mothers (with at least one living biological child under the age of six years), by occupational status and marital status/living arrangement, Ghana Demographic and Health Survey 1988

	Childcare strategy					
Covariate	Herself	Family[a]	School[b]	Fostered[c]	Other[d]	N
Occupation[7]						
Modern Cash	29.0	31.7	19.6	9.3	10.2	107
Traditional Cash						
Home	63.9	22.7	3.6	7.7	2.3	443
Travelling	30.5	53.7	7.3	6.3	1.2	82
Away	40.2	41.3	6.6	9.9	2.0	547
Agriculture	51.5	38.1	4.7	4.3	1.3	297
Marital Status & Living Arrangements						
Never Married	41.4	31.0	6.9	17.2	3.4	29
Married w/Husband, w/Parents	50.7	37.3	5.5	5.5	1.0	217
Married w/Husband, not w/Parent	41.9	38.2	7.7	10.2	2.0	246
Married w/Parents, not w/Husband	42.8	44.3	1.5	8.8	2.5	194
Married not w/Parent or w/Husband	51.2	32.6	6.9	5.9	3.4	656
Formerly married w/Parents	47.2	35.9	11.3	5.7	-	53
Formerly married not w/Parents	51.6	21.6	6.5	18.3	2.2	93

Source: Blanc and Lloyd (1990) using the GDHS1988
[a] Husband, children and other relatives, [b] and other institutional care, [c] for women with more than one child, children are grouped under fostered if at least one is fostered. This applied to 72 cases.
The assumption made by this table is where there is more than one child aged less than six years the childcare arrangement is the same for all children.
1. Modern cash includes professional, technical and related workers, administrative and managerial workers, clerical and related workers, as well as sale supervisors and buyers, technical salesmen, commercial travellers, and manufacturers 'agents; 2. traditional cash at home includes all other sale workers, service workers and all skilled and unskilled production workers working at home, 3. traditional cash travelling includes sales workers as well as beverage processors and tailors who sell what they can carry by walking place to place in a circumscribed area, 4. Traditional cash away including women in all occupations listed above under (2) who travel away from their home to a work or market place, 5. Agriculture including self-employed as well as agricultural employee.

Caring for Young Children

Information on the childcare arrangements of working mothers who are co-resident with their young biological children is provided by the AUFNS. This representative sample of households with children under the age of three resident in the AMA, the Tema Metropolitan and the Ga Municipals of the Greater Accra region is also used by myself to further investigate childcare arrangements later in this chapter, and forms the location of the qualitative fieldwork. The survey results reveal that women after childbirth withdraw from economic activity for a mean period of four months. This figure is, however, likely to be an underestimate, as it does not take into account mothers who had not returned to the labour force at the time of the interview (Ruel et al. 2001). Through the temporary elimination of role activities women's withdrawal from the labour market objectively changes their role demands making this strategy a form of structural role redefinition according to Hall's (1972) framework. Upon the resumption of economic activity the most common strategy of mothers with children under the age of three is caring for children whilst working (57%) (Quisumbing et al. 2007). This reflects the dominance of female informal economic activity in the sample (80%). This could be seen as a form of role integration, where in order to cope with economic and childcare responsibilities activities are performed simultaneously. Studies conducted in the wider context of the developing world suggests the adoption of informal work may be a coping strategy implemented by women due to the features of flexibility, independence and proximity to the household making this form of economic activity easier to combine with childcare than formal work (Cassirer and Addati 2007, Marcucci 2001). However, in Ghana due to the small opportunity for formal employment and gender segregation and inequality restricting women's access to this sector (Heintz 2005), mothers' participation in the informal labour is unlikely to be an active choice.

Despite the overall reliance on the strategy of caring for children simultaneously to work, variations in the use of childcare arrangements in the AUFNS sample exist (Table 4.2). The majority of mothers involved in home-base enterprises (HBEs) use the arrangement of caring for their children whilst working. In contrast, market and street traders mainly use alternative care arrangements, which can include crèches and supervision by friends and relatives. The use of formal day-care is uncommon among all groups of

working women with the exception of office workers. This latter strategy is a form of structural role redefinition where support is received from outside the role-set and involves a financial cost.

Table 4-2: Workplace location of working mothers and their use of childcare arrangements for children under the age of three by location (percentage distribution), Accra Urban Food and Nutrition Survey 1997

Mother's workplace	% of working mothers	Mother works and care for child	Single caregiver	Multiple caregiver	Formal day-care
Home	34.4	85.2	10.6	1.6	7.4
Garden/farm	0.6	100.0	50.0	0.0	0.0
Market	17.2	47.5	41.0	6.6	9.8
Street	25.9	43.5	40.2	9.8	7.6
Shop	6.2	50.0	18.2	4.5	3.6
Factory	0.3	0.0	100.0	0.0	0.0
Office	5.4	5.3	36.8	5.3	47.4
Other	10.1	44.4	30.6	2.8	19.4
Total		57.0	33.0	6.4	15.4

Source: Quisumbing et al (2007)
Note: sum of percentages exceed 100 as 12% of working mothers used more than one strategy
Sample= 355, in the sample 80% of mothers are self-employed whilst 14% and 5% are wage earners in the private sector and civil service respectively. 2.5% are unpaid workers.

The majority of women engaged in HBEs caring for children simultaneously to their work raises the question of whether this form of work is an active choice to ease the combination of work and childcare. HBEs have become an increasing feature in the urban context (Obehauser and Hansen 2007). Table 4.3 reveals the engagement in HBEs is more common among mothers with young children in the Greater Accra region suggesting this could be a strategy used to manage home and work demands. Yankson's (1999) investigation of HBEs in low-income neighbourhoods in the AMA found whilst this form of work was used as a strategy to ease the financial costs of business start-up, the advantage of integrating work and family was also discussed by participants. However, this arrangement is also noted to have economic

consequences with HBEs typically yielding small profits due to restricted markets (Straussmann 1986).

Table 4-3: Location of place of main economic activity in the week preceding the survey of women with young biological and those without, living in the urban areas of the Greater Accra region, Ghana Living Standards Survey Fifth Round

Place of work (%)	Mother with child aged less than five years co-resident	Other women aged 15-49 years
Home	36.70	27.94
Land/farm	6.38	6,48
Office/factory/hotel/school/ hospital/workshop	14.36	22.46
Shop	14.89	20.04
Street/lorry park	21.81	17.21
Other	5.85	5.87

Author's own analysis of the Ghana Living Standard Survey (2005)

In Annor's (2014) study of staff at the University of Ghana older children, friends and relatives were described as important sources of instrumental support especially in regards to childcare. In particular mothers and mother in-laws were seen to be vital in reducing stress associated with combining work with childcare. One participant described how when she had her first child her mother came to live with her for five years after childbirth, resulting in her commenting that she had never experienced problems with finding childcare. Where extensive family support is available it appears that women experience ease in combining their economic and maternal roles. Clarke (1999) also describes how amongst Kumasi traders women are able to easily combine their work and childcare responsibilities due to the availability of kin who it is seen hold joint responsibility for child welfare. The source of conflict between work and children was not seen to lie in childcare, but instead due to difficulties children presented in allowing women to invest in their businesses. Nonetheless, Annor's (2014) study did highlight the conflict that women face, for example how overload experienced in work leaves individuals unable to perform their family roles effectively due to exhaustion.

4.3   Research objectives

Clarke's (1999) and Annor's (2014) qualitative fieldwork suggests women feel an ease in combining their labour force participation with childcare where kin are available to provide assistance. Nonetheless, our description of social change presented in Chapter 2 indicates that whilst kin support still exists, temporal and physical restriction of kin in the provision of assistance created by increasing work and educational commitments mean women may be facing a greater negotiation in the management of their economic work and childcare. Using both qualitative and quantitative methods, this chapter aims to gain a greater understanding of the experience of women in combining their maternal and economic roles, focusing particularly on the care of children. Specifically this research has three objectives:

1. to illustrate the work-family coping strategies used by women to ensure the care of their children,
2. to consider the influence of social categories and coping constraints and resources on the type of coping strategy adopted; and
3. to explore women's perceptions of the consequences that the combination of their occupational and maternal roles can have for the experience of role conflict, enhancement and balance.

The mixed method approach of this study allows for a more complex and comprehensive investigation. Quantitative data will be used first to identify the main childcare arrangements used by working women in Accra, and to detect variations by demographic and economic characteristics. The qualitative fieldwork conducted subsequently aims to explore the micro-level processes and interpersonal relationships involved in the combination of work and childcare. The qualitative fieldwork, as will be discussed, also revealed that women's strategies to ensure the care of their children go beyond childcare arrangements. Whilst Annor's (2014) research investigated the lived experience of combining work and family in Ghana, this research differs in a number of ways. Our study takes a narrower focus than Annor focusing predominantly on childcare rather than wider family demands. Our investigation was restricted to mothers who are co-resident with their biological children who were under the age of three at the time of

the study. This age group was chosen as women with preschool children are likely to have high parental demands, and age three is used by the AUFNS which is also used in our investigation. Lastly, similarly to Ayree (2005), Annor's study was concerned solely with conflict, implying that difficulties are only faced when combining work and family. In our investigation no assumptions were made concerning women's experience of the combination of their roles.

4.4   Quantitative data and analysis

4.4.1   The Accra Urban Food and Nutritional Security Survey

The AUFNS was used to identify the main childcare strategies used by women in Accra, and to examine whether the adoption of these strategies varies between population sub-groups. Whilst both the 2005 GLSS and the AUFNS (1997) were identified to contain information on childcare arrangements, the latter survey was selected despite being more dated due to the more detailed outcomes specified. Responses to the GLSSV question on who usually looks after the child during the daytime was restricted to adult male/ female, child male/female or a crèche. The AUFNS allowed for the identification of whether the mother was caring for the child simultaneously to working. Appendix A.1 contains further information on the sampling strategy and questionnaire design of the AUFNS.

4.4.2   Methods

4.4.2.1.   Sample selection

This analysis draws on data collected primarily through the health and social care module. Information on the care of 559 children (one index child (IC) from each household surveyed) aged under three years and their principle care-givers (PCIC) was collected. PCICs were defined as the individual primarily responsible for the IC, with caring in this context being defined as feeding and supervising. PCICs were assumed to be the biological mother except in cases where mothers were not co-resident with the child or deceased. This definition may not be the most relevant in the Ghanaian context. As discussed previously activities of mothering are not necessarily performed solely by mothers.

Female kin especially have been identified as important providers of care. Nonetheless, the purpose of our investigation was to understand the broad childcare arrangements used by biological mothers to combine economic work and childcare so this definition was deemed as suitable. The steps below detail how the sample was refined and analysis conducted:

The first step was to investigate the relationship of the IC to their PCIC. 96% of PCICs were identified as being the biological mothers of the IC. In 19 cases the PCIC was a grandmother, in 3 cases another relative and in 2 cases an individual defined as 'other'. These 24 cases were removed from the analysis leaving a sample size at this stage of 535.

The second stage involved the creation of the dependent variable which was the childcare arrangement adopted by biological mothers. The question asked women whether they worked, as defined by employment or self-employment in the month preceding the survey. Where women responded that they were working they were further asked when working whether they also looked after the IC, and if yes whether this was all the time. For those not providing care for the IC during this time they were asked if they used a single alternative care-giver, multiple care-givers or a crèche. Using these questions childcare arrangements of not working, working and caring for their child at the same time, and working and using an alternative care-arrangement (the categories of single/multiple care-givers and crèche being collapsed here) were created. In our sample of 535 biological mothers, 14 (2.6%) were identified as using both the strategies of working and caring for their child at the same time and working and using an alternative care-arrangement. As it was uncertain which was the predominant childcare strategy for these women, and due to the small numbers, these women were excluded from the analysis resulting in a sample of 521. This left women separated into the three categories of not working, working and caring for their child at the same time and working and using an alternative care-arrangement.

The final stage in sample selection involved the consideration of independent variables. A range of socio-economic and demographic covariates were considered based on data availability. Using information on the age and sex of household members, variables were constructed to represent household

demography. The age of the IC was incorporated as a categorical variable with children classified as 0-2, 3-5, 6-11, 12-17, 18-23 or 24-35 months. In terms of socio-economic variations, mothers' marital status, migration status, ethnicity and educational attainment were investigated. At the household level wealth was considered, the construction of this variable is described in Appendix A.2. Excluding cases were full information on these socio-economic and demographic variables were not available left a final sample size of 499. This was 89% of the original sample size. Table 4.4 summarises the sample selection process.

Table 4-4: Summary selection process for the analysis of the associations between socio-economic and demographic characteristics and adoption of childcare arrangements

Step 1	Process	Sample size
0	Original sample	559
1	PCICs who are not biological mothers of index children excluded	535
2	PCICs adopting a combination of 2 childcare strategies excluded	521
3	PCICs without full information on independent variables of interest excluded	499

4.4.2.1 Bivariate and multivariate methods

Firstly, bivariate analysis was conducted to investigate the associations between socio-economic and demographic covariates and the childcare outcome. Where the socio-economic and demographic covariates were categorical cross-tabulations were performed and significance investigated using the Fisher's exact test due to small expected cell numbers. With mother's age, the mean age of mothers using the three different childcare arrangements were compared and significance investigated using t-tests.

Secondly, multivariate analysis was conducted using a multinominal regression model. This form of regression is suitable where the response variable is nominal and has three or more categories that are unordered. The basic principle of multinomial regression is the prediction of the probability of

membership to each group of the outcome variable, so in this example the prediction of the probability of adopting a specific childcare arrangement given certain socio-economic and demographic characteristics. In predicting probabilities response categories are simultaneously compared to a reference category. Due to the creation of a reference category only J-1 logit equations are specified. Multinomial regression models the log ratio of probability; the log of the probability of response in one category compared to the probability of the reference category. Equation 4.1 shows the set-up of these models.

Equation 4.1: Multinomial regression equations where the outcome variable has three categories as in both our analyses

$$\log(\frac{\pi_1}{\pi_3}) = \alpha_1 + x_1\beta_1 \qquad\qquad \log\left(\frac{\pi_2}{\pi_3}\right) = \alpha_2 + x_2\beta_2$$

Where π_1 is the response category 1, π_2 is response category 2, and π_3 is response category 3 (reference category), α_i the intercept, x_i a vector of the socio-economic and demographic independent variables, and β_i the coefficients. The reference category used in this analysis was 'working and caring for the child simultaneously'. Regression equations were set up for 'not working' and 'working and using an alternative care-arrangement'. In order to ease interpretation results were interpreted in terms of the probability of adopting a specific childcare arrangement.

Equation 4.2: Probability of the reference category (response category 1)

$$p_3 = \frac{1}{1 + e^{\alpha_1+\beta_1X} + e^{\alpha_2+\beta_2X}}$$

Equation 4.3: Probability of response category 2

$$p_1 = \frac{e^{\alpha_1+\beta_1X}}{1 + e^{\alpha_1+\beta_1X} + e^{\alpha_2+\beta_2X}}$$

Equation 4.4: Probability of response category 3

$$p_2 = \frac{e^{\alpha_2+\beta_2X}}{1 + e^{\alpha_1+\beta_1X} + e^{\alpha_2+\beta_2X}}$$

As this analysis was exploratory and no hypotheses were pre-specified, no variables were forcibly entered into the regression analysis. Instead a stepwise

approach was taken where variables were considered in turn and were only added into the model if they significantly improved the fit of the model as determined by the log likelihood ratio test. Child-level covariates were considered first, mother-level covariates second and household characteristics last. Covariates which significantly improved the explanatory power of the model at the 5% level were keep in the model, and subsequent variables were considered in addition to those already added. Covariates which did not significantly improve the explanatory power of the model at the 5% level were not included in the model. Table 4.5 summarises this model building process.

Table 4-5: The 2*Log Likelihood of nested multinomial models of childcare arrangements, and the p-value associated with log-likelihood ratio test

Model	Model	Log Likelihood	P value
1	Intercept only	-570.39	
2	CA	-508.48	0.000
3	CA+MAR	-503.48	0.040
4	CA+MAR+MIG	-502.41	0.343
5	CA+MAR+ETH	-493.80	0.004
6	CA+MAR+ETH+EDU	-488.49	0.031
7	CA+MAR+ETH+EDU+MA	-485.31	0.042
8	CA+MAR+ETH+EDU+MA+HW	-482.24	0.630
9	CA+MAR+ETH+EDU+MA+C05	-482.15	0.177
10	CA+MAR+ETH+EDU+MA+C611	-483.32	0.177
11	CA+MAR+ETH+EDU+MA+F1215	-479.27	0.002
12	CA+MAR+ETH+EDU+MA+F1215+M1215	-479.17	0.903
13	CA+MAR+ETH+EDU+MA+F1215+F1654	-476.43	0.225
14	CA+MAR+ETH+EDU+MA+F1215+M1654	-477.19	0.384
15	CA+MAR+ETH+EDU+MA+F1215+F55	-478.90	0.689
16	CA+MAR+ETH+EDU+MA+F1215+M55	-479.23	0.160

Abbreviations: CA – Child age, MAR – mother's marital status, MIG – mother's migration status, ETH –mother's ethnicity, EDU – mother's education, MA –mother's age, HW – household wealth, C05 –children aged 0-5 years in the household, C611 – children aged 6-11 years in the household, F1215 – females aged 12-15 years in the household, M1215 – males aged 12-15 years in the household, F1654 – females aged 16-54 years in the household, M1654 – males aged 16-54 years in the household, F55 females aged 55 years and over in the household, M55 – males aged 55 years and over in the household

Independent variables included in the final model were age of the index child, mother's marital status, education, ethnicity, age and the number of females aged 12-15 years present in the household. Independent variables that did not significantly improve the fit of the model and were not included were

mother's migration status, household wealth, children aged 0-5 years in the household, children aged 6-11 years in the household, males aged 12-15 years in the households, females aged 16-54 years in the household, males 15-54 years in the households, females 55 years plus in the household and males 55 years plus in the household. Please note due to very small cell numbers in the multivariate analysis in the age group 0-2 months for child age, this category was collapsed with those aged 3-5months.

4.4.3   Results

4.4.3.1   Sample characteristics

Table 4.6 shows the characteristics of the final analytical sample. The majority of mothers were married at the time of the survey (80%). Approximately two-thirds of mothers had basic education and were borne in the Accra region. There was a diversity of ethnicity, with Ga Dagme (36%), Akan (27%) and Ewe (25%) all being prevalent in the sample reflecting the ethnic composition of Accra. The mean age of mothers was 30 years. Whilst all children were under the age of three, one quarter were aged between the aged of 24 and 36 months. In terms of household demography, two-thirds of women lived in households were the index child was the only child under the age of five in the household. One-third lived in households where there was a further child of this age resident. This pattern is largely reflected when considering the co-residence of children aged 6-11 years. The majority of women lived in households where there were no females or males aged 12-15 years resident (81% and 88% respectively) or any females or males aged 55 years and over resident (89% and 95% respectively).

Two-thirds of women in the sample stated that they were working. Further analysis of the economic characteristics of PCICs engaged in economic activity reveals the majority were primarily self-employed (78%). The primary occupation of the sample is petty trading and street food vending (47% and 20%) respectively. Professional work is confined to the minority with only 3% of the sample engaged in this occupation. The mean number of days worked in the month preceding the AUFNS was 21 days with an average of 8.5 hours being worked per day.

Table 4-6: Analysis sample characteristics and cross-tabulation between socio-economic and demographic characteristics with childcare strategies, mothers co-resident with biological children aged less than three years, Accra Urban Food and Nutrition Survey

	Sample (percentage)	PCT work and child-care strategy (percentage)		
		Not working	Working and caring for child simultaneously	Working and using alternative carer
Marital Status**				
Single	15.43	36.36	37.84	21.74
Married	79.96	24.68	37.34	26.09
Div/sep/wid	4.61	38.96	24.81	52.17
Education*				
None	11.42	31.58	47.37	21.05
Basic	63.13	37.78	36.19	26.03
SSS or higher	25.45	37.01	25.98	37.01
Migration status				
Born in Accra	58.92	40.14	31.29	28.57
Not born in Accra	41.08	32.20	40.00	27.80
Ethnicity**				
Ga Dangme	35.87	42.46	28.49	29.05
Akan	27.45	34.41	30.66	35.04
Ewe	25.05	28.00	49.60	22.40
Other	11.62	44.83	32.76	22.41
Age (mean)	29.72	28.14	30.80**	30.42*
Household demographics				
Children aged 0-5 years***				
1	56.51	34.75	30.50	34.75
2	38.68	38.86	40.41	20.73
3+	4.81	45.83	41.67	12.50

Children aged 6-11 years				
0	52.30	38.31	30.77	42.11
1	28.66	34.10	36.36	34.74
2+	19.04	27.59	32.87	23.16
Females aged 12-15 years***				
0	81.36	40.39	34.73	24.88
1+	18.64	21.51	35.48	43.01
Males aged 12-15 years				
0	88.18	36.82	34.55	28.64
1+	11.82	37.29	37.29	25.42
Females aged 16-54 years				
0-1	69.74	35.06	36.78	28.16
2	20.24	41.58	27.72	30.69
3+	10.02	40.00	36.00	24.00
Males aged 16-54 years				
0	28.66	34.97	29.37	35.66
1	59.52	37.71	35.35	26.94
2+	11.82	37.29	45.76	16.95
Females aged 55 years +				
0	88.78	37.02	35.67	27.31
1+	11.22	35.71	28.57	35.71
Males aged 55 years +				
0	95.19	36.84	35.37	27.79
1+	4.81	37.50	25.00	37.50
Household wealth				
Poorest	20.44	31.37	42.16	26.47

Poor	19.64	35.71	36.73	27.55
Middle	20.44	41.18	27.45	31.37
Rich	20.24	37.62	39.60	22.77
Richest	19.24	38.54	28.13	33.33
Child age**				
0-2	5.81	86.21	13.79	0.00
3-5	9.82	69.99	24.49	6.12
6-11	23.65	41.53	43.22	15.25
12-17	16.43	31.71	40.24	28.05
18-23	18.84	23.40	47.87	28.72
24-35	25.45	22.05	22.83	55.12
Total	100 (499)	-	-	-

Author's own analysis of the Accra Urban Food and Nutrition Survey
Note: Sample size shown in the column totals in the brackets. SSS - Senior Secondary Schooling
*Indicates Fisher's Exact Test for the association between independent covariate and care strategy is significant at the 5% level, ** denote significance at the 1% level

4.4.3.2   Results

The first objective of this paper was to discover the work-family coping strategies used by women to ensure the care of their young children. A central part of this is the childcare arrangement that women use. In this analysis not working has been included as a possible strategy as it could include the temporary withdrawal of working women from the labour force after birth. This would be reflected by variations in those not working by the IC's age. The descriptive analysis revealed at the time of the survey a similar percentage of mothers were using the strategy of not working (37%) and working and caring for their child simultaneously (35%). 28% were working and using an alternative care-arrangement, with 28% of this group (or 8% of the full sample) relying on crèches and 72% (or 20% of the full sample) on care-givers.

The second objective of this paper was to consider the influence of social categories and coping constraints and resources on the type of coping strategy adopted. This was firstly investigated by conducting cross-tabulations and using the exact fisher test where the independent variable under analysis was categorical. Where the independent variable was continuous a comparison of means was undertaken. Table 4.6 shows these cross tabulations and means.

We can see that at the 5% level mother's marital status, education, ethnicity, the child's age, the number of children in the household aged 0-5 years and the number of females in the household aged 12-15 years have a significant association with childcare strategy. In terms of marital status, a higher percentage of mothers of a divorced, widowed or separated status (52.17%) were using the strategy of working and using an alternative care-giver compared to those of a never married (21.74%) or married (26.09%) status. In terms of education, a higher percentage of mothers' with secondary or higher education (37.01%) were using the strategy of working and using an alternative care-giver compared to those with no (21.05%) or basic (26.03%) education. Considering ethnicity, a lower percentage of those of a Ewe ethnicity were not working (28%), compared to those of a Ga Dagme (42.46%), Akan (34.41%) or ethnicity defined as 'other' (44.83%). Instead a higher percentage of mothers of an Ewe ethnicity were working and caring for their child simultaneously. In terms of household demography, a lower percentage of women who were co-resident with three or more children under the age five at the time of the survey (12.50%) were using the strategy of working and using an alternative care-giver compared to women co-resident with 2 (20.73%) or 1 (34.75%) children of this age. A higher percentage of women who were co-resident with at least one female aged 12-15 years were also using this latter strategy compared to those with no females of this age present in the household. In terms of maternal age, the mean age of mothers using the strategies of both working and caring for the child simultaneously and working and using an alternative care-arrangement is significantly older than the mean age of mothers using the strategy of not working.

Lastly, the relationships between socio-economic and demographic characteristics and the childcare strategy adopted was investigated using multivariate analysis to take account of possible confounding. The multinomial results, in terms of the odds, p-value and confidence intervals, can be found in Table 4.7.

Table 4-7: The odds of biological mothers co-resident with their child (age less than 36 months) not working or working whilst using a substitute carer, by individual, child and household socio-economic and demographic characteristics, multinomial regression, the Accra Urban Food and Nutritional Security Survey

	Not working				Working whilst using a substitute carer			
Covariate	Odds	P-value	95% confidence interval		Odds	P-value	95% confidence interval	
Constant	4.41	0.027	1.18	16.53	1.30	0.721	0.31	5.36
IC age (months)								
0-5	4.18	<0.0001	1.88	9.29	0.09	<0.0001	0.02	0.34
6-11	0.95	0.887	0.49	1.86	0.14	<0.0001	0.07	0.29
12-17	0.81	0.594	0.38	1.73	0.26	<0.0001	0.13	0.53
18-23	0.52	0.089	0.25	1.10	0.25	<0.0001	0.13	0.49
24-35[a]								
Marital Status								
Never married	1.07	0.845	0.54	2.14	2.81	0.005	1.36	5.79
Div/sep/wid	0.99	0.994	0.27	3.60	2.20	0.166	0.72	6.69
Married[a]								
Education								
None	0.76	0.464	0.36	1.59	0.68	0.377	0.29	1.59
Basic[a]								
Secondary/vocational or higher	1.26	0.420	0.76	2.19	2.40	0.004	1.33	4.32
Ethnicity								
Ga Dange[a]								
Akan	0.99	0.965	0.55	1.77	1.28	0.437	0.68	2.41
Ewe	0.40	0.003	0.22	0.73	0.70	0.283	0.36	1.35
Other	1.20	0.652	0.55	2.61	1.02	0.972	0.41	2.54
Mother's age	0.96	0.025	0.92	0.99	1.00	0.832	0.96	1.05
Household Demographics								
Females aged 12-15 years								
0								
1+	0.69	0.260	0.36	1.32	1.81	0.054	0.99	3.32

Author's own analysis of the Accra Urban Food and Nutrition Survey (1997), n=499
Note: [a] donates reference category of the independent variable, reference category for the response variable is working and caring for child simultaneously

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In the multilevel model all covariates retained significance, with the exception of the number of children in the household aged 0-5 years suggesting that the association between this variable and childcare arrangements found in the cross-tabulations was due to omitted variable bias. In order to ease interpretation predicted probabilities were calculated as shown in Table 4.8. These were calculated using the margin command in STATA.

Table 4-8: Predicted probabilities of biological mothers co-resident with their child (age less than 36 months) not working, working and using a substitute carer or caring for the child whilst working, by individual, child and household socio-economic and demographic characteristics, the Accra Urban Food and Nutritional Security Survey

	Maternal work and child-care arrangement		
Child age (months)	Not working	Caring for child whilst working[a]	Working and using an alternative carer
0-5	0.81**	0.17	0.02**
6-11	0.48	0.43	0.09**
12-17	0.41	0.43	0.16**
18-23	0.31	0.51	0.18**
24-35[b]	0.32	0.27	0.41
Education			
None	0.31	0.34	0.35
Basic[b]	0.32	0.27	0.41
Secondary or higher	0.25	0.17	0.59**
Ethnicity			
Ga Dagne[b]	0.32	0.27	0.41
Akan	0.29	0.25	0.47
Ewe	0.19**	0.40	0.41
Other	0.36	0.26	0.38
Marital Status			
Never married	0.20	0.16	0.65**
Married[b]	0.32	0.27	0.41
Sep/div/wid	0.22	0.18	0.60
Females aged 12-15 years in household			
0[b]	0.32	0.27	0.41
1+	0.18	0.22	0.60*

Author's own analysis of the Accra Urban Food and Nutrition Survey (1997), n=499
Note: [a] donates reference category of the independent variable, reference category for the response variable is working and caring for child simultaneously   ** significant at the 5% level and ** at the 1% level
The predicted probabilities by child age assumes all women are of Ga Dange ethnicity, are married, have basic education, and have no females aged 12-15 years in the household, and are 29.72 years (mean age). The predicted probabilities varying by the number of females aged 12-15 years in the household assume all PCTs are married, are of a Ga Dagne ethnicity, have basic education, have a IC 24-35 months and are 29.72 years old (the mean age). The predicted probabilities of with different levels of education assumes all women are married, have a IC 24-35 months, are 29.72 years old (the mean age), are of a Ga ethnicity and do not have a female aged 12-15 years present in the household. The predicted probabilities of different ethnicities assume all women are married, have basic education, have a IC 24-35 months, are 29.72 years old (the mean age), and have no female aged 12-15 years present in the household. Note: the predicted probabilities of women of different marital statuses assume all PCICs are of a Ga ethnicity, have basic education, have a IC 24-35 months, are 29.72 years old (the mean age), and have no females aged 12-15 years present in the household

For mothers with ICs aged 0-5 months, women were most likely to be not working and least likely to be working and using an alternative care-arrangement. For mothers with ICs in the oldest age group (24-35 months) the pattern of strategies is reversed. There is a sharp decline in the probability of mothers not working between those with an IC aged 0-5 months (0.81) and those with an IC aged 6-11 months (0.48). The probability of a mother not working then progressively declines with the age of the IC, reaching a probability of 0.32 for mothers with an IC aged 24-25 months. In contrast, the probability of a mother working and using an alternative care-arrangement increases with the age of the IC. The probability of a mother with an IC aged 0-5 months using this care strategy is 0.02. The predicted probability of mothers working and using an alternative care-arrangement approximately doubles between the groups 'mothers with an IC aged 18-23 months' and 'mothers with an IC aged 24-35 months' from 0.18 to 0.41 respectively. Lastly, the strategy of working and caring simultaneously is the main strategy of mothers with an IC between 6 and 23 months. The predicted probability of using this strategy increases from 0.17 for mothers with an IC in the youngest age-group to 0.43 for mothers with an IC aged 6-11months.The probability of mothers using this strategy stabilises until ICs reach the age group 24-35 months after which it declines to 0.27.

Differences were also found by the number of females in the household aged 12-15 years. Where a female of this age was present the predicted probability of mothers working and using an alternative care arrangement is significantly higher; 0.60 in comparison to 0.41 in situations when no female of this age was present. Different explanations could be plausible; female adolescents may be sources of informal maternal substitutes providing a main source of childcare, or mothers with older children may have established sources of care that they have long-term trust in. Descriptive analysis of the age of care-givers (where a single person is used) suggests that whilst female adolescents are important sources of childcare, they are not the main category of care-providers (Table 4.9 and 4.10). The AUFNS does not provide information on important aspects of alternative care-arrangements such as the relation of the care-giver to the child and whether any financial transactions are

involved. It should be noted that since the conduction of this survey important changes in education have occurred which is likely to have impacted the availability of school-aged children to provide care for younger children as well.

Table 4-9: The sex of the care-giver of children aged 3 years or less co-resident with their biological mothers living in Accra, where an single alternative care-giver is used, Accra Urban Food and Nutritional Security Survey (percent distribution)

Sex of care-giver	Percent
Male	9
Female	91

Author's own analysis of the Accra Urban Food and Nutrition Survey (1997)

Table 4-10: The age of the care-giver of children aged 3 years or less co-resident with their biological mothers living in Accra, where an single alternative care-giver is used, Accra Urban Food and Nutritional Security Survey (percentage distribution)

Age of care-giver (years)	Percent
<16	13.3
16-24	15.6
25-49	33.3
50+	37.8

Author's own analysis of the Accra Urban Food and Nutrition Survey (1997)

Associations were also found by maternal characteristics. For those of different educational statuses, the predicted probabilities of not working are not significantly different varying between 0.25 and 0.32. However, differences exist in the probability of working and using an alternative care-arrangement. The probability of those with senior secondary or higher education using this care arrangement is 0.59 in comparison to 0.35 and 0.41 for those with no or basic education respectively. This difference may reflect the type of labour women of different educational statuses are likely to be involved in. Due to regulations and individual autonomy, women in the formal sector may be restricted in being able to care for their children whilst working. Considering

ethnicity, in comparison to the Ga (the reference group) those of an Ewe ethnicity had a significantly lower probability of not working.

In terms of marital status, childcare arrangements differed significantly between women of never married and married status. Unexpected, never married women have a higher probability of working and using an alternative care-arrangement (0.65 compared to 0.41 for married women). This suggests that mothers of a never married status are not necessarily isolated and are able to negotiate childcare assistance. Lastly, significant differences exist by PCICs' age. Whilst the predicted probability of working and using an alternative care-arrangement remains constant over age, the probability of not working declines as PCICs age.

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4.4.4 Summary of quantitative results

The predominant variation in the use of childcare strategies by socio-economic or demographic characteristics was by the age of the child. The probability of mothers with an IC in the youngest age group (0-5 months) not working was 2.5 times the probability of mothers with children in the oldest age group not working. This amounted to an absolute difference in the probability of 0.49. The probability of mothers with a IC aged 24-35 months using the arrangement of working and using an alternative care-arrangement is 0.23 points greater than the probability of mothers with an IC in the next oldest age group (18-23 months) using this strategy. Among demographic variables the age of children has been found by quantitative studies conducted in the West to be a central determinant of both maternal labour force participation and choice of childcare arrangements among working mothers (Leibowitz et al. 1988, Michalopoulos and Robins 2000, Powell 2002). This variation has been attributed to the changes in the perceived requirements of children as they age, which is also likely to be an important consideration in the Ghanaian context. Relatively the ethnicity of the mother was found to be an important predictor of childcare arrangements. The probability of mothers of a Ewe ethnicity not working was nearly halve that of a Ga Dagme ethnicity. Ethnicity has previously been found to be a determinant of work status of

mothers in Accra, with the Akan and Ewe being found to be more likely to work compared to those of other ethnicities (Quisumbing et al. 2007).

Whilst the relative effect of marital status and education was smaller than those discussed above, the absolute difference in the probabilities was considerable. Mothers with secondary education had a probability of working and using an alternative care arrangement 0.18 points higher than those with basic education. Similarly mothers of a never married status had a probability 0.24 points higher of using this strategy compared to married mothers.

Household demography has only a limited impact on the adoption of childcare strategies with the presence of females aged 12-15 in the household years being significantly associated with our outcome measure. Unexpected, the number of children aged 0-5 years, which was significant in the cross-tabulations, lost its significance when included in the multivariate model. Childcare arrangements also did not differ significantly by mothers' migration status or household wealth.

4.5   Qualitative Data and Analysis

Although quantitative analysis allows for the identification of patterns, childcare arrangements is a micro-level consideration. Qualitative fieldwork was used to investigate women's experience of combining economic activity with childcare responsibilities. Attention was given to their work patterns, childcare arrangements as well to any perceived implications of this combination for themselves or their children. Whilst initially the focus was on childcare arrangements, during interviewing a number of strategies emerged as being key in allowing the effective combination of work and childcare responsibilities.

4.5.1   Fieldsites

Participants engaged in informal economic activity were either living or working in two informal communities in the AMA, Ga Mashie and Nima. These communities are characterised by the deterioration and absence of infrastructure (Owusu et al. 2008, Owusu and Afutu-Kotey 2010). Whilst Ga Mashie is an indigenous settlement (Razzu 2005), Nima is a migrant community (Owusu et al. 2008).

4.5.1.1   Ga Mashie

Ga Mashie is made up of two smaller settlements; Usher Town and James Town. Numerous factors have resulted in the degeneration of conditions of Ga Mashie, a previously prosperous area of Accra (Weeks et al 2005, Razzu 2005). Damage caused by an earthquake in 1939 operated as a push factor for those from higher socio-economic classes to relocate to the newly developed North of the city (Razzu 2005). Since the 1950s the economic openness of Ga Mashie to other communities in Accra has declined with the relocation of the harbour (late 1950s) and the abattoir (1998) to Tema (Ghana Web 1998, Razzu 2005). Ga Mashie is characterised by several attributes typical of a 'slum'. Deficiency in basic amenities and facilities is shown by the fact only 11% of households in James Town have a water toilet and 35% piped water in their residence. The use of public facilities is also put under stress by Ga Mashie's large population, estimated between 84,000 and 98,000 residents (Razzu 2005). This dense

population has resulted in the overcrowding of residences with it being common for seven to nine people to be living in a single room (Razzu 2005).

Figure 4-1: Location of the Nima and Ga Mashie field-sites
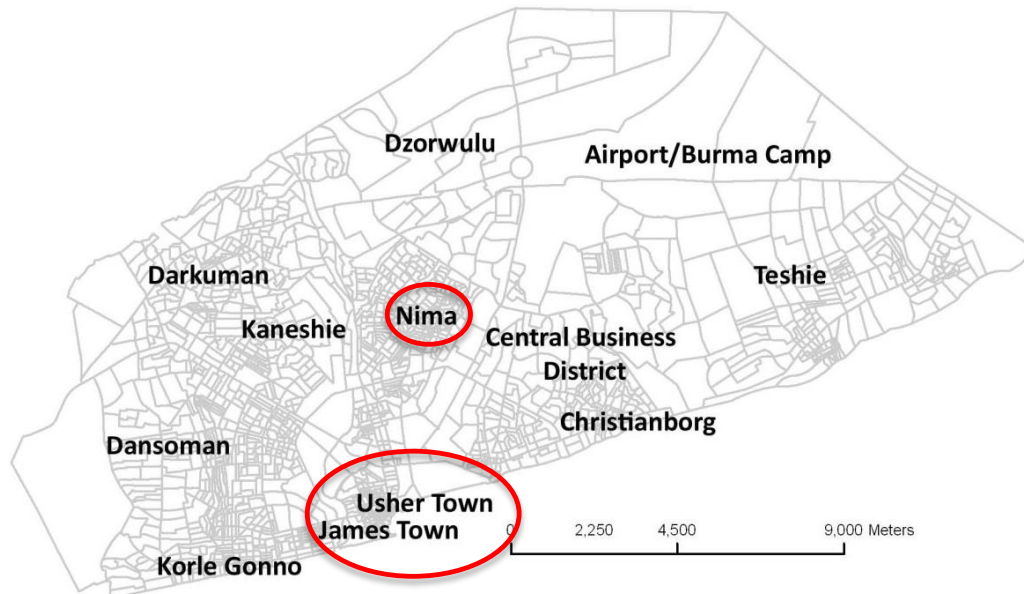
Source: Jankowska (2009)

Note: Usher Town and James Town are collectively known as Ga Mashie.

4.5.1.2   Nima

Nima was established in the latter half of the twentieth century (Owusu et al. 2008). With rapid urbanisation increasing sections of land in Nima was allocated to housing to meet the demands of a growing population. The location of the United States' military camp during World War II acted as a pull factor attracting migrants from the North of Ghana and neighbouring West African countries (Yankson 1999). In present day heterogeneity of occupants exists with the settlement being no longer solely home to migrants. Economic opportunities, the low price of rent and improvements in infrastructure means Nima has become appealing to residents of other communities in Accra (Yankson 1999). The diversity of residents is reflected in the ethnic make-up of the community. Whilst Akan is the predominant ethnic group (24.6%), Ewe (16.3%), Mole Dagbon (16.1%) and the Ga Dagbon (11.8%) are all present in substantial proportions (Owusu et al 2008).

Similar to Ga Mashie, Nima is a community characterised by poor quality housing and infrastructure. Population increase from 29,797 in 1960 to 69,044 in 2000 (Owusu et al. 2008) has resulted in severe overcrowding. Also like Ga Mashie compound housing is common due to affordability. Whilst residents of the same compound in Ga Mashie are usually from the same lineage, in Nima those living in this close proximity do not necessarily have any family connections (field observations).

4.5.1.3   Legon

In addition to mothers engaged in informal labour, women of professional, managerial or clerical status employed in the formal sector were recruited. The majority of these women were research students or staff at the University of Ghana. The University of Ghana is the largest and oldest university or tertiary institution in Ghana. According to recent statistics, in the academic year 2010/2011 38,378 students were enrolled into under-graduate and post-graduate level courses with 5,500 staff being employed (University of Ghana 2011).

4.5.2   Research process

4.5.2.1   Questionnaire design

Focus Group Discussions (FGDs) and Semi-Structured Interviews (SSIs) were the methods used by this fieldwork investigation. Prior to the departure to Ghana I obtained ethical approval from the University of Southampton's Faculty of Human and Social Sciences Ethics Committee. This process also required the preparation of interview guides, consent forms and information sheets. The questionnaire preparation was directed by three main research questions:

1. What are the childcare arrangements adopted by women in Accra to manage their work and childcare responsibilities?
2. What factors influence the choice of these strategies?
3. What are the perceived impacts (whether negative or positive) of these arrangement for the mother and the child/children?

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At this stage questionnaire themes and topics were discussed with my supervisor Professor Hill who has experience of conducting fieldwork in Accra and knowledge of women's lives in this context. Specific styles of questions, for example the 'diary' question where women were asked to describe a typical day, were suggested in these meetings in order to investigate maternal time use. Questions were also discussed and reviewed with a fellow PhD student, Faustina Frempong-Ainguah, who is originally from Ghana and has lived in Accra for a number of years. At this stage it was envisaged that in addition to the SSI 'walking interviews' would also be conducted among consenting women who care for their children in their workplace. The aim of this interview was to investigate further how women who care for their children simultaneously to working combine these two activities, and to allow women to show the aspects of their work which eases or challenges the combination of these activities.

Through Professor Hill a researcher assistant (RA), Delali, was organised. Delali had extensive knowledge of the research sites and the process of data collection having been a supervisor for the Women's Health Study of Accra (quantitative survey) and the Focused Investigations on Reproductive Health (qualitative fieldwork) projects. As it was anticipated language could produce a potential barrier with several dialects being prevalent in the AMA, most importantly she was proficient in English, Ga, Ewe, Twi, Fante and Dangme. Before leaving for Ghana a short description of my overall PhD project, in addition to detailed aims of the qualitative study, proposed sampling and questionnaires were sent to Delali. Upon arrival in Ghana meetings were arranged with Dr Delali Badasu, Dr Charlotte Wrigley and Professor Samuel Agyei-Mensah, researchers with knowledge of women's work and childcare in the Ghanaian context. The outcome of these discussions was the addition of topics to the interview guide. It was felt that child feeding practices was a crucial missing component with the argument that work commitments may interfere with women's ability to firstly breastfeed their children, and secondly their ability to ensure older children are consuming adequate solids. In addition comments were made concerning the proposed study group. In conjunction with Professor Hill, it was initially decided to focus only on women living in low-income neighbourhoods of Accra and who were involved in informal labour. It was believed that these women were facing the greatest

time constraints due to limited access to market conveniences and substitutes and poor infrastructure. Professor Agyei-Mensah and Dr Badasu however highlighted that the topic of maternal multiple role responsibilities was relevant to women across occupations and classes. This has also been raised in the literature by Oppong (2004), who attributes the occurrence of child under-nutrition in higher wealth quintiles to maternal time burdens.

With the addition of these extra questions, the RA raised concerns of interview length and respondent burden. After a discussion of how we could shorten the interview we decided instead of removing certain topics or questions from being studied to split data collection into SSIs and FDGs. The FGDs would gather community level information, whilst SSIs would be used to collect information on individual circumstances. The final FGD and SSI guides can be found in Appendix A.3. Walking interviews were not conducted due to restrictions in time and the RA's caution that they were unlikely to result in the accumulation of further knowledge as many women would wish to be interviewed in their places of work. The FGD and SSI guides were written in English. In hindsight these guides should have been translated into the various local languages prior to the commencement of the research process to reduce pressure on Delali in interviews (Hennink et al. 2011). Back translation would have also allowed for the checking of accuracy to guarantee the Delali was asking the intended meaning of questions.

4.9.2.2   Ethical considerations

Full ethical approval for the fieldwork was granted from the University of Southampton's Faculty of Human and Social Sciences Ethics Committee. The ethics review and risk assessment forms are located in Appendices A.4 and A.5. In the design of this study concerns considered included informed consent, the right to withdraw from the study, confidentiality and the protection of participants against distress, discomfort and inconvenience.

Informed consent covers issues such as the competency of the individual giving consent, the respondents' knowledge and awareness of the research process and the voluntary nature of participation (Flick 2006). All individuals interviewed were over the age of eighteen. The Ghana Children's Act (Government of Ghana 1998) defines a child as a person below the age of

eighteen years. Research participants were restricted to above this age to avoid issues of whether parental consent would also be needed. In the Greater Accra region early childbearing is relatively low with only 6% of 15-19 year olds in the GDHS (2008) reporting they have had a live birth (GSS, GHS and ICF Macro 2009). To ensure that respondents were able to make an informed decision concerning participation, the purpose and process of the research was explained through the use of an information sheet (Appendix A.6). It was felt the use of digital Dictaphones was advantageous in order to capture the respondents' answers in their own words and to reduce distraction of the researcher due to dictation. Respondents were informed of this reasoning and consent obtained for recording. The voluntary nature of the study and the right for the participant to refuse to answer questions or to withdraw from the study at any time was emphasised. Written or oral confirmation of knowledge of the research project and consent was gained from the participant through the use of a consent form (Appendix A.7).

Ethic codes also highlight the responsibility of the research team in protecting respondents from distress, discomfort and inconvenience (Flick 2006). As noted previously, after a review of the interview guide with the RA it was decided to ensure interviews were of an appropriate duration some of the information would be covered in the context of FGDs. To also minimise inconvenience interviews were conducted in respondents' homes or workplaces depending on their preferences. FGDs were conducted in the offices of a local charity in Ga Mashie and in the compound of a willing participant in Nima. These locations were given to participants two days in advance and before their agreement to participate in the research was gained. The subject of maternal responsibilities was considered by the research team to be a low-risk subject. Yet, it was recognised that in the research process topics could arise that may be a source of distress for women. For example, a mother may be using a work or childcare strategy that they are unhappy with. The subject of poverty was also anticipated to be a possible theme of conversation. In interviewing guilt felt at the resumption of work after childbirth and difficulties experienced in generating profits was described by participants. Such discussions were handled in a sensitive manner and Delali and I were both alert to signs of distress and discomfort in respondents' body language. It was

found in general women were willing to talk about their attitudes and experiences.

A final ethical concern raised by the conduction of the FGDs was the maintenance of confidentiality and anonymity. Whilst the research team could guarantee confidentiality, this was difficult to ensure among participants of the FGD (Berg 2006). At the beginning of the FGDs the importance of respecting the privacy of other individuals and restricting discussion of the contents of the FGDs to the research context was highlighted. In transcription anonymity of all research participants was ensured through the removal of names. In papers and this thesis, I have maintained confidentiality through the linking of quotes to work and childcare information such as:

Trader, infant aged 6-11 months, alternative care arrangement used

Consent forms and recordings containing the identification of participants are being kept securely on a password-protected computer and in a locked filing cabinet.

4.9.2.3   Sample selection

All participants recruited were mothers working at the time of the study or who had been working prior to the birth of their youngest child. The definition of work adopted is that used by the DHS, with the following description of work being given to women:

"The activities that women are involved in for pay, profit or family gain. Women may be in official employment where they receive set pay for the hours of work they do, women may have their own business for example fixing clothes or hairdressing, women may sell items such as food, produce goods that they can exchange with others or they may work on a family farm or business."

Nonetheless, no reference period and minimum levels of work were given which could have led to individual differences in the definition of working, for example those engaged in casual, infrequent or low hours of work. Apprenticeships were not explicatively included in the above definition of

work, which could have led to variations depending on whether individuals saw unpaid apprenticeships as a form of work or education.

I decided to recruit participants on the basis of the age of their youngest child and the childcare arrangement they were using. As children's requirement of care varies by age (Rahman et al. 2002), the care strategy adopted and the consequences of different strategies are likely to vary by age making this an important sampling criteria. Analysis of the AUFNS identified three broad childcare strategies; to stop working to care for the child, to care for the child simultaneously to working and to work but use an alternative care-arrangement (such as a relative or crèche). Children were classified as being less than six months, between six and seventeen months and between eighteen and thirty-five months. It should be noted that when selecting respondents the aim was not to achieve a representative sample of mothers with young children, but to have a sample of mothers with a range of childcare circumstances. Table 4.11 shows the original sampling plan.

Table 4-11: Intended sampling plan for the semi-structured interviews to be conducted among biological mothers co-resident with their child(ren) in Accra

	Childcare arrangement		
Child's age	Not working	Caring whilst working	Working & using alternative care-arrangement
Less than 6 months	3	2	3
6-17 months	3	2	3
18-35 months	3	2	3

The fieldwork was to be conducted among three groups of women: 1. women engaged in informal economic activity living or working in Ga Mashie, 2. women engaged in informal economic activity living or working in Nima, and 3. women engaged in clerical, managerial or professional work in the formal sector living or working in Legon. The aim was to interview a mother in each field-site for each combination of childcare arrangement and child age. The exception for this was for the childcare arrangement of mothers caring for

their children simultaneously to working where it was anticipated it might be difficult to find women in the formal sector using this strategy. With the FGDs a broader strategy was used to recruit women with them having to be mothers with children under the age of three.

The decision to include women working in the formal sector was made when in Ghana. Discussions with both Faustina Frempong-Ainguah, through email, and Dr Charlotte Wrigley highlighted that professional women, such as those working in the banking or law sector, would be a good group to interview due to their knowledge of the difficult experience of these women in combining work and childcare. As neither had immediate knowledge of any of their friends or family working in these sectors that had children of the age of interest to this study, access to participants would have to be gained through contacting organisations directly. As at this stage I only had three weeks of research left, it was noted by these individuals this strategy was unlikely to yield interviews due to the timely nature of making contact and the following of formal procedures that organisations may require. Charlotte had colleagues, however, who fitted the sampling criteria working at the University of Ghana. It was decided that Charlotte would introduce me to one of these colleagues to discuss my research and the possibility of them participating and assisting with sourcing further potential participants.

Prior to fieldwork it was envisaged that those still in education would be excluded from the study, however subjective definitions of work status of postgraduate students altered my decision. Two mothers studying for their PhDs at the University heard about my research, one from Charlotte and another from a friend of mine, David Okuttu, who was studying for his MPhil at the Regional Institute of Population Studies. My initial reaction was to exclude these individuals from the study as I saw they did not meet the sampling criteria of working. However, these individuals explained that they considered themselves as working as their stipend included teaching and research assistant responsibilities.

In the context of time constraints, informal contacts were key in negotiating access to participants working in clerical, managerial or professional occupations. Introductions from my supervisor, who was also in

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Ghana for the first week of my visit, to his colleagues at the University of Ghana placed me in a good position to receive assistance with my research. Charlotte's connections and knowledge of an individual at the University who fitted my criteria was vital in starting the process of finding participants which continued to occur through snowball sampling. Nonetheless, this method of sampling had limitations in that the majority of clerical, managerial or professional women interviewed were either staff or post-graduate students at the University of Ghana, an institution noted by the mothers themselves to have favourable procedures concerning maternity leave and conditions of employment for mothers. This quotation highlights how circumstances of other mothers working in the formal sector differ:

"Banks for instance give you three months of maternity leave but some banks have the requirement that you have to take six weeks before (the expected birth date) *and then six weeks after…For some of my friends tey have had a really tough time with childcare. Going back at six weeks for them it has been tough….a couple of women I know have taken time off work for a year to care for their child."*

Participant D: Research student, Legon, infant less than six months, working and caring for child simultaneously

An informal contact was also vital in obtaining access to participants in Ga Mashie. Solomon Tetteh who had previously assisted me during my MSc dissertation, and is frequently used when conducting research in Ga Mashie by the Institute of Regional Population Studies, University of Ghana, acted as a field facilitator. Due to difficulties in defining informal work and a wish not to label individuals, women who were likely to be engaged in this form of labour were identified by compiling a list of associated activities based on Hart's (1973) and Osei-Boateng and Ampratum's (2011) classifications of labour in the urban Ghanaian informal economy (Table 4.12). The intended sample composition, list of work activities and information sheet was given Solomon in advance and he identified women, gained initial consent and organised interviews. All the participants recruited in Ga Mashie were involved in secondary or distribution activities being seamstresses and traders.

Table 4-12: Examples of work activities used for the identification of working women in Nima and Ga Mashie during the recruitment of mothers to be interviewed (all mothers had to have at least one child less than 3 years co-resident)

Type of work	Examples
Primary	Farming, fishing, market gardening
Secondary	Building contractors, artisans, tailors/seamstress, manufacturers, for example soaps, beers and spirits
Tertiary enterprises	Housing, transport and utilities providers
Distribution	Traders, hawkers, wholesale, bakers, food and drink retailers, catering (including cooked foods), drug store operator
Other services	Launderers, shoeshiners, barbers/hairdressers/ repairs/ maintenance, photographers, domestic workers, herbalists, traditional birth attendants

In Nima attempts were made to contact a local mother and baby group, using information provided by my supervisor who had worked with them previously on projects. Nonetheless, due to delays in this contact getting back to myself and the RA, and limitations in when they could meet with us to discuss the research, we decided to proceed with trying to source participants ourselves. Delali had good knowledge of Nima having conducted research in the settlement for other projects. She approached a site where she knew women were engaged in economic activity, which due to its visible nature was mainly trading. Women present here were explained the purpose of work and asked if they knew of mothers who fitted the sampling criteria and were engaged in any of the listed economic activities. Through these women we were taken and introduced to other women in the settlement who they believed would be interested in taking part in the research. As in Ga Mashie, women were mainly engaged in secondary and distribution activities (a seamstress and traders) were recruited. A mother who was a launderer was also recruited who according to our examples above would be classified as engaged in 'other

services'. In the AUFNS petty trading and street food vending formed the predominant occupation among sampled mothers (67%). In Ga Mashie and Nima 70% of our recruited participants were recorded as being engaged in these occupations also. In our study mothers' work did not involve them travelling outside their communities, with the exception of one individual who worked in Ga Mashie but had to commute to work. This could have been a result of fieldwork, including the recruitment of participants, occurring in the day when those whose work takes them outside the community may have not been present. One mother described how her experience of caring for her youngest child was different to that of another child when her trading required travelling to central Accra to obtain provisions. In her current occupation as a trader in water she explained that she buys her stock from an individual who comes to her house.

"*Before I had my store I sold provision so I would have to go to Accra and then carry and bring it back. All that time my other child was small, I had him on my back and then I would go and buy things and carry it whilst my child was on my back...In Accra there are lots of people. They will sometimes push your baby, sometimes hurt him, it is hard if you have a child and going into the market to trade.*"

Participant R: Water trader, Nima, infant aged 6-17 months, working and caring for child simultaneously

In the FGD in Ga Mashie it was described how the work of some mothers takes them outside the community. This discussion focused on trading, with women explaining some go and buy goods from Accra or Kumasi to sell whilst other leave Ga Mashie to sell in places where there is less competition allowing them to set prices higher.

4.9.2.4   Focus group discussions

FGDs lasting approximately an hour and a half to two hours were conducted in Nima and Ga Mashie with five and eight women respectively. The third FGD with managerial, clerical and professional women did not take place as many women were unable to take leave from work for this during the day, and there was reluctance to participate in a FGD in the evening due to their long commutes home.

The conduction of FGDs to discover community level behaviours and beliefs was considered advantageous due to the possibility of 'synergistic effects' (Stewart and Shamdasani 1990: p16). In Ga Mashie the FGD was organised by Soloman and was held at the Ga Mashie Development Agency (GAMADA), a local non-government organisation that promotes community development. The day didn't get off to a good start as traffic from the University of Ghana, where I was staying and was meeting Delali, to Ga Mashie was more congested than usual perhaps as a result of the thunder storm and heavy rain that was prevailing. Consequently, we arrived to GAMADA late and after the woman participating in the FGD had already arrived so we were unable to greet them. Luckily we were contact with Soloman who was able to greet the woman and explain once again the process of FGD. The FGD was conducted by Delali in Ga, the main language spoken in the community. I was present as it was seen that whilst I may not understand the content of the discussion due to language differences, I would be able to observe the dynamics of the group. In the early stages of the FGD it became apparent that there were dominant members of the group who initially steered discussion. I observed Delali drawing out the opinions and experiences from quieter members, and the transcripts show her prompting thought and reflection. She was also active in ensuring that participants did not speak over each other, an issue that kept occurring during the early stages The arrangement of women around a large table may have hindered the development of a discussion between women through creating a feeling of separation between some respondents. An unexpected benefit of me being present during the interviews was that I was able to ensure that children did not provide too much of a distraction during interviews. Women with children under the age of one spent the FGD cradling and breastfeeding, and no significant interference occurred. Children between the ages of around two to five were allowed by mothers to interact and play with each other. During FGD a dispute occurred between the children, which I was able to resolve and calm without mothers having to withdraw temporarily from the discussion. However, the noisy atmosphere this temporarily created is shown in the transcript where a segment of discussion was unable to be heard and transcribed.

In Nima, Delali conducted the FGD in Twi, the local language spoken mainly among those of an Akan ethnicity. The FGD here took place in the

compound residence of one of the participants. The less formal setting compared to the GAMADA offices seemed to place less of barrier between the research team and participants, and put participants at ease with each other. Whilst I could not understand the content of the FGD whilst observing it the discussion appeared more freeflowing compared to that conducted in Ga Mashie. The creation of a group dialogue led to the sharing of experiences, attitudes and beliefs without prompting from Delali to include all the participants.

4.9.2.5   Semi Structured Interviews

Views from the FGDs were supplemented by information gathered from the SSIs concerning the specific strategies and circumstances of individuals. Before the conduction of the interview a participant factsheet (Appendix A.8) was completed to collect background information. Interviews were seen as the best method to elicit individuals' experiences and opinions, allowing their voices to be heard (Devault and Gross 2007). A total of 24 SSIs were conducted. As intended of the 24 interviews nine were conducted in Ga Mashie and Nima each, and six in Legon. Whilst mothers adopting diversity of childcare arrangements and with children of the full spectrum of desired ages were interviewed, difficulties recruiting mothers in the short time-frame resulted in not all combinations of age-groups and childcare arrangements in all locations being located (Table 4.13). In particular working mothers with infants under the age of six months were difficult to locate, especially women who were caring for their young child whilst working. This is however a finding in itself indicating that this care circumstance is not common in the AMA. The pattern of childcare arrangements by age in our sample reflects that found earlier in this chapter when analysing variations in the AUFNS. The characteristics of the sample can be found in Table 4.14.

Table 4-13: Basic characteristics of mothers co-resident with at least one biological child aged less than three years interviewed in Ga Mashie, Legon and Nima

	Childcare arrangement		
Child's age	Not working	Caring whilst working	Working & using alternative care-giver
Less than 6 months	5	0	2
6-17 months	2	5	2
18-35 months	2	2	4

Hodkinson (2005) notes that variance in the familiarity of researchers with different groups of participants can result in different implications for the research process. Reflecting upon this, I found relationships, rapport and my overall interview experience did differ broadly between the three research sites. I conducted the six interviews with clerical, managerial and professional women in English. Three interviews were conducted in the offices of women working at the University of Ghana during the course of their working day. One interview was conducted in the home of a participant which was located a short taxi ride away from my accommodation at the University of Ghana. One research student visited me in my accommodation which was located a short walk away from her department, whilst the other student's interview was conducted in the accommodation of one of her colleagues that lived on the university campus. These locations turned out to be conductive spaces for the conduction of interviews as the privacy they offered allowed an uninterrupted flow of dialogue. On the whole these women gave very detailed answers and were confident in sharing their experiences and voicing their opinions. The interviews I conducted with the two research students developed into a conversation based on the exchange of information between us. My familiarity with the PhD process meant I was able to understand the frustrations that can arise from the research process. The students were also interested in my experience of the PhD, and about the University of Southampton more generally, and this led to them asking me questions. I felt this helped reduce

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power relations through breaking down the distinction of me being the interviewer asking all the questions and them being respondents answering what I requested.

Table 4-14: Characteristics of mothers co-resident with at least one biological child aged less than three years interviews in Ga Mashie, Legon and Nima

Characteristics	Residence		
	Nima	Ga Mashie	Legon
Education			
None	1	1	0
Primary	3	2	0
JSS	5	3	0
SSS/Vocational	0	3	0
Higher	0	0	6
Marital Status			
Married	6	7	6
Never Married	3	1	0
Sep/Div/Wid	0	1	0
Mean Age (years)	30.6	27.7	31.3
Child-Care Arrangement			
Not Working	3	4	2
Working and Caring for Child Simultaneously	3	2	1
Working and Using an Alternative Care-Arrangement	3	3	3
Age of Child			
<6 months	3	3	1
6-17 months	3	3	3
18-35 months	3	3	2
Sex of Child			
Female	6	3	3
Male	3	6	3

Note: JSS – Junior Secondary School, SSS – Senior Secondary School

I also conducted two interviews each in Nima and Ga Mashie. In Ga Mashie my first interview was with an employee of Solomon who I had met on a previous trip to Ghana during my MSc. Our previous connection and the fact a relationship was already formed prior to this research experience I felt resulted in an open exchange of dialogue from the beginning of the interview. This interview took place in the workshop where the participant worked which on the whole was a quiet environment. Whilst occasionally her colleagues came into the section where the interview was taking place to obtain materials they were quiet and did not stop to listen or interrupt the interview. Later the same day Solomon introduced me to my second interviewee, a trader who cared for her two year old daughter whilst working outside her compound. This interview took place as she was working, which at the time she was preparing food. During her interview she showed me how she cared for her daughter who was playing nearby. This would involve her suddenly picking up the child, putting her down in another spot, pretending to tell her off, cuddling her, for example. This participant I felt was willing and enthusiastic to answer my questions, but language proved a problem and resulted in troubles in expression and prevented a flow of a conversation. For example, at one point she struggled to find the word for 'clinic' when discussing why she chose to exclusively breastfeed for six months. This resulted in me attempting to guess the word she was trying to locate which I think was a frustrating process for the individual. Despite these difficulties we were able to build up good rapport and a relationship with this individual wishing to know about my personal circumstances.

In Nima when Delali was locating participants one mother asked to be interviewed by myself. She had been learning English and was quite keen to practice. Whilst I was hesitant due to the problem I had experienced in Ga Mashie, I thought it was important to respect this individual's wishes as she was giving up her time to be interviewed. I met the participant at her residence at the agreed the time and the interview was conducted in the courtyard of the compound. During the interview the courtyard was busy with men and women coming and going and as it was the school holidays there was a large number of children present who were observed to be engaged in domestic activities. For example, a young girl around the age of eight throughout the interview was sweeping the compound whilst occasionally going over to play with a

younger child who was sat on the floor. Language posed no barrier in this interview, however I felt rapport did not build up as easily as in other circumstances. Whilst the respondent was willing to answer my questions, she maintained quite a serious and quiet exterior throughout. Similarly as noted by Douglass and McGadney-Douglass (2008) in their qualitative study in Accra, I found the environment of the compound made conducting the interview difficult. I perceived the location to be noisy and chaotic, although this was my subjective judgement as an outsider, making it hard to concentrate and hear what was being said in the interview. During this interview an adult male who was present in the compound came to listen to the discussion. As I detected no concern from the participant with this individual's presence I decided not to ask for privacy at the risk of seeming rude. In all my interviews described previously on the whole women seemed to have enjoyed discussing their work and childcare with me, with some noting they believed it to be an important topic, and conversation had carried on with the participants after the interview had finished. My last interview, however, provided me to a different experience. Whilst the participant gave consent, I felt distrust and suspicion from the respondent which I think is reflected in the short answers given in the interviews.

My position of not being a mother placed distance between myself and the participants I interviewed. Some mothers commented on this fact in discussions when asking me questions. Delali conducted seven interviews in Nima and Ga Mashie in the local dialects of Ghana. In our discussions about the fieldwork Delali told me she frequently exchanged stories about her child with the participants and she found this helpful in starting an open dialogue. Whilst Allan did not chose Delali as a RA due to this, her status as a mother was an unintended benefit for the research process. However, when analysing transcripts I felt at times there were points left unexplored which could have been because of a sense of common knowledge between Delali and the participants. In Ga Mashie, for example, a respondent stated that when she gave birth she went to live with her mother. This statement was not followed up with questions about her motivation or reasons for this decision. Delali and I were normally not present at each other's interviews as it was seen that the presence of a third person may prevent a natural dialogue from beginning between the interviewer and participant or we may interrupt the process by

adding comments or questions. The one occasion where I was present this was found to have a significant impact on the interview environment. In her last interview in Nima Delali was interviewing a trader whilst she was working on a busy street. This interview had been taking time due to the requirement of breaks for the woman to serve customers. During one of these breaks Delali saw me leaving another interview and called me over to wait nearby. However, this soon became problematic as my presence caused a large group of children to slowly gather who became extremely loud as they attempted to gain the attention of myself.

All interviews were recorded except for two due to Delali and I experiencing a Dictaphone malfunction each. Due to the short time that I was in Ghana Delali and I did not have sufficient time to transcribe our interviews before my departure to the United Kingdom.

4.5.3 Analytical strategy

Data analysis involved familiarising myself with the transcripts through reading them several times. The data was analysed using thematic analysis where codes were applied to responses suggesting common attitudes, beliefs and experiences (Gibbs 2007). Codes were constructed from main ideas identified during the literature review stage, but additional codes were developed according to themes which emerged when reading the scripts. For example, the United Nations' Time Use categories were used when analysing women's description of their typical day. Other codes identified at this stage involved the perceived implications of combining work and childcare such as disruption to breastfeeding, absence from work, maternal vitality and energy, material benefits from work. Whilst initially the research question was focused on childcare arrangements, it was realised whilst reviewing the transcripts that strategies beyond these arrangements were important in allowing women to combine their work and childcare activities. At this stage a review of the literature on coping strategies was conducted and Hall's (1972) framework chosen to code the interviews. At the second stage analysis was facilitated through the reorganisation and classification of individual codes into threads reflecting common themes. For example, role conflict and role enhancements became broad themes. Perspectives, relationships and emotions surrounding

childcare arrangements also became a central theme with individual codes in this theme including trust, flexibility, experience and reciprocity.

4.6 Results

4.6.1 Work-family coping strategies

4.6.1.1   Structural role redefinition

The initial focus of the qualitative investigation was on the childcare arrangements adopted by women in Accra to manage their work and childcare responsibilities. However, in discussion with women and during the review of the transcripts it became apparent that women engaged in further strategies to ensure the care of their children. Hall's (1972) typology of coping was used to analyse these.

Whilst it was found mothers employ a diversity of coping strategies, the majority of these were of a structural role redefinition approach whereby demands of a role were objectively changed. Women from all occupations temporarily eliminated work activities through withdrawing themselves from economic activity for a short period of time after giving birth. In Legon and Ga Mashie women commonly recommence work between three and six months after giving birth to their child. In Nima it appears the resumption of work occurs earlier with women reporting between one and three months of rest. The FGDs described how this period was essential for the recuperation of the mother from childbirth, with all women agreeing to this statement, and it being discussed by women in the SSIs.

"It is to have the woman, the woman regain her strength. Because during that period the mother is weak and if she tries to do anything that is tedious she may faint and if that happens she'll disturb the baby. All you need is to regain your strength first."

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Whereas the timing of the resumption of work for women in Nima and Ga Mashie was determined by economic necessity, for many of the mothers of a clerical, managerial and professional occupation in Legon their return to work was compelled by official contracts. In order to maximise the time that could

be spent at home caring for their children, two women employed by the University of Ghana reported the tactic of combining all their annual and maternity leave together. Such an example shows how women can engage and negotiate with their employers to problem solve. This interaction between employees and employers can also be extended to redefine the conditions of work upon the resumption of economic activity. Women described reorganisation of their work demands so they could work half days until their child reached one year of age. In these situations women highlighted supportive supervisors as being vital in helping them combine work and childcare, especially in times of child sickness, through allowing them to take leave from work. In such cases work colleagues were also important sources of support in providing instrumental assistance to ensure mothers did not fall behind in meeting deadlines. This is an example of role support from within the role-set. However, the support provided by colleagues go beyond changing the demands made on mothers, but also contributes to the coping of mothers through the provision of emotional support.

"We all have a work schedule but if you are not around someone can assist here. We help each other out....I have very good and supportive colleagues. Working with them is good you come here and you forget about your problems. We work together, we chat together, and we advise each other."

Participant B: Administrative Assistant, Legon, child aged 6-17 months, working and using an alternative care-arrangement

Whilst women engaged in clerical, managerial and professional occupations engaged in problem solving with their employers to manage their work and childcare responsibilities, this strategy was not adopted by the mothers interviewed in Nima and Ga Mashie. This is a reflection that the majority were self-employed. One individual suggested the strategy of gaining support in her work from within the role-set. This participant was involved in the making and selling of food. She described how previously her sister had provided assistance taking over the serving of customers when she needed to tend to her child. Yet, this arrangement was seen to have negative consequences for business through the loss of trade.

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"When I'm breastfeeding her and the customers come I plead with them that I've just began breastfeeding her….My sister used to serve the customers but I came to realise that the customers did not want to buy the food when my sister was the one serving them'"

Participant X: Nima, trader, child aged 6-17 months, working whilst caring for the child

Two women also described the strategy of support with their work activities from outside the role-set whereby they hired individuals to assist them. Assistance with work activities and childcare in these circumstances becomes blurred. For example, a trader explained how she would care for her child whilst her employee sets up the wares, but this could also occur vice versa.

Focusing on childcare arrangements, nine women were not working at the time of the study. Seven of these reported plans to resume economic activity in the near future (within the next three months). Among women engaged in economic activity at the time of the study, strategies of role-integration, role support from outside the role-set and role support from within the role-set were all reported. Seven participants described themselves as caring for their children whilst working, a strategy whereby roles are performed simultaneously. Of those using alternative care-arrangements for the majority this arrangement was grandmother care (within the role-set), whilst two participants reported sending their child to a crèche (outside the role-set). It appeared the main determinant of the choice of childcare strategy was the availability of kin support. Where kin, especially grandmothers, were available these individuals were responsible for the care of children whilst women worked. For example, Participant A, a mother with a child aged 18-36 months, working as a secretary explained that when her oldest child was preschool age an aunt looked after him during her working day, however her youngest son was attending a crèche due to this aunt now having work commitments. For Participant X it was physical distance that meant her mother was unable to provide care. This desire for children to be cared for by grandmothers was due to mothers' trust in the higher quality of care these older women were seen to provide attributed to their personal experience of childrearing and due to their compassion for their kin.

"Even if it was me taking care of the children, I would say her care is more and greater than me doing it because one it is my first time and even if it is not my first time she has done it over and over as she has given birth to a number of us. So she knows how to deal with children, how to take care of kids....if it was someone else doing it that person may not be able to take care of them as it is with my mum as it is not that person's child or something that is coming from the person's blood, family or linage. So the care, compassion and concern that the person will have to take care of the children will not be there as it is with my mom. The quality, I have to say is high. I am secure right now even though I am not at home nor know what is going on. But I am trusted that the children are in good care. When I am here I am not worrying."

Participant C: Postgraduate Researcher, Legon, children aged 6-17 months, working and using an alternative care-arrangement

Although such assistance was reported not to be based on financial or instrumental exchange, when probed further all respondents using this strategy, in Nima, Ga Mashie and Legon, revealed that they were supporting their mothers in their day to day living.

"Oh no I don't pay her (the participant's mother) like every month but I make sure that she is very comfortable...(I pay for) everything, her medical, her transport, her funeral dues, when she is travelling, her upkeep, her clothes. Even if she is not taking care of my baby, it is my duty to take care of her. Now that she has reached this age I need to make her more comfortable."

Participant B: Administrative Assistant, Legon, child aged 6-17 months, working and using an alternative care-arrangement

Female kin were also found to be frequent sources of assistance among women who were temporarily withdrawn from the labour force, challenging the assumption of mothers not working being the primary source of care for their children. This was particularly predominant in the period after childbirth where mothers needed to recover, but also where it was seen as important for new mothers to receive instruction. Unlike assistance provided to mothers when working, the physical distance of kin members did not prevent this from occurring. During my interview with Participant J, a mother of an infant less than 6 months, I discovered she was not a resident of Ga Mashie but she had

come to her mother's house prior to giving birth. She explained when her child reaches three months she would return home but at the time of the interview she needed her mother's help with the new baby. When I interviewed Participant D, a postgraduate researcher with a child also less than six months, she bought along her two cousins who she explained were visiting for two months to provide her with assistance with looking after her child.

In addition to support after childbirth, and women's identification of their childcare arrangements according the AUFNS classification, women discussed further negotiations they made in the combination of their maternal and economic roles. For women who were caring for their children whilst working or relying on crèches due to the absence of available support, family members were described as providing assistance in the evenings and weekends also. This was essential in allowing women to perform other aspects of their maternal role such as the washing of clothes. For some mothers older daughters or younger sisters were identified as being important sources of assistance but this was restricted to the vacations or weekends. For women who reported their mothers to be their main source of childcare, some women also reported the further negotiation of childcare. For example, Participant Q in Nima introduced me to her younger sister during the interview. Even though she had described her care-arrangement to be her mother caring for her child whilst she went to work as a seamstress, during the course of the interview and through speaking to the younger sister I realised she predominantly provided care for her niece when she returned home from school, taking over from her grandmother. These examples suggest that restrictions in the time availability of kin can result in women having to negotiate their combination of work and childcare through the piecing together of several arrangements. Participant B reflected this as being a change compared to the past:

"Actually you know the African system we have our family members who are willing to help. But because of education everyone is in school or working so things are changing a little. It is not like in those days when you had people at home who you could give your child to. Now most Aunties, they are now working. Most Uncles, they are now working."

Participant B: Legon, Administrative Assistant, child aged 6-17 months, working and using an alternative care-arrangement

The majority of discussion about kin focused on positive dimensions such as the provision of assistance and willingness. A minority of individuals presented a contrary view of kin relations. Participant U suggested the absence of kin support is not only due to kin being unable to provide assistance, but also due to unwillingness.

"You see, my husband's mother is old, so is mine and so the extended family is there but....hhhmmmm I have siblings but you see nowadays everyone minds their own business."

Participant U: Trader, Nima, child aged 18-35 months, not working

Participants in both Legon and Nima explained that conflict and negotiation is tied up in the process of obtaining childcare assistance from kin with relatives expecting financial or material support in exchange, for example the provision of clothing or help with schooling costs.

"Sometimes it can be hard having your family. Sometimes they coming to you and helping you depends on you giving them something."

Participant R: Nima, child aged 6-17 months, caring for child whilst working

During the FGDs women were asked about assistance from fathers. Initially there was general consensus that women in general solely performed domestic chores and childcare alone. The FGD in Nima indicated that this division of labour is not the result of comparative availability of partners but due to social norms concerning appropriate gender behaviour.

"There are men who don't know how to perform these chores but some others do but will not do....with Muslims it is believed that when a man does these chores it means the woman has done *juju* on him'"

Focus Group Discussion Nima

It was also explained in the SSIs when women were discussing circumstances in general that culture results in women preforming tasks alone, with men not understanding that the addition of a child results in extra work in the home. Nonetheless, upon reflection women in the Ga Mashie FGD stated they knew of cases where partners provided instrumental support. In the SSIs when women were questioned directly about the support provided by their

partner, accounts were more positive with some men being described to be very supportive as fathers but also as partners in providing assistance to women.

"My husband, he loves me and he helps me every-day. He is a very very good husband. He helps to wash things and he helps to pump the fufu. As for my husband, he is very good."

Participant H: Trader, Ga Mashie, child aged 18-36 months, caring whilst working

4.6.1.2   Personal role redefinition

Women only adopted one personal role redefinition strategy, which was to establish priorities between their various roles and activities. It should be noted that whilst women highlighted their children as taking preference over their personal needs and where possible work requirements, childcare involves several activities and not all are given the same priority. Reviewing the context in which mothers said their children took preference this was in relation to child illness. For example, Participant G, a mother of a 18-35 month child in Ga Mashie, explained how she stopped working temporarily to be with her son whilst he was hospitalised even though this meant a significant loss of income.

"It is very difficult as when your son is ill you can't do anything but you need to take good care of him. Because last year he got sick and had to go to hospital so I couldn't work for a whole month"

Participant G: Seamstress, Ga Mashie, child aged 18-35 months, working and using an alternative care-arrangement

As will be described in the following section several traders described a conflict between breastfeeding and attending to their customers. Despite the loss of trade that this could incur mothers said they would attend to their children due to this being more important. The daily diaries also show the majority of women wake as early as four o'clock to ensure all their childcare and domestic responsibilities are fulfilled before the start of their economic work and in many cases these activities are resumed in the evening, leaving women with little or no personal time and consequences for their own wellbeing.

4.6.1.3   Reactive role behaviours

Despite perceived negative implications for wellbeing, resulting from long days, no conscious attempt is made by women to change or solve this issue. Instead there seems to be an acceptance of this challenge as being the norm. Furthermore, chronic tiredness may be a sacrifice that mothers are willing to make to ensure the long-term welfare of their children. To women the performance of all their roles was very important, and as shown by the daily diaries, women are willing to work hard to ensure the achievement of all their responsibilities. In addition to working harder, several women noted they used time management strategies to organise and make the most of their limited time. Many women reported using their day off to cook their meals in bulk so that during the week time not spent at work could be spent with their children.

4.6.2   Women's role experience

4.6.2.1   Conflict

Upon the resumption of economic activity women in managerial, clerical and professional occupations displayed a greater sense of conflict compared to the traders and seamstresses in Nima and Ga Mashie. This enhanced sense of guilt seemed to be a result of the greater physical separation between themselves and their children whilst they were at work which had consequences for breastfeeding. Two participants reported the activity (or planned use in the future) of expressing milk, however this was not a practice preferred by all women due to concerns for infant health. In these cases women explained they had to introduce solids into their children's diet before the recommended six months so that their children could become familiar with foods before they returned to work. This was a strategy they were unhappy with stating their desire to exclusively breastfeed for six months due to the benefits they saw this would have had for their children's health and development. For one mother the process of weaning was particularly stressful, with herself and her mother having difficulties getting the child to eat solids, resulting in her return to work being filled with anxiety.

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"At the time (of returning to work) she had problems eating foods such as porridges and cereals and stuff like that. So I had some problems with the feeding. If I had started expressing milk she would have become used to that one so I didn't want to do that that. That was my worry. So I had problems with the feeding when coming back to work."

Participant B: Legon, Administrative Assistant, child 6-17 months, working and using an alternative care-arrangement

The commute to and from work by these women was also labelled as a source of stress. The congested road network in Accra means they spend up to one or two hours travelling twice daily prolonging their absence from the home considerably. The physical distance, in addition to issues of traffic, was said to make returning home in occurrences of childcare emergencies such as illness difficult. In contrast, in Nima and Ga Mashie the majority of mothers were caring for their children in their places of work or alternatively their work was located relatively close to where their children were being catered for by substitute carers. Several women reported the achievement of recommended feeding practices as caring for their child at work allowed them to breastfeed throughout the day or they used the strategy of their alternative care-giver bringing their child to them when feeding was required.

"When he was with my mother I would breastfeed throughout the night then in the morning I would breastfeed and give him to my mother. When he woke up he would be crying so my mother would like him to be fed so she would bring him here. So he would come here around three times for feeding."

Participant G: Seamstress, Ga Mashie, child 18-35 months, working and using an alternative care-arrangement

Nonetheless, whilst the physical proximity of mothers to their children in some circumstances allowed for the practice of optimal breastfeeding, among food traders this was described to interfere with work, particularly the serving of customers, that could result in a loss of custom.

"Oh no, it is not easy (to breastfeed). Say you are selling, she is crying, you have to stop selling and take care of her. You lose customers so it is very difficult."

Participant H: Trader, Ga Mashie, child 18-35 months, caring whilst working

The priority that such women attach to breastfeeding their children was also displayed by this same participant who later in the interview went on to say;

"If you serving a person that person will be annoyed and leave it and go. So that is it, I can't work and I lost trade. But she is my only daughter, she is very important."

Participant H: Trader, Ga Mashie, child 18-35 months, caring whilst working

It should also be noted as described in the previous section despite the physical proximity of mothers in Nima and Ga Mashie to their children during work, child sickness can conflict with work, just as described by women in professional, managerial and clerical positions. For the latter group this conflict arises from the failure to meet work deadlines set by their supervisors due to having to leave work, but for the former group this conflict is due to the loss of income taking time off work means.

For women at the University of Ghana failure to meet work deadlines was a theme that reappeared in interviews. Despite the strategy of negotiating half days with their supervisors, women explained that their workloads were not adjusted proportionally. This could make it extremely difficult to follow work schedules and resulted in either extensions having to be gained or women having to work past their contracted hours.

"When you have a work schedule you have to complete for the day sometimes you are not able to complete it. That is the problem. Sometimes something you would need to use a week to do it will be extended. That is my worry…at twelve-thirty/one (I finish work), I don't normally go home at twelve-thirty as when there is work to be done I have to finish later."

Participant B: Legon, Administrative Assistant, child 6-17 months, working and using an alternative care-arrangement

This participant went on to explain how staying behind at work was stressful due to the inability to breastfeed creating distraction through causing pain to the breasts and feelings of sickness.

4.6.2.2   Enhancement

Despite the articulated difficulties of combining work and children, many women saw there were benefits. The majority of women across all occupations and field-sites spontaneously highlighted that their work was essential in allowing them to provide materially for their children. In Ga Mashie in the FGD the importance of women's work was attributed to male irresponsibility in terms of financial assistance

"Here the men don't care so the women do their best to make ends meet"

Ga Mashie, Focus Group Discussion

This is a theme that had frequently appeared during interviews I conducted into access to schooling in Ga Mashie for my Masters Dissertation. Similarly, lack of financial provision by fathers, even those co-resident, was also discussed by Douglass and McGadney (2008) in their study of Kwashiorkor in Ga Mashie. However, this theme did not appear in the SSIs of this study. Instead women in Nima and Ga Mashie suggested their income was needed to supplement their partner's contribution, which in some circumstances was said to be smaller than their own.

"The little business brings me a little income that I use to manage my household and its needs. I also hope that God will bless my children and hopefully I'll will benefit from that in the future. His contribution (the husbands) is much less than mine. He does not give chop money every week. What he provides does not suffice us."

Participant X: Trader, Nima, child age 6-17 months, caring whilst working

Despite this benefit being mentioned by women in Nima and Ga Mashie, traders especially explained the stagnation that they can experience in their business. One participant explained she could go three days without selling anything. The deficiency of financial capital resulting from a lack of profit and an absence of access to formal credit institutions can result in individuals being forced to trade less lucrative goods resulting in a cycle of business degeneration. Such circumstances resulted in a perceived lack of control resulting in stress and worry. This quotation represents the frustration expressed by several women in Nima.

"If your business is not moving on it is hard. You need money for your children, for their schooling, for their food. So when you see your stall going down without any improvements it can be difficult."

Respondent R: Trader, Nima, child aged 6-17 months, caring for child whilst working

Whilst women in Legon also highlighted the importance of their income for their children, they did not emphase this struggle in making a living. Instead two women discussed the independence that their work gave them.

"The positive is that I am working so I can give things to her and meet her needs. There is always food, it is always available, she has lots of diapers, and actually we are trying our best to give her what she need….it wouldn't be like you need to go to your husband for things like diapers as you are working and supporting yourself."

Participant B: Administrative Assistant, Legon, child aged 6-17 months, working and using an alternative care-giver

In addition, this woman and another participant working at the University of Ghana described the self-esteem it gave them to be a working mother who was successful in managing their competing demands.

4.6.2.3   Outcomes

The strategy of working harder was perceived to have negative consequences for their own health and wellbeing for the majority of women through a lack of personal time. The main complaint was extreme tiredness, but women also described headaches, dizziness and bodily pain.

"At times, because I don't have enough time to rest because after work my child still takes my attention and also because he does not sleep for long makes me feel tired and sleepless, and which makes me feel sick with headache."

Participant N: Trader, Ga Mashie, child less than six months, caring for child whilst working

In addition to lack of personal time women in Ga Mashie and Legon mentioned a lack of time with their partners.

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"Well the negative things I will start with, as I said it is challenging, you don't have time for yourself, and you easily get tired. The time you would love to spend with your partner you have to share that because of the conflicting roles."

Participant C: Postgraduate Researcher, Legon, children age 6-17 months, working and using alternative care-arrangement

In comparison, only a minority of participants saw that their economic work had implications for their children beyond the income they could provide. This additional implication was focused on mothers not being able to spend satisfactory time with their children, but some participants were unsure whether this had any real adverse effects on their children.

"Because he doesn't have more time with me as I have to spend time here (at work). I don't know what would be best. But it is not like he says 'Mummy I have no time with you.' So I don't know if I can say it is having any effect on him. He has someone to take care of him when I am not there. I would like to have more time with my son though."

Participant G: Seamstress, Ga Mashie, child age 18-35 months, working and using an alternative care-arrangement

Two participants, however, saw the lack of time that was spent with children had influences for socialisation and could result in negative or disruptive behaviours in children.

"As a child is growing up you need to teach him the do and don'ts. Maybe you will check the ways he talks, the way he does certain things. You know if you are living in the community you have other children they play with, some of the children are very naughty, they use very naughty words. If you are not there to check your child 'oh this word is not good' they will use it. At the end of the day when you are playing with your child and they start using those words it is difficult for you to correct it as they have been using it for the whole day or maybe the whole week."

Participant A: Secretary, Legon, child aged 18-35 months, working and using alternative care-arrangement

Despite the described difficulties explained in combining their work with child care activities all women saw that they were successfully managing to fulfil their responsibilities.

"We don't always have time for ourselves as we go from home to the house and we have to fix so many things that we can easily break down. But what is good for me is I can manage my house and my work. Sometimes we can't fix everything so it is right but on the whole we manage all those things."

Participant B: Administrative Assistant, child aged 6-17 months, working and using an alternative care-arrangement

"Oh ok, the thing is if you are a woman you have to give birth but at the same time you have to work. It is no problem. If you don't give birth it is no good. If you don't work it is no good, you are poor. So you have to give birth and you have to work. You have to manage, I manage. I am a strong woman."

Participant H: Trader, Ga Mashie, child aged 18-36 months, caring whilst working

4.7 Discussion

4.7.1 Coping strategies

In contrast to descriptions by those such as Oppong (2001) and Nukunya (2003) of diminishing social capital and traditional supportive networks, this study found the family continues to be an essential component of women's strategies to combine work and childcare. Nonetheless, as found by Wusu and Isiugo-Abanihe (2006) in Nigeria, levels of assistance are declining. The work and educational commitment of kin resulted in women in this study having to use a patchwork of childcare strategies fitting around the time restrictions of family members. Reported declines in the ability of kin to provide assistance poses questions of whether increasing resource constraints will further weaken the availability of this form of support in the future. Similarly to Aboderin's (2004) study of financial support for older parents in Ghana, this study found that sources of assistance are based on reciprocal relationships where often strings are attached. Even where kin are not the central childcare strategy used by women such assistance is based on the expectation of returns such as the assistance in the costs of education of a niece. The complexities in family

support and relations has also been discussed by Bray and Brandt (2007) in the context of South Africa where reliance on neighbours and friends for assistance with childcare was favoured due to the fewer complications in these relationships. The costs of assistance can also contribute to the strain that women experience in combining their work and childcare activities, for example in the financial costs of maintaining family members. Whilst kin are important sources of support, this relationship is delicate and the risk of fallout for women can be high. The majority of strategies used by women were individual or familial based, highlighting the need for more collective action. The provision of daycare facilities are not sufficient but this needs to be of an affordable cost for those facing insecure and low incomes, but also quality needs to be ensured. For many women in the study there were concerns about relying on day-care due to knowledge of unmotivated staff and unhygienic and overcrowded environments resulting in disease among children.

The SSIs highlighted the complexity of childcare arrangements and challenged the simplicity and assumptions made when using classifications such as that of the AUFNS and by this study. For example, some women reporting that they care for their children whilst working also described how assistance received in the workplace allowed them to combine these activities more easily, for example an employee or kin serving customers whilst they needed to tend to their children or vice versa. Ambiguity exists with regards of at what point mothers become not a part of care-arrangements, and whether these perceptions may differ between women. In the above example the mother perceived herself to be caring for her child simultaneously to working, but would other women consider themselves to be using an alternative care-arrangement? Another example could include mothers who work from home. Do they classify themselves as caring for their children simultaneously to work if there are others present in the household to mind children if needed? These examples highlight the difficulties of assuming that women who respond that their care arrangement is looking after their children whilst working are not receiving any support in the combination of their work and childcare; an assumption made when performing this research's quantitative analysis. The SSIs also challenged the assumption made by the AUFNS that women not working are caring for their children themselves. This assumption has also been challenged by Nakahara et al.'s (2006) study of the availability of

childcare and nutritional status in urban Nepal which revealed non-working women as also a heterogeneous group in terms of their access and utilisation of alternative care arrangements. Examination of the factors influencing childcare arrangements also questions the use of the concept of a strategy in some circumstances. Strategy connotes that a rational choice has been made, however in some circumstances decisions are constrained and it is difficult to ascertain to which degree this choice is active (Lamphere et al. 1989 cited in Creighton et al. 1995). Caring for children whilst working was used by a considerable proportion of women in Nima and Ga Mashie, but to what extent can this be seen as a strategy if it is the outcome of lack of alternative care-givers being available?

4.7.2 Women's perceptions of their role combination

As distinguished in the literature, conflict was found to be bi-directional with childcare activities interfering with work and vice versa. Whilst Ayree (2005) suggests that in Africa research into the work-family interface is essential due to an increasing number of women entering formal employment, this research reveals that conflict is experienced daily by women in the informal sector also. For traders caring for children in the workplace can result in a loss of business through customers being kept waiting. The financial insecurity of some traders, and the importance of female income for family survival, means threats to livelihoods can have significant implications for the household economy. Women described their struggles to make ends meet due to increasing competition in trading and barriers to formal credit institutions, constraints previously found in the context of Accra by Asiedu and Ageui-Mensah (2008). The unpredictable and irregular pay of some traders leaves women susceptible to shocks (Levin et al. 1999) and as this study found can result in maternal strain as a result of the importance of their income. Due to the interconnections between work and family, in addition to economic benefits generating female employment opportunities is likely to facilitate the achievement of work-family balance through reducing stress. Yet, for such schemes to be successful they need to recognise women's roles as caregivers, and the constraints that family members can face in assisting with this role, and ensure options are available for women in the care of their children.

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For women engaged in managerial, professional and clerical occupations economic hardship was not discussed but instead women felt a greater sense of guilt upon the resumption of economic activity. Drawing upon Burke's (1991) identity theory, the greater strain felt by this group of women could be due to threats that role conflict has for others' perception of them and for their identity maintenance. For women in Ga Mashie and Nima their work was solely for the provision of their children, consequently any conflict experienced between their economic activity and childcare responsibilities may have not threatened their identities as mothers. For women in professional, clerical and managerial occupations work was more than a source of economic requirement but also a source of identity from which they derived meaning and gratification. Yet traditional values are still held among women of managerial statuses in Ghana (Sackey and Sanda 2009) meaning the individualistic nature of their work satisfaction is likely to be at odds with their culture of family orientation.

Lastly, in line with the Goode's (1960) theory of role strain, women's economic and childcare responsibilities were seen to result in overload where demands on women exceeded time and energy resources. In order to fulfil their roles women were recorded as waking as early as four o'clock, not retiring from activities until the evening. Yet despite reported difficulties in combining their roles and the perceived negative outcomes for their health, women saw they were successfully managing their multiple roles. The difficulties they encountered were perceived as typical. This suggests the strategy of cognitive restructuring is an important strategy in women's management resulting in the acceptance of their circumstances. It must also be highlighted that in this study positive implications of role combination, in terms of facilitating women in their roles of mothers as economic providers and in resulting in enhanced personalities, was also found. This shows that despites concerns of women's combination of work and family in SSA, such benefits must also be recognised.

4.8   Conclusion

Previous research in Accra suggests women's combination of their economic and maternal roles has no adverse consequences for children's physical wellbeing (Maxwell et al. 2000). To explain this resilience it is important to understand the coping strategies women adopt to manage the combination of their activities. This study found mothers are active agents drawing upon resources and negotiating with others to alter the demands of their roles. Whilst women in the study found attending to all their responsibilities difficult, they could be seen as successful in managing these to achieve WFB. A strength of this paper is its use of mixed methods to explore the same phenomena. Quantitative analysis provided an initial explanation of childcare arrangements and variations in its adoption. However, the qualitative fieldwork allowed for a more in-depth investigation which revealed the use of a diversity of coping strategies by women and problems of complexity in childcare arrangements not captured by the AUFNS. The study also had limitations. The time difference between the quantitative and qualitative data collection must be explicatively recognised. Whilst the AUFNS was conducted in 1997, the qualitative fieldwork occurred in 2013. This 15 year gap may have important consequences for child care strategies in the context of a rapidly growing city. In the qualitative fieldwork reliance on the recruitment of participant, as discussed previously, resulted in the enlistment of individuals from similar social contexts (Hennink et al. 2001).

5. Childbearing and economic work: the health balance of women

5.1 Introduction

Attention to female health in the developing world has been primarily directed at reproductive health issues taking account the role of women only as mothers (Avotri and Walters 1999). Millennium Development Goal 5 is devoted to the improvement of maternal health as measured by a reduction in the maternal mortality ratio (Target 5.A) and the achievement of universal access to reproductive health services (Target 5.B) (United Nations Development Programme; UNDP 2012). Such a focus, however, fails to recognise women's multiple roles overlooking the importance of females as generators of income. The social context in which women live, including the performance of their multiple roles, is an important determinant of health and wellbeing (as displayed in the conceptual framework present by Figure 3.2) and should be considered (Doyal 1995). This research investigates women's health in the AMA, Ghana, from a social production of health perspective. Using longitudinal data from the Women's Health Study of Accra (WHSA) we aim to quantitatively explore the relationship between women's health and the combination of their economic and maternal roles among women with young children. Whilst previous research conducted in SSA has concentrated on the association between maternal employment and child health, in particular focusing on nutritional outcomes (for example, Abbi et al. 1991, Begin et al. 1999, Glick and Sahn 1998, Ukwuani and Suchindran 2002), little literature exists on the topic of maternal employment and its implications for maternal health.

5.2 Literature

5.2.1 Definition of health

In the context of declining morbidity from infectious disease and extending life expectancy, the WHO defines health as 'a state of complete

physical, mental and social wellbeing and not merely the absence of disease and infirmity' (entered into force 1948). Despite this new conceptualisation a pathological centred understanding of health has remained dominant in the academic literature and in professional and lay arenas with focus remaining solely on morbidity and mortality (Breslow 1972). Such an approach suggests a dichotomy exists between good health (absence of illness) and poor health (presence of illness). In contrast this research seeks to explore health through the lens of the WHO's definition through placing health on a continuum. This will be achieved through the investigation of everyday living rather than through the more commonly used identification of disease.

5.2.2 Perspectives of health

Three main perspectives of the determinants of health exist; the biomedical model, the behavioural model and the social production of illness approach. The perspective taken influences both the understanding of the meaning and approaches devised to promote health (Breslow 1972).

5.2.2.1 Biomedical model

The common understanding of health as the absence of disease and infirmity is a result of the domination of the biomedical model as a perspective of health. The central principle of this model is the view of the body as a machine and of deviations in functioning being a sign of disease (Engel 1977). Objective diagnosis is seen as possible based on the identification and classification of symptoms that are attributed to a biological cause, the elimination of which will result in improvements in health or a cure. Such an approach is reductionist in nature attributing disease to a single natural origin. Disease is consequently seen as endogenous to the body neglecting psychological, social and behavioural causes and interactions (Annadale 1998, Engel 1977). The power of the biomedical model is partly an outcome of its success in identifying the underlying causes of many illnesses and in the development of treatments and cures (Engel 1977). Nonetheless, there are several criticisms of this approach; the first being the doctrine of specific aetiology (Annandale 1998). Not all cases where individuals are exposed to an identified biological cause will disease subsequently develop. Individuals can have the genetic markers for a disease, for example schizophrenia, but they

may not experience this disorder. Similarly, in daily life individuals encounter infections and viruses but only some will become ill. Behaviour and environmental factors are additional important components in the determination of health (Engel 1977). The experience of a traumatic life event such as divorce, for example, may trigger schizophrenia in someone susceptible. Lastly, the biomedical model takes a narrow perspective of health focusing on the presence of disease and neglecting the positive dimensions of health.

5.2.2.2   Behavioural model

The behavioural model views certain behaviours and lifestyles, for example smoking and alcohol consumption, as putting individuals at heightened risk of ill health. This approach has the tendency to blame the victim due to the responsibility placed on individuals for the choices they make (Blaxter 2004, Crawford 1977).

5.2.2.3   Social production of health

Whilst also viewing certain behaviours as risky, the social production of illness approach highlights that structural factors and circumstances beyond individual control may be responsible for individuals' adoption of these behaviours (Blaxter 2004). For example, smoking and alcohol consumption can be used as coping strategies to manage stress resulting from dissatisfaction with work or low income. Choices about food consumption may be connected to food availability and prices. The investigation of the linkages between female reproductive and productive roles and health, which views women's health as an outcome of the context in which they live, is a social production perspective.

5.2.3 Multiple roles and linkages to health

Drawing upon the discussion of role experience presented in Chapter 3, there are two main theoretical standpoints which have stimulated research into the relationship between multiple roles and health. Taking a scarcity theory perspective of fixed time and energy resources (Goode 1960), multiple roles are viewed as detrimental to health as increases in demands result in the exhaustion of these resources (overload). In absence of overload, conflict may

have negative implications for health where the performance of women's economic (maternal) role makes the negotiation of the maternal (economic) role difficult which can manifest into negative physical and mental health. Additionally, where an individual's identity is intertwined with their commitment to a particular role, perceptions of others that contradict this image can result in stress and deterioration to health. In the Ghanaian context the argued intensification of women's economic role combined with their greater involvement in activities of mothering could be resulting in overload. Restrictions in the temporal available of kin might make the negotiation between work and childcare more difficult increasing the occurrence of conflict. In contrast, taking Sieber's (1974) role enhancement perspective the engagement in multiple roles may be beneficial for health through several mechanisms: the accumulation of resources, positive experiences and compensation. Maternal engagement in economic activity may result in increases in living standards and nutrition of women through income earned. With regards to positive experiences women's ability to balance both their roles may result in emotions such as satisfaction, self-esteem, happiness and positive identity. Lastly, women's involvement in mothering may provide compensation where dissatisfaction is experienced in work, or vice versa.

The way women manage the combination of their maternal and economic roles may be an important moderator in the relationship between roles and health. Tamres et al.'s (2002) meta-analysis of the literature (since 1990) on gender differences in coping styles in English-speaking countries revealed that women are more likely than men to respond to stressful circumstances through the adoption of emotional-focused strategies. This form of coping reduces feelings of stress through cognitive readjustment to how a situation is perceived (Rotondo et al. 2003). In Hall's (1972) framework of coping the reactive behaviour of no conscious strategy would be an example of an emotional-focused strategy. The assumption made here that there is no way to cope with role conflicts. In response individuals may take a resignation strategy where individuals attempt to ignore stressors, or an elimination strategy where individuals evaluate demands as non-threatening or acceptable. Emotional-focused strategies also include positive thinking where individuals optimistically reflect on circumstances. For example, whilst women may find the combination of their roles stressful they may choose to focus on the

benefits that working may entail, for example the income that allows them to provide materially for their children. Problem-focused strategies on the other hand moderate the relationship between roles and health through changing the context of women's roles that may result in conflict or strain. For example, women may mobilise instrumental support to assist them with childcare reducing strain felt from having to simultaneously perform childcare and their economic role or they may change their working hours to fit in with the use of their childcare arrangement. In addition to coping strategies, social category membership is theorised to moderate the relationship between roles and health. As identified above the disruption to an individual's identity formation process can result in stress. As the meaning of economic and maternal roles and the basis of identity is likely to differ according to factors such as socio-economic class, the same circumstances may have different meaning and consequences for individuals (Arber 1991). Social category membership, such as education or marital status, may equip women differently with resources to assist them with their role performance.

The quantitative literature, mainly conducted in the West, presents contradictory results. Maclean et al.'s (2004) analysis of multiple roles and health among Canadian women suggests outcomes differ according to the measure of health used. When considering self-reported levels of psychological distress based on assessments of feelings of hopelessness, worthlessness, sadness, anxiety and effort, among women with children those in employment fared better compared to their unemployed counterparts. However, when considering mental wellbeing in terms of stress, which encompassed feelings of overload, pressures of acceptance, high expectations of others and non-appreciation, whilst single mothers not employed experienced higher levels of stress compared to their employed counterparts for partnered mothers levels of stress were not considerably different between those employed and non-employed. Elliott and Huppert's (1991) study of British married women identified pre-school children as a stressor with employed mothers of young children identified as at the greatest risk of psychological ill health as measured using the General Health Questionnaire, a screening checklist for minor psychiatric disorders. Focusing on physical health, Elliott and Huppert's (1991) analysis of the health of British women found that the interaction between parental status and employment status did not predict whether

women reported four or more physical symptoms in the month prior to the survey. Verbrugge's (1983) analysis of physical health, covering self-rated health, morbidity, chronic limitations and health-service use, suggests that employment and parenthood confers benefits to health arising from the participation in each role but the combination of roles involves no special physical health penalty or benefits. Such studies suggest that women's daily management of their economic and family roles does not necessarily result in poor health, but where maternal pressures are at the greatest (lone parenthood and when children are young) women might be vulnerable. However, studies focusing work-family conflict rather than simply role occupancy suggests among individuals experiencing incompatibility in combining their work and family roles there can be negative implications for mental (Hughes and Galinsky 1994, Frone et al. 1997) and physical health (Frone et al. 1996, Klitzaman et al. 1990).

As noted in the conceptual framework when considering the relationship between multiple roles and health it is important to recognise the importance of the social, material and structural conditions in which roles are performed (Arber 1991). Such an investigation will deepen understanding of the linkages between multiple roles and health through allowing for the identification of possible health variations between women performing multiple roles (Lahelma et al. 2002). In the West the marital status of mothers is given considerable attention. Lahelma et al.'s (2002) analysis of multiple roles and health among British and Finnish women found lone mothers have lower subjective ratings of health compared to mothers of other marital statuses, but lone mothers in employment hold the worst perceived health. Maclean et al.'s (1996) through distinguishing employment by hours of work found that among British lone mothers although those working full time had the worst health, those working part-time had the best. For mothers who are required to cope with their work and family roles without the support of a partner employment may only have positive benefits where work burdens are not too great. However, caution must be taken with applying these ideas concerning marital status to different societies where the prevalence, meaning and responsibilities of marriage may differ (Lahelma et al. 2002). For example, in Ghana marriage does not necessarily imply co-residence and even where this exists other family

members may be more important sources of emotional or instrumental support.

5.2.4 Work-family roles and health in Ghana

In the context of Ghana studies have linked women's combination of their economic and maternal roles to negative health outcomes. Qualitative work conducted by Avotri and Walters (1999) in the Volta region of Ghana showed whilst women do prescribe to the biomedical model of health as reflected in their discussion concerning the use of medicines, a social production of illness approach was dominant with women viewing their day-to-day living as responsible for aggravating health problems. The study describes how women attribute their ailments frequently to their work and family duties with perceived attacks to wellbeing being substantial. Three-quarters of participants reported psychosocial problems (described as 'thinking too much') and two-thirds physical issues (mainly bodily pains and headaches). Whilst informal economic activity was the main source of livelihood in this study, the mental health of professional and managerial women in Ghana has also been examined. Sackey and Sanda (2009) found the maternal role to be statistically negatively associated with mental health as measured by symptoms of depression, anxiety and stress, with women with children having lower mental wellbeing compared to those without children.

5.3 Research Objectives

During this thesis' qualitative fieldwork the majority of mothers reported the negotiation of their economic and maternal roles as difficult resulting in negative consequences for their health. As discussed previously attacks to health have been found in Ghana by Avotri and Walter's (1999) and Sackey and Sanda (2009). Nonetheless, the former study was also qualitative in nature. Sackey and Sanda's (2009) study was limited to focusing on professional and managerial women, a group which does not represent the employment status of the majority of working women in Ghana. A single dimension of health, mental wellbeing, was also only considered. As a result of data limitations, this latter study also has a shortcoming common to many investigations concerned with the effect of roles on health of failing to control for selection effects. The

relationship between multiple roles and health is endogenous with the engagement in roles being dependent on health status, as well as health being an outcome of role performance (Arber 1991). Individuals in ill health are less likely to take on additional roles or are more likely to drop out of existing ones. The 'healthy worker' effect (Li and Sung 1999), the participation of healthy individuals in the labour force, is widely recognised by the literature, however the engagement in other roles such as parenthood may also involve selection bias. Using longitudinal data from the WHSA this paper aims to quantitatively explore the relationship between health and economic and maternal role performance among women with young children in the urban SSA context. The paper had three main objectives:

1. using the Short-Form 36 (SF-36) summary measures of physical and mental health to identify whether change in health differs significantly among working women who experienced a birth in the survey interval and those who did not;
2. to investigate whether the relationship between health and economic and maternal role performance differs according to the dimension of health (physical vs. mental) considered;
3. through performing separate regression analyses for working women who experienced a birth in the survey interval and those who did not, to investigate whether differences exist in the associations between social group membership and household structure and change in health between these two groups of women.

5.4 Data

5.4.1 Women's Health Survey for Accra

This analysis uses data from the WHSA; a longitudinal community based study which aims to extend understanding of the impact of health on poverty in the urban SSA setting. The Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, led the project, in collaboration with the Harvard School of Public Health, Harvard University. There were several motivations for using the WHSA for this analysis. Information collected by the survey goes beyond the traditional focus on reproductive health issues. Whilst the Ghana World Health Survey (2003) also fulfils this criterion, it suffers from

criticism common to work-family research of being a cross-sectional survey. The WHSA compromising of two waves of data gives us a better understanding of the temporal ordering of relationships with health scores both before and after the change in parental status being known. Further information on the WHSA sampling and questionnaire topics can be found in Appendix B.1.

5.4.2 Sample selection

There were several stages to the sample selection process. The original sample for the WHSA-I is 3,172 women. The first stage of selection was related to capturing women who were interest of to this analysis. Due to the topic of investigation, the dependency of health on the change in parental status between the WHSA-I and WHSA-II, the analysis was restricted to women of reproductive age (18-49 years) at the time of the WHSA-I reducing the data-set to 2,305 women. Of these women only 1,285 were recaptured by the WHSA-II. The number of women was further reduced to 931 due to the decision to restrict the analysis to women who were working at both waves of the WHSA. This decision was made due to the issue of endogeneity which exists when investigating the relationship between multiple roles and health. The worker role has been identified as the life domain most sensitive to the influence of health on role engagement, a phenomenon known as the 'healthy worker effect'. We can see that there is no difference in the change in women's work status between WHSA-I and WHSA-II between women who had a child alive at WHSA-II born in the survey interval, and those who did not (Table 5.1).

Table 5-1: The change in women's (aged 18-49 years) employment status between WHSA-I (2003) and WHSA-II (2008/09) (percentage distribution), women present in both waves of the Women's Health Survey for Accra

	Percentage	
Change in work-status	Women with child	Women without child
Working-working	70.93	73.32
Not working-not working	4.80	5.18
Working-not working	14.67	10.80
Not working- working	9.60	10.60
Total	100 (375)	100 (907)

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)

The next stage of sample selection involved restricting the sample to those who had full information on the outcome and independent variables of interest. 187 women had missing information on the mental and physical component summary scores in either the WHSA-I or the WHSA-II (the dependent variables) and 47 had missing information on independent variables of interest. The final sub-sample consisted of 697 women who had full information on all covariates at the time of WHSA-I and WHSA-II. Table 5.2 summarises these sample selection stages.

Table 5-2: Sample selection process in the analysis of women's economic and maternal roles and health outcomes

Stage	Selection Process	Sample Size
0	Original sample size	3,172
1	Restriction to women of reproductive age in the WHSA-I	2,305
2	Restriction to women present in both waves of the WHSA	1,285
3	Restriction to women working at both waves	931
4	Restriction to women with full information on outcome variable	744
5	Restriction to women with full information on independent variables	697

5.4.3 Variables

5.4.3.1   The dependent variables

This research adopts the WHO's definition of health as a complete state of wellbeing. Physical Component Summary scores (PCS) and Mental Component Summary scores (MCS), calculated from the SF-36 survey contained in the WHSA, were used to measure this perspective of health. The SF-36 survey is one of the most extensively used and tested instruments for measuring health status internationally (Tseng et al. 2003). The questionnaire originates from the RAND'S Corporation's Medical Outcome Study (MOS) devised in the 1970s (McDowell 2006). Whilst the MOS consists of 245 items

used to investigate 40 aspects of health, the SF-36 is shorter comprising of 36 items which can be used to construct eight measures of health and one measure of health transition (Figure 5.1). These eight domains are physical functioning (PF), role limitations due to physical problems (RLP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role limitation due to emotional problems (RLE) and mental health (MH). All but one of the 36 items are used to score the eight health concepts and each item only contributes to the construction of one scale (Ware and Gandek 1998). The question concerning change in health status in the past year[8] is used to indicate improvement or decline in health (McDowell 2006). The eight health scales can also be used to create two summary measures, the MCS and the PCS, according to the physical and mental variance that the concepts have in common (Ware and Gandek 1998) (Figure 5.1). In validated studies PF, RLP and BP have been found to associate most highly with the physical element of health. In contrast MH and RE have been found to associate more highly with the mental element. VT, GH and SF have been found to correlate highly with both components of health. The MCS and PCS are frequently used in order to reduce the number of statistical analyses conducted in investigations of health outcomes without the loss of distinguishing between mental and physical dimensions (Sabbah et al. 2003).

The reason for the SF-36's popularity is due to its brevity but also comprehensiveness (Ware and Gandek 1998). The SF-36 is estimated to perform with between 80 and 90 percent empirical validity compared to the original MOS, however the latter questionnaire results in a time burden on respondents five to ten times greater (Ware and Gendek 1998). The SF-36 is successful in capturing the WHO's definition of health as whilst the eight health concepts represent areas of health shown to be affected by disease and treatment they also reflect the multifaceted nature of health through measuring both negative and positive self-assessments of quality of life.

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[8] The question concerning change in health status in the last year is not used to construct any of the health scales.

Women's Health Balance

Figure 5-1: The creation of SF-36 eight health domains and the physical and mental health summary measures

Item	Domains	Summary

Item

Vigorous activities
Moderate activities
Lift/carry groceries
Climb several flights of stairs
Climb one flight of stairs
Bend/Kneel
Walk short distance
Walk medium distance
Walk more than 2k
Bathe/Dress

Cut down time
Accomplished less
Limited in kind
Had difficulty

Pain Magnitude
Pain Interference

EVGFP Rating
Sick easier
As healthy
Health to get worst

Pep/Life
Energy
Worn out
Tired

Social-extent
Social time

Cut down time
Accomplished less
Not careful

Nervous
Unhappy
Peaceful /calm
Downhearted/let down

Domains

Physical Functioning (PF)

Role-Physical (RP)

Bodily Pain (BP)

General Health (GH)*

Vitality (VT)*

Social Functioning (SF)*

Role-Emotional (RE)

Emotional Wellbeing (EW)

Summary

PHYSICAL HEALTH

MENTAL HEALTH

Source: Ware and Gandek (1998) adapted using the SF-36 form from the WHSA (ISSER 2011)
Note: *Significant correlation with other summary measure

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The construction of the PCS and MCS involves several steps. Firstly, the RAND-36 methodology was used to construct the eight health domains. Item responses were recoded into a 0-100 scale to ensure higher scores on an item reflected more favourable perceived health and lower scores represented poorer perceived health (Table 5.3). Subsequent to recoding, items on the same scale were averaged together (Table 5.4).

Table 5-3: Recoding of outcome values of the SF-36 question items included in the WHSA-I and WHSA-II questionnaire

Items numbers	Original response category	Recoded value
1,2,20,22,34,36	1	100
	2	75
	3	50
	4	25
	5	0
3,4,5,6,7,8.9,10,11,12	1	0
	2	50
	3	100
13,14,15,16,17,18,19	1	0
	2	100
21,23,26,27,30	1	100
	2	80
	3	60
	4	40
	5	20
	6	0
24,25,28,29,31	1	0
	2	20
	3	40
	4	60
	5	80
	6	100
32, 33, 35	1	0
	2	25
	3	50
	4	75
	5	100

Source: RAND (2013) available from:
http://www.rand.org/content/dam/rand/www/external/health/surveys_tools/mos/mos_core_36item_scoring.pdf

Table 5-4: The eight SF-36 health-scales and their make-up from the 36 individual items

Scale	Number of items	Recoded items averaged
Physical functioning	10	3,4,5,6,7,9,10,11,12
Role limitations due to physical problems	4	13,14,15,16
Role limitations due to emotional problems	3	17,18,19
Energy	4	23,27,29,31
Emotional Wellbeing	5	24,25,26,28,30
Social Functioning	2	20,32
Bodily Pain	2	21,22
General Health	5	1,33,34,35,36

Source: RAND (2013) available from:
http://www.rand.org/content/dam/rand/www/external/health/surveys_tools/mos/mos_core_36item_scoring.pdf

PCA was used to construct the RAND SF-36 summary measures from the eight scales. Through the identification of clusters, PCA is able to detect whether variables in datasets measure a common underlying dimension. Factor rotation was used to facilitate the interpretation of factor loadings through the turning of factor axes. The standard scoring algorithm for the MCS and PCS developed by Ware et al. (2000) uses orthogonal factor rotations that force the physical and mental health constructs to be uncorrelated. However, a number of studies have found substantial correlation between mental and physical factors suggesting the use of this rotation is an unrealistic representation of health (Hays and Morales 2001). Due to these arguments this study uses PCA with oblique rotation to reduce inconsistencies and discrepancies in outcomes (Farivar et al. 2007).

Preliminary analysis was conducted to determine the suitability of the data for the conduction of PCA. In order for PCA to be successful it is necessary for patterns of relationships to exist in the data. Table 5.5 and Table 5.6 (R-matrixes) show that the different domains of health correlate well with each other in both the WHSA-I and WHSA-II. Variables, nevertheless, should not correlate too highly due to issues of multicollinearity. The determinant of the correlation matrix for both surveys being greater than 0.0001 confirms singularity does not characterise the data.

Table 5-5: Correlation between the eight SF-36 health scales in the WHSA-I

	PF	RLP	RLE	VT	EW	SF	BP	GH
PF	1	.508	.380	.539	.294	.474	.470	.604
RLP	.508	1	.544	.482	.313	.568	.577	.495
RLE	.380	.544	1	.444	.435	.545	.442	.373
VT	.539	.482	.444	1	.585	.499	.531	.585
EW	.294	.313	.435	.585	1	.436	.365	.394
SF	.474	.568	.545	.499	.436	1	.644	.450
BP	.470	.577	.442	.531	.365	.644	1	.481
GH	.604	.495	.373	.585	.394	.450	.481	1

Author's own analysis of the Women's Health Study of Accra (2003)
Determinant of correlation matrix: 0.26
Barlett's test of sphericity: 0.00
Kaiser-Meyer Olkin measure of sampling adequacy: 0.839
Abbreviations: PF – Physical Functioning, RLP – Role Limitations due to Physical Problems, RLE – Role Limitations due to Emotional Problems, VT - Vitality, MH – Mental Health, SF – Social Functioning, BP- Bodily Pain, GH – General Health

Table 5-6: Correlation between the eight SF-36 health scales in the WHSA-II

	PF	RLP	RLE	VT	EW	SF	BP	GH
PF	1	.351	.167	.346	.213	.213	.281	.386
RLP	.351	1	.301	.309	.213	.383	.383	.302
RLE	.167	.301	1	.263	.347	.543	.271	.268
VT	.346	.309	.263	1	.560	.326	.477	.448
EW	.213	.213	.347	.560	1	.348	.331	.344
SF	.213	.383	.543	.326	.348	1	.347	.273
BP	.281	.383	.271	.477	.331	.347	1	.428
GH	.386	.302	.268	.448	.344	.273	.428	1

Author's own analysis of the Women's Health Study of Accra (2008/09)
Determinant of correlation matrix: 0.121
Barlett's test of sphericity: 0.00
Kaiser-Meyer Olkin measure of sampling adequacy: 0.817
Abbreviations: PF – Physical Functioning, RLP – Role Limitations due to Physical Problems, RLE – Role Limitations due to Emotional Problems, VT- Vitality, EW – Emotional Wellbeing, SF – Social Functioning, BP- Bodily Pain, GH – General Health

In order to assess sample adequacy the Kaiser-Meyer Olkin (KMO) measure was obtained for individual and multiple variables. The KMO represents the ratio of the squared correlations between variables to the squared partial correlations between variables (Field 2005). Values vary between zero and one with a value close to one representing a compressed pattern of correlations suggesting PCA is likely to yield reliable results. The value of the KMO for multiple variables is .839 and .817 respectively for the WHSA-I and WHSA-II datasets respectively indicating that PCA is likely to result in highly distinct factors. The KMO measures for individual variables are shown in the diagonal of the anti-image correlation matrix (highlighted in bold in

Table 5.7 and Table 5.8). The majority of the values are on or above the recommended threshold of 0.5. Lastly, the Barlett's test of sphericity tests the null hypothesis that the original correlation matrix is an identity matrix where all variables are perfectly independent (Field 2005). The p-value of 0.000 for both datasets indicates that significant relationships between variables do exist.

Table 5-7: The Kaiser-Meyer Olkin statistic of the SF-36 health scales (the ratio of the squared correlation between variables to the squared partial correlation between variables) in the WHSA-I

	BP	PF	RLP	RLE	VT	EW	SF	GH
BP	**.529**	-.046	-.109	-.018	-.096	.035	-.214	-.061
PF	-.046	**.712**	-.067	-.016	-.115	.005	-.033	-.151
RLP	-.109	-.067	**.625**	-.190	-.024	.048	-.082	-.075
RLE	-.018	-.016	-.190	**.647**	.003	-.142	-.107	.041
VT	-.096	-.115	-.024	.003	**.495**	-.237	.007	-.131
EW	.035	.005	.048	-.142	-.237	**.558**	-.107	-.033
SF	-.214	-.033	-.082	-.107	.007	-.107	**.519**	-.004
GH	-.061	-.151	-.075	.041	-.131	-.033	.004	**.697**

Author's own analysis of the Women's Health Study of Accra (2003)
Abbreviations: PF – Physical Functioning, RLP – Role Limitations due to Physical Problems, RLE – Role Limitations due to Emotional Problems, VT – Vitality, EW – Emotional Wellbeing, SF – Social Functioning, BP- Bodily Pain, GH – General Health

Table 5-8: The Kaiser-Meyer Olkin statistic of the SF-36 health scales (the ratio of the squared correlation between variables to the squared partial correlation between variables) in the WHSA-I

	PF	RLP	RLE	VT	EW	SF	BP	GH
PF	**.883**	-.143	-.029	-.099	.110	-.055	-0.40	-.022
RLP	-.143	**.897**	-.287	-.028	.090	-.072	-.225	-0.77
RLE	-.029	-.287	**.892**	-.021	-.201	-.117	.004	-.008
VT	-.205	-.059	-.041	**.438**	-.410	-.003	-.169	-.201
EW	.110	.090	-.201	-.209	**.822**	-.078	.018	-.077
SF	-.112	-.152	-.226	-.003	-.149	**.458**	-.376	-.026
BP	-.040	-.225	.004	-.077	.018	-.177	**.888**	-.206
GH	-.348	-.129	.017	-.109	-.084	-.004	.081	**.891**

Author's own analysis of the Women's Health Study of Accra (2008/09)
Abbreviations: PF – Physical Functioning, RLP – Role Limitations due to Physical Problems, RLE – Role Limitations due to Emotional Problems, VT – Vitality, EW – Emotional Wellbeing, SF – Social Functioning, BP- Bodily Pain, GH – General Health

After the preliminary analysis PCA, with oblique rotation using the direct oblimin method, was performed. Factors were specified to correlate by a value of delta zero. Whilst eight factors were identified in both the WHSA-I and WHSA-II data only two factors were attained according to the size of their

eigenvalues[9]. Cattell's technique for factor retention, the scree test, was used and factors preceding the inflexion of the scree plot retained (Figure 5.2 and Figure 5.3). This technique was selected over the more commonly used Kaiser's criterion of keeping all factors with an eigenvalue greater than one. Kaiser's method is advised when the number of variables considered is less than 30, as in this analysis, but also when resulting communalities after extraction are greater than 0.7 (Field 2005). Communality is the total amount of variance an original variable shares with all other variables included in the analysis. In both the WHSA-I and WHSA-II PCA only resulted in three communalities being larger than this figure (Table 5.9). The scree plot technique for factor retention was considered suitable due to the sample size of the dataset being larger than 200, the suggested lower sample limit for the use of this method.

Figure 5-2: Scree plot of the eigenvalue of each component produced in the principle component analysis if the SF-36 health scales, WHSA-I
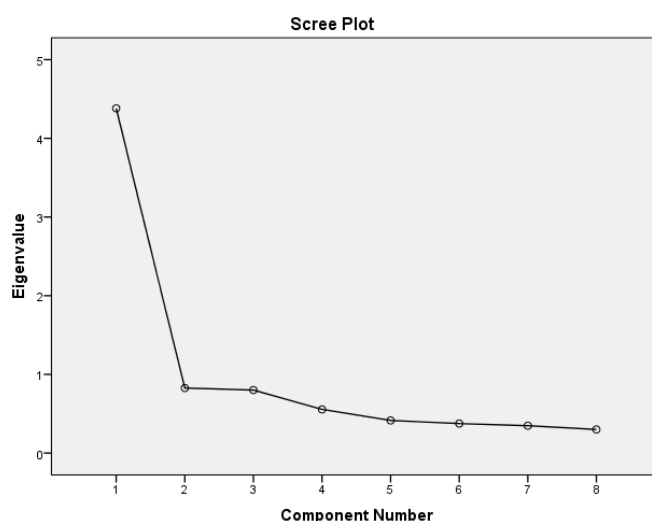
Author's own analysis of the Women's Health Study of Accra (2003)
Note: The inflexion on this scree plot suggests that two factors should be retained. The two retained components describes 65.10% of the data.

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[9] Eigenvalues indicate the substantive importance of a factor.

Figure 5-3: Scree plot of the eigenvalue of each component produced in the principle component analysis if the SF-36 health scales, WHSA-I
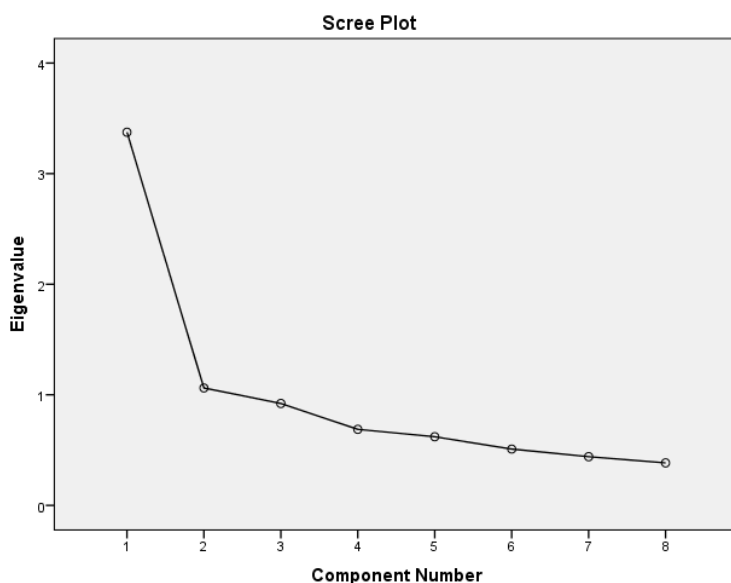
Author's own analysis of the Women's Health Study of Accra (2008/09)
Note: The inflexion on this scree plot suggests that two factors should be retained. The two retained components describes 55.5% of the data.

Table 5-9: Communalities, total amount of variance an original variable shares with all other variables included in the analysis, of the SF-36 health scales in the WHSA-I and WHSA-II

	Communalities	
	WHSA-I	WHSA-II
Physical Functioning	.640	.496
Role Limitations Physical	.665	.379
Role Limitations Emotional	.511	.738
Energy	.683	.605
Emotional Wellbeing	.892	.432
Social Functioning	.619	.723
Bodily Pain	.623	.503
General Health	.574	.560

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)

Once the decision to retain factors was made the contribution of variables to each factor was assessed to identify the underlying dimension represented. This was achieved through the investigation of factor loadings. Tables 5.10 and 5.11 displays the pattern and structure matrixes for the WHSA-I and WHSA-II data. The pattern matrix refers to the unique factor loadings of variables, whilst the structure matrix takes into account the

relationship between factors (Field 2005). Taking into account shared variance, Table 5.10 shows in the WHSA-I dataset PF, RLP and BP have the highest loadings on component 1, with SF and GH also scoring highly, suggesting this factor represents physical health. EW, RLE and SF load the highest on component 2 suggesting this factor represents mental health. In the WHSA-II dataset GH, BP, VT and PF load highest on component 1 suggesting this component represents physical health, whilst SF, EW and RLE load heavily on component 2 suggesting this component represents mental health (Table 5.11).

Table 5-10: The unique factor loadings (pattern matrix) and the factor loadings that take into relationship between variables (structure matrix) on principle component 1 and principle component 2 in the WHSA-I

	Pattern Matrix		Structure Matrix	
	1	2	1	2
Physical Functioning	.864	-.152	.789	.271
Role Limitations Physical	.851	-.079	.813	.338
Role Limitations Emotional	.433	.385	.631	.602
Vitality	.446	.511	.696	.729
Emotional Wellbeing	-.057	.971	.418	.943
Social Functioning	.669	.200	.767	.527
Bodily Pain	.766	.047	.788	.421
General Health	.723	.066	.755	.420

Author's own analysis of the Women's Health Study of Accra (2003)
Correlation between component 1 and 2: 0.489

Table 5-11: The unique factor loadings (pattern matrix) and the factor loadings that take into relationship between variables (structure matrix) on principle component 1 and principle component 2 in the WHSA-I

	Pattern Matrix		Structure Matrix	
	1	2	1	2
Physical Functioning	.760	-.199	.680	.104
Role Limitations Physical	.433	.297	.552	.470
Role Limitations Emotional	-.048	.877	.302	.858
Vitality	.746	.074	.755	.372
Emotional Wellbeing	.456	.325	.586	.507
Social Functioning	.060	.825	.390	.849
Bodily Pain	.644	.137	.698	.394
General Health	.764	-.040	.748	.265

Author's own analysis of the Women's Health Study of Accra (2008/09)
Correlation between component 1 and 2: 0.400

The final step in the construction of the summary measures involves the standardisation of the previously constructed health scales using z-scale transformation (Ware et al. 2000). Z-scores were calculated by subtracting the mean score in the 1998 US population from the corresponding scale in the WHSA data and dividing the difference by the matching 1998 US standard deviation. Secondly, each health z-score was multiplied by the respective component score coefficient (Table 5.12) produced during PCA and the eight resulting products summed to produce an aggregate health summary measure. Lastly, each summary measure was normed through multiplying the aggregate score by 10 and adding the product from this to 50.

Table 5-12: Factor score coefficients of the SF-36 for component 1 used to construct the physical component summary score and for component 2 used to construct the mental component summary score, WHSA-I and WHSA-II

| | Factor Score Coefficients | | | |
| | WHSA-I | | WHSA-II | |
	PCS	MCS	PCS	MCS
Physical Functioning	.316	-.162	.271	-.175
Role Limitation Physical	.157	.151	.261	-.121
Role Limitation Emotional	-.070	.523	.104	.243
Bodily Pain	.250	.044	.226	-.025
General Health	.308	-.068	.212	-.007
Vitality	.294	.001	.095	.333
Emotional Wellbeing	.164	.167	-.095	.703
Social Functioning	-.023	.486	.186	-.007

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)

After the construction of the MCS and PCS scores, the distribution of these outcome variables was investigated. The mean MCS and PCS scores in the WHSA-I among our final sample of women were 52.35 and 52.51 respectively. In the WHSA-II the mean MCS and PCS scores were 50.54 and 53.24 respectively. The distribution of PCS scores is more heavily skewed than the MCS distribution with scores being clustered to a greater degree at higher scores (Figures 5.5, 5.7).

Figure 5-4: The distribution of the normed mental component summary scores in the WHSA-I (2003) among women in the final analytical sample (n=697)
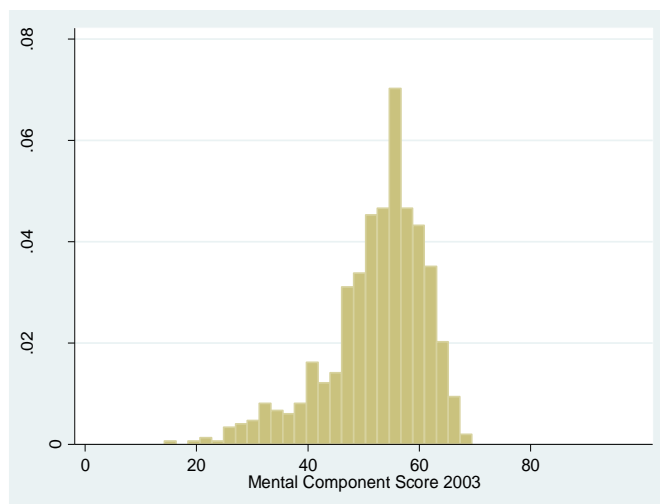
Author's own analysis of the Women's Health Study of Accra (2003)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Skewness -1.08, Kurtosis 4.24 – in a normally distributed sample these figures are 0 and 3 respectively.

Figure 5-5: Distribution of the normed physical component summary scores in the WHSA-I among women in the final analytical sample (n=697)
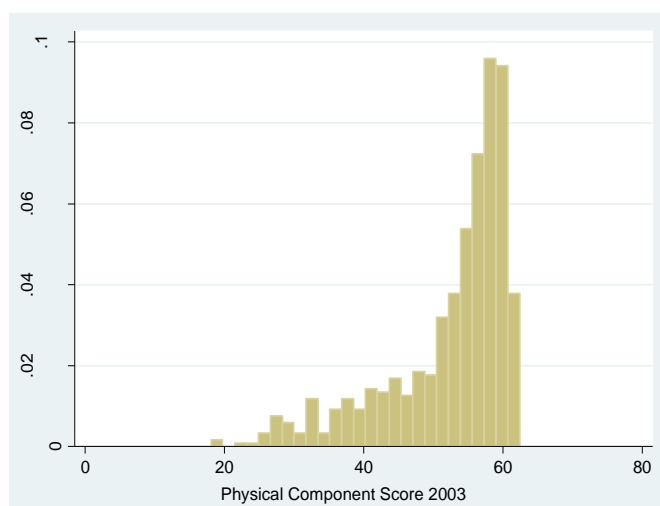
Author's own analysis of the Women's Health Study of Accra (2003)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Skewness -1.42, Kurtosis 4.38 – these figures are 0 and 3 respectively in a normally distributed sample.

Women's Health Balance

Figure 5-6: Distribution of the normed mental component summary scores in the WHSA-II among women in the final analytical sample (n=697)
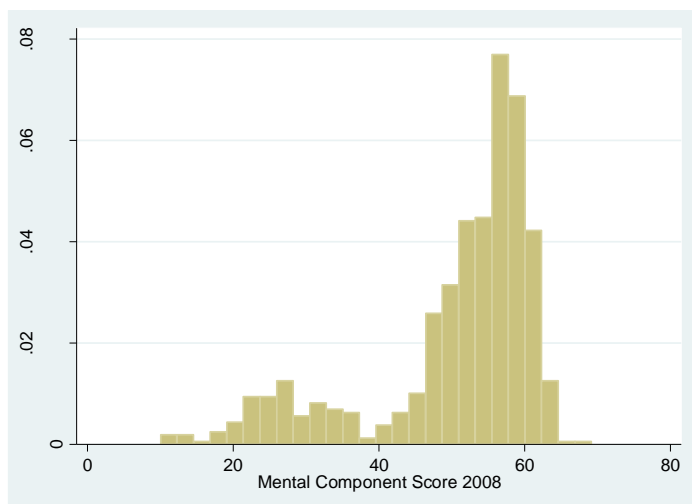
Author's own analysis of the Women's Health Study of Accra (2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Skewness -1.47, Kurtosis 4.24 – these figures are 0 and 3 respectively in a normally distributed sample.

Figure 5-7: Distribution of the normed physical component summary scores in the WHSA-II among women in the final analytical sample (n=697)
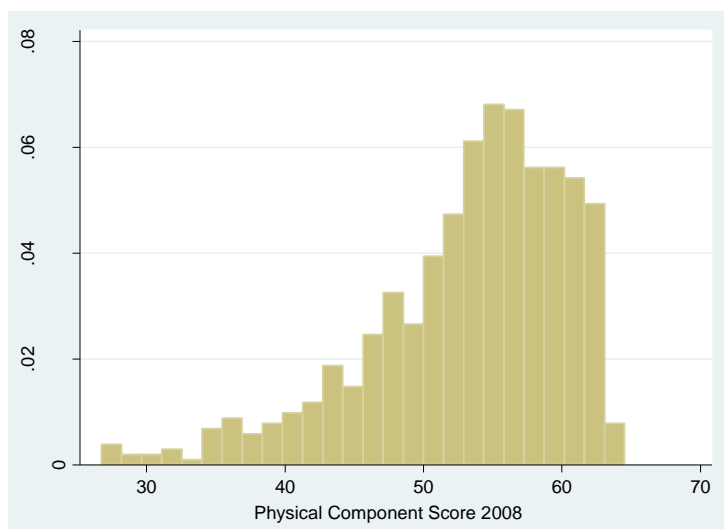
Author's own analysis of the Women's Health Study of Accra (2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Skewness -1.06, Kurtosis 4.04 - these figures are 0 and 3 respectively in a normally distributed sample.

As noted in the chapter's objectives we are interested in a change in health between the WHSA-I and WHSA-II. A change score variable was calculated for both mental and physical health by subtracting scores in WHSA-I from the scores in WHSA-II. Figures 5.8 and 5.9 show the distribution of both the PCS and MCS change scores are normally distributed. The mean change in MCS scores was negative (-1.81) and results in a significant difference in scores between the WHSA-I and WHSA-II at the 1% level. The greatest deterioration in health was by 45.03 points whilst the greatest improvement was by 38.49 points. In contrast the mean change in PCS scores was positive (0.73) and not significant. The range of change in physical health was smaller in comparison to the MCS with the greatest deterioration being by 26.50 points and the greatest improvement by 31.93 points.

Figure 5-8: Distribution of the change in the normed mental component summary scores between the WHSA-I (2003) and WHSA-II (2008/09) among women in the final analytical sample (n=697)
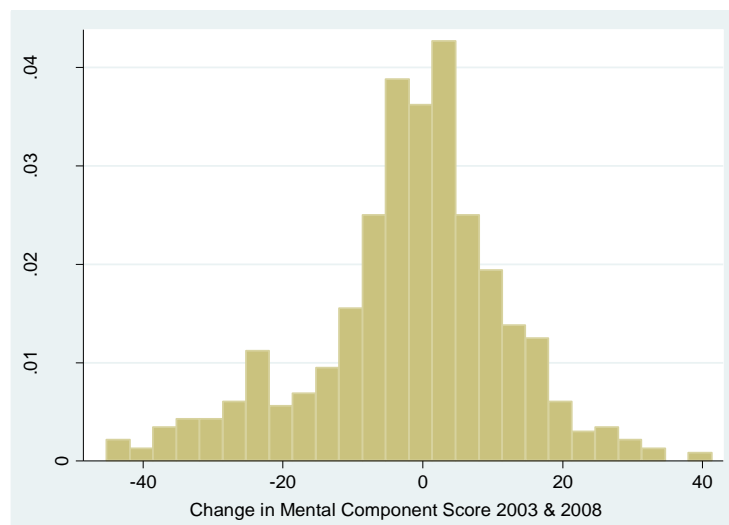
Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest.
Note: Skewness -0.49, Kurtosis 3.70

Figure 5-9: Distribution of the change in normed physical component summary scores between the WHSA-I (2003) and WHSA-II (2008/09) among women in the final analytical sample (n=697)
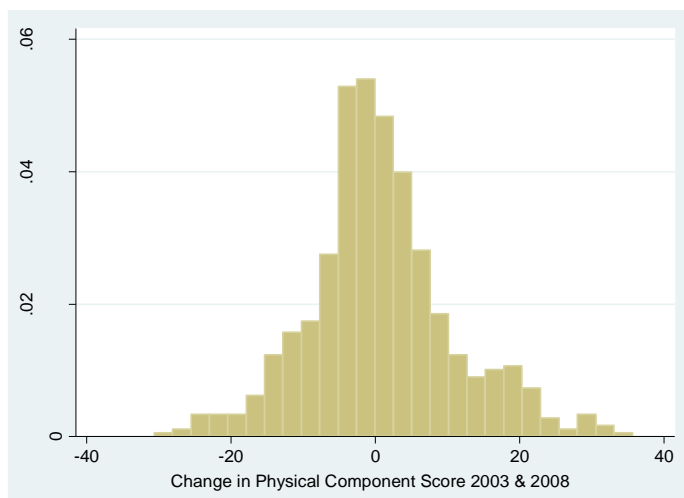
Author's own analysis of the Women's Health Study of Accra (2003/08)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Skewness 0.35, Kurtosis 3.81

5.4.3.2   Turning point covariates

Variables were constructed which denote a change in circumstances between the two surveys waves. Based on a comparison of wealth quintile membership at Wave-I and Wave-II a three category variable was created: 1. wealth status lower in WHSA-II compared to WHSA-I, 2. Wealth status higher in WHSA-II compared to WHSA-I, 3. wealth status the same. Table 5.13 shows fluidity in wealth quintile membership between the surveys. Only 38% of women belonged to the same wealth quintile at both time points, whilst 38% had a lower wealth status and 24% a higher wealth status at the latter time point. Six categories of partnership dynamics were included: 1. never married at Wave-I and II, 2. married at Wave-I and II, 3. separated, divorced or widowed at Wave-I and II, 4. married or never married[10] in WHSA-I and separated, divorced or widowed in WHSA-II, 5. never married in WHSA-I, married in WHSA-II or 6. separated, divorced or widowed at WHSA-I, married at WHSA-II. The majority of the sample was in the same relationship state at the time of the two

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[10] Those never married at WHSA-I could experience two transitions in the time period between the WHSA-I and WHSA-II, moving into a married state then becoming separated, divorced or widowed.

surveys (71%), whilst 22% moved from being either never married or separated, divorced or widowed in the WHSA-I to being married in the WHSA-II and 6% had moved from being never married or married to separated, divorced or widowed. It should be noted that in the five year survey interval women may have experienced multiple transitions, for example a woman married at both time points are not necessarily married to the same man. Those who stated they had been living in their household at the time of the WHSA-II for less than five years were identified as having changed their residence between the two surveys. According to this measurement 28% of women had moved between the two surveys. Lastly, women who experienced a birth between the two surveys were identified using the WHSA-II pregnancy histories. 30% of women were identified as having a living child at the time of the WHSA-II born in the survey interval. For shorthand these women are referred to in tables as birth. Women who do not have a child alive in WHSA-II born in the survey interval are referred to as no birth. It should be noted women who had given birth in the survey interval but had none of these children surviving at the WHSA-II were excluded from this group. Only a small percentage of the overall sample (1.86%) had experienced a death of a child born in the interval. However, a considerable proportion of these women had another child born in the interval surviving. This group of women compromised 2.46% of the sub-sample of women with a child alive at the WHSA-II born in the interval. Women experiencing a death of a child born in the interval and having no other surviving children born in this time-frame comprised 1.63% of our group of women without a young child. Regression analysis revealed that child mortality in the survey interval was not significantly associated with either change in physical or mental health in both samples of women.

Looking at these transition variables according to whether a woman had a child born in the interval alive at the WHSA-II differences are evident. Whereas 25% of women not experiencing a birth moved between the two waves, 36% of those experiencing a birth did. It is possible the greater movement of this group reflects return to the parental or kin home for/after childbirth as a coping strategy to receive assistance and support. A limitation is that this measure does not capture temporary moves that occurred in the survey interval; where women have moved outside their households but have returned prior to the WHSA-II. Differences in changes in partnership status among

women who had given birth and those who had not are entirely as expected. In terms of wealth no significant differences exist.

Table 5-13: Difference in wealth status, marital status and residence at WHSA-I (2003) and WHSA-II (2008/09) and whether a women had a child alive at WHSA-II born in the survey interval, women in the final analytical sample (percentage distribution)

	% of sample		
Covariate change	Total	Birth	No birth
Wealth			
Wealth status lower in WHSA-II than WHSA-I	38.16	36.23	38.98
Wealth status higher in WHSA-II than WHSA-I	24.25	25.60	23.67
Wealth status consistent	37.59	38.16	37.35
Partnership dynamics			
Never married WHSA-I and WHSA-II**	21.23	6.28	27.55
Married WHSA-I and WHSA-II**	40.03	50.72	35.51
Separated, divorced or widowed WHSA-I and WHSA-II	10.04	2.90	13.06
Never married in WHSA-I, married in WHSA-II**	11.62	23.67	6.53
Sep, div or wid in WHSA-I, married in WHSA-II	10.63	9.18	11.22
Never married/married in WHSA-I, sep, div or wid in WHSA-II	6.46	7.25	6.12
Change in resident between survey interval**			
Yes	28.26	36.23	24.90
No	71.74	63.77	75.10
Birth			
Yes	29.70	-	-
No	70.30	-	-
Total	100 (697)	100 (207)	100 (490)

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: ** denotes statistically significant difference between by those experienced a birth and those who did not
Where individuals stated they were of a separated, widowed and divorced status in the WHSA-I and a never married status in the WHSA-II, it was assumed this latter status was married. This applied to 1.1% of the sample. Where individuals stated they were married in the WHSA-I and never married in the WHSA-II, this latter status was assumed to be separated, divorced or widowed. This applied to 1.3% of the sample. It should also be noted that the partnership dynamic variables represent status as known at the WHSA-I and WHSA-II and do not capture multiple transitions, for example women married at the time of both surveys may not necessarily be married to the same man.

5.4.3.5   Additional covariates

Religious affiliation showed little change at the two survey waves[11] and consequently these values as recorded at the time of the WHSA-I were included in the analysis. Religion was categorized as: 1. Christian, 2. Muslim, 3. Other, with this latter category including those with no religion and traditional religion. 9% of the sample had an educational attainment at the WHSA-II which was higher compared to in the WHSA-I[12]. The descriptive analysis shows that an increase in educational attainment was not associated at the 1 or 5% significance with having a child alive at WHSA-II borne in the survey interval (Table 5.14) or change in health between the survey interval (Table 5.15).Due to the small percentage of women who experienced a change in their educational attainment and the non-significant association of this variable with childbearing and health education was incorporated into the model according to the values recorded at WHSA-I. Educational attainment was grouped as: 1. none, 2. primary, 3. JSS, 4. SSS and higher.

Table 5-14: Comparison of educational attainment at WHSA-I (2003) and WHSA-II (2008/09) of women in the final analytical sample, by whether they had a child alive at the WHSA-II borne in the survey interval, percentage distribution

	Group membership (%)		
Educational attainment (WHSA-I and WHSA-II)	No birth	Birth	Total
Higher in WHSA-II	69.8	30.17	100 (633)
Same in WHSA-II	75.0	25.0	100 (64)

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=697
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: Chi 2 test for the association between educational attainment change and birth status was not significant at the 1 or 5% level.

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[11] 6.46% of the sample had a different religious membership at the time of the two surveys.
[12] Where individuals stated a lower level of education in the WHSA-II, it was assumed that their education had remained constant at the WHSA-I value.

Table 5-15: Mean change in normed mental and physical component summary measures between the WHSA-I (2003) and WHSA-II (2008/09) of women in the final analytical status, by comparative educational attainment status based on WHSA-I (2003) and WHSA-II (2008/09) levels

	Mean change in wellbeing between WHSA-I and WHSA-II	
Educational attainment WHSA-I and WHSA-II	MCS	PCS
Higher in WHSA-II	-2.48	1.93
Same in WHSA-II	-1.75	0.61

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=697
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: The change in MCS and PCS scores were not significantly different when comparing women who experienced an increase in their educational attainment between WHSA-I and WHSA-II and those who did not.

Ethnicity is a time invariant covariate with the three major ethnic groups in the AMA being distinguished; 1. Akan, 2. Ga, 3. Ewe, 4. Other. Migration was coded as a dichotomous variable with those born outside of the Greater Accra region compared to those born in the Greater Accra region. Using the household roster, variables representing household structure also were created. The sample composition according to socio-economic and demographic characteristics measured at Wave I are displayed in Table 5.15 and 5.16. It should be noted when comparing the group of women with a child born with those without, the descriptive analysis suggests there is no health selection into parenthood.

Table 5-16: Baseline (WHSA-I 2003) socio-economic and demographic categorical characteristics of women in the final analytical sample, by whether they had a child alive at WHSA-II born in the survey interval (percentage distribution)

	Sample distribution (%)		
Covariate	total	No Birth	Birth
Marital Status**			
Never married	34.15	35.10	31.88
Currently married	45.19	40.61	56.04
Divorced/Separated/Widowed	20.66	24.29	12.08
Religion			
Christian	84.36	85.71	81.16
Muslim	11.76	10.41	14.98
Other	3.87	3.88	3.86
Wealth			
Lowest	12.20	11.22	14.49
Fourth	21.23	21.63	20.29
Middle	25.25	23.47	29.47
Second	19.66	20.61	17.39
Highest	21.66	23.06	18.36
Education			
None	9.61	9.39	10.14
Primary	11.05	10.00	13.53
JSS	50.65	49.18	54.11
SSS +	28.69	31.43	22.22
Ethnicity			
Akan	37.07	36.73	37.86
Ga	37.50	38.16	35.92
Ewe	12.07	12.24	11.65
Other	13.36	12.86	14.56
Born in the Greater Accra region			
No	42.20	58.02	57.28
Yes	47.80	41.98	42.72
Relationship to household head**			
Head	18.79	21.84	11.59
Wife	34.86	32.04	41.55
Daughter/daughter in law	27.69	11.02	29.95
Other	11.19	11.02	11.59
Not specified	7.46	8.37	5.31
Total	100 (697)	100 (490)	100 (207)

Author's own analysis of the Women's Health Study of Accra (2003)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Abbreviations: JSS – Junior Secondary School, SSS – Senior Secondary School
Note: **denotes significant difference at the 1% level between women experiencing a birth and those not

Table 5-17: Baseline (at WHSA-I 2003) socio-economic and demographic characteristics (continuous variables) of women in the final analytical sample

	Mean scores		
Covariate	Total	No birth	Birth
Age**	30.38	31.71	27.21
Mental Component Score	52.35	52.28	52.52
Physical Component Score	52.51	53.53	52.47
Household Composition			
Children 0-5 years**	0.48	0.40	0.68
Children 6-11 years	0.56	0.58	0.52
Females 12-15 years	0.22	0.24	0.19
Males 12-15 years	0.19	0.22	0.15
Females 16-64 years	2.06	2.03	1.99
Males 16-64 years	0.95	0.83	0.92
Females 65 years +**	0.07	0.16	0.22
Males 65 years +	0.42	0.15	0.15

Author's own analysis of the Women's Health Study of Accra (2003) , n=697
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Note: **denotes significant difference at the 1% level between women experiencing a birth and those not

5.4.4 Investigation of missing data

As noted in previously, the sample was partly restricted to missing values in the outcome and independent variables. Missing data is a common feature of datasets and can cause a loss of precision and introduce bias in parameter estimates (Fitzmaurice et al. 2004). The latter issue in particular makes the investigation of reasons for missing data essential as approaches for dealing with missing data make different assumptions concerning the patterns of missingness. In longitudinal studies attrition, or drop-out, is particularly problematic as it was in this study with only 55% of women of reporoductive age at WHSA-I being recaptured by the WHSA-II. Rubin's (1976) typology classifies three different mechanisms underlying missing data:

1. missing completely at random (MCAR): the probability of missing data is independent of covariates and outcomes. When attrition is MCAR the probability of drop-out is not dependent on measurements at time t or t+1 (the observed or unobserved measurements);
2. missing at random (MAR): the probability of missing data is associated with covariates but not outcomes. When attrition is MAR the probability of drop-out is associated with the observed data (t) but not the

unobserved (t+1). Therefore conditional on the observed data, the data and missing process are independent;

3. missing not at random (MNAR): the probability of missing data is associated with covariates and outcomes that in theory should have been obtained. When attrition is MNAR the probability of drop-out is associated with the observed and unobserved data (measurements at both t and t+1).

In addition to attrition, missing data can take the form of item non-response and wave non-response (Carpenter and Lewis 2011). The latter does not apply in this research due to the WHSA only consisting of two waves. This section will explore the methods and processes used to explore the missing data in this analysis and the subsequent methodological decisions made.

5.4.5 Attrition

The missing data of primary concern to this analysis is attrition (45%) between Wave I and II. Whilst there were 2,305 women of reproductive age present in the WHSA-I only 1,285 were recaptured by the WHSA-II. The independent contribution of covariates as measured at the WHSA-I to the probability of selection into both waves of the survey (of the 2,305 women) is discussed in the results (Section 5.5.1). It is also possible that attrition can be associated with the longitudinal process, for example deterioration in health may be associated with non-response. It is difficult to identify MNAR as data at time t+1 for individuals who have dropped out are not observed and unknown (1,020 women). Nonetheless, in the WHSA-II women who could not be contacted or who had moved outside the AMA were replaced with new participants of a similar age and SES. Information collected from these individuals in the WHSA-II was used to investigate whether the fertility and health trajectories (the two variables of primary interest) of drop-outs could have been different to those who remained in the study.

Table 5-18: Summary of sample sizes of women of various waves of the WHSA

Sample	Sample Size
Women aged 18-49 years in the WHSA-I	2,305
Women aged 18-49 years in the WHSA-I present in both waves	1,285
Women aged 18-49 years in the WHSA-I not present in the WHSA-II (drop-out women)	1,020
Women aged 23-54 years in the WHSA-II not present in the WHSA-I (replacement women)	620

Turning first to fertility, age specific fertility rates (ASFRs) and TFRs were calculated for the five-year period preceding the WHSA-I separately for women who dropped out of the survey subsequently and those who remained. Both these groups of women had similar TFRs in the five years preceding the WHSA-I as shown by Table 5.19 and 5.20. ASFRs were also calculated for the five year period preceding the WHSA-II for women who were present in both waves and for replacement women. TFRs in the five year period preceding the WHSA-II of women present in both surveys and replacement women were also alike (Tables 5.21 and 5.22) suggesting the fertility trajectories of stayers and drop-outs between the WHSA-I and WHSA-II are likely to have been comparable.

Table 5-19: The numbers of births to women of a specified age groups per 1,000 women in the age group (age specific fertility rates) in the five year period preceding the WHSA-I for women of reproductive age present in both waves of the survey (n=1,285)

| Age groups	No of Births	Women	Women Years	ASFR
20-24	124	428	2140	0.0579439
25-29	155	250	1250	0.1240000
30-34	154	191	955	0.1612565
35-39	86	152	760	0.1331579
40-44	38	147	735	0.0517007
45-49	15	117	785	0.0191083
			TFR	2.736

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Abbreviations: TFR – Total Fertility Rate (the average number of children that would be born to a woman over her lifetime if she was to experience the current ASFR throughout her lifetime and were survive to the end of the reproductive span (49 years), ASFR – Age Specific Fertility Rate – the number of birth to women of a specified age group per 1,000 women in that age group

Table 5-20: The number of births to women of specified age groups per 1,000 women in the age group (age specific fertility rates) in the five year period preceding the WHSA-I for women who dropped out of the survey between the WHSA-I and WHSA-II (n=1,020)

Age groups	No of Births	Women	Women Years	ASFR
20-24	121	418	2090	0.0578947
25-29	159	219	1095	0.1452055
30-34	118	157	785	0.1503185
35-39	62	90	450	0.1377778
40-44	19	80	400	0.0475000
45-49	4	56	280	0.0142857
			TFR	2.765

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Abbreviations: TFR – Total Fertility Rate (the average number of children that would be born to a woman over her lifetime if she was to experience the current ASFR throughout her lifetime and were survive to the end of the reproductive span (49 years), ASFR – Age Specific Fertility Rate – the number of birth to women of a specified age group per 1,000 women in that age group

Women's Health Balance

Table 5-21: The number of births to women of specified age groups per 1,000 women in the age group (age specific fertility rates) in the five year period preceding the WHSA-II for women present in both waves of the survey (n=1,285)

Age groups	No of Births	Women	Women Year	ASFR
20-24	34	90	630	0.0539683
25-29	177	303	1515	0.1168317
30-34	170	235	1175	0.1446809
35-39	122	194	970	0.1277320
40-44	48	168	840	0.0571429
45-49	17	150	750	0.0226667
			TFR	2.615

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest
Abbreviations: TFR – Total Fertility Rate (the average number of children that would be born to a woman over her lifetime if she was to experience the current ASFR throughout her lifetime and were survive to the end of the reproductive span (49 years), ASFR – Age Specific Fertility Rate – the number of birth to women of a specified age group per 1,000 women in that age group

Table 5-22: The number of births to women of specified age groups per 1,000 women in the age group (age specific fertility rates) in the five year period preceding the WHSA-II for replacement women present in the WHSA-II only (n=620)

Age groups	No of Births	Women	Women Year	ASFR
20-24	21	54	378	0.0555556
25-29	76	156	780	0.0974359
30-34	80	119	595	0.1344538
35-39	62	108	540	0.1148148
40-44	22	81	405	0.0543210
45-49	3	53	265	0.0113208
			TFR	2.340

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Abbreviations: TFR – Total Fertility Rate (the average number of children that would be born to a woman over her lifetime if she was to experience the current ASFR throughout her lifetime and were survive to the end of the reproductive span (49 years), ASFR – Age Specific Fertility Rate – the number of birth to women of a specified age group per 1,000 women in that age group

Secondly, health at the time of the WHSA-I and WHSA-II of the different groups of women were compared (Table 5.23). Using the MCS, it appears the mental health of stayers declined in the survey interval whilst scores of replacement women are higher than drop-outs. If the MCS scores of the drop-outs also declined in the survey interval we could argue that they were similar to stayers. However, this is unknown as due to various possible reasons they dropped out of the survey and were replaced with women with slightly higher MCS scores. In terms of physical health, women who were stayers experienced an increase between the survey waves. The scores of replacements were higher than those of drop-outs.

Table 5-23: Mean mental and physical health summary scores in the WHSA-I (2003) and WHSA-II (2008/09) among women present in both waves of the survey (n=1,285), among drop-out women (1,020) and among replacement women (n=620)

	WHSA-I	WHSA-II
Women present in both waves[a]		
MCS	51.50	50.20
PCS	52.04	53.15
Drop-outs/Replacement women		
MCS	50.39[b]	50.87[c]
PCS	52.93[b]	53.71[c]

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Abbreviations: MCS – Mental Component Score, PCS –Physical Component Score
Note: [a] Women included in the final analytical sample were those aged between 18-49 years at wave 1, were present in both waves of the survey and had full information on the dependent and independent variables of interest [b]Scores of women aged 18-49 at Wave I who were not present in the WHSA-II (drop-outs), [c] scores of women aged 23-54 years present in the WHSA-II but not the WHSA-I (replacement women).

5.4.6 Item non-response

The sample size prior to the exclusion of women with missing values on the outcome or independent variables was 931. Table 5.24 shows that item non-response for the explanatory covariates among these women is relatively low ranging from 0 to 19 units. In contrast, missing data in the response variables is 57 units (6%) and 130 units (14%) for the WHSA-I and WHSA-II surveys respectively.

Table 5-24: Frequency of item non-response among women aged 18-49 years at the WHSA-I present in both waves of the survey and working at both time points (n=931)

	Frequency of non-response	
Variable	WHSA-I	WHSA-II
Wealth Status	0	0
Highest Level of Education Attained	3	9
Marital Status	14	7
Religion	3	2
Ethnicity	3	-
Age	0	-
Born in the Greater Accra region	6	-
MCS/PCS	130	57

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Abbreviations: MCS – Mental Component Summary Score, PCS – Physical Component Summary Score
Note: - denotes that only measurement in WHSA-I used in the data analysis

To investigate this missingness in the outcome variables a binary indictor was created to show whether these were observed (0) or missing (1). Logistic regression models were conducted using the WHSA-I and WHSA-II separately with household wealth, women's educational level attained, marital status, religion, ethnicity, migration status and age as covariates. Table 5.25 shows only one covariate, whether a woman was born in the Greater Accra region, is associated with missingness in the health measures as recorded in the WHSA-II; however this relationship is only just significant at the 5% level.

Table 5-25: Odds of having missing values of the mental and physical component scores among women aged 18-49 years at WHSA-I present and working in both waves of the survey (n=931)

Covariate	WHSA-I		WHSA-II	
	Odds	P-Value	Odds	P-Value
Wealth				
Poorest	1.7783	0.075	0.5049	0.225
Fourth	0.9900	0.974	1.6099	0.237
Middle[a]				
Second	1.0616	0.844	1.0695	0.878
Richest	1.0254	0.936	0.7174	0.552
Marital Status				
Never married	1.5853	0.101	1.6633	0.187
Sep/Div/Wid	0.9744	0.925	1.8700	0.110
Married[a]				
Age	1.0266	0.081	1.0191	0.333
Highest Educational Level				
None	1.3530	0.369	0.9459	0.923
Primary	0.9598	0.907	1.0733	0.877
JSS[a]				
SSS +	1.1942	0.478	0.9786	0.952
Religion				
Christian[a]				
Muslim	1.8230	0.180	0.8368	0.784
Other	1.7045	0.215	0.8642	0.848
Ethnicity				
Ga[a]				
Akan	1.2691	0.368	1.4857	0.297
Ewe	1.1380	0.695	2.1061	0.084
Other	0.4719	0.134	1.2563	0.739
Born in Greater Accra region				
Yes[a]				
No	1.2171	0.414	2.0768	0.047

Author's own analysis of the Women's Health Study of Accra
Abbreviations: MCS – Mental Component Summary Score, PCS – Physical Component Summary Score, JSS – Junior Secondary School, SSS – Senior Secondary School
Note: 1. [a] reference category
2. Associations with WHSA-I wellbeing scores are with socio-economic and demographic characteristics as measured at Wave-I, associations with WHSA-II wellbeing scores are with socio-economic and demographic characteristics as measured at wave II apart from whether a woman was born in the Greater Accra region, age and ethnicity which WHSA-I information is used.

5.5   Analytical strategy

5.5.1   Methods for missing data in longitudinal studies

The default method for handling missing values is complete-case analysis (CCA) whereby all cases with missing information are omitted from the analysis. This approach assumes those who drop-out of the study do not differ from those who remain. Where the restricted sample is not representative of the original sample CCA will lead to biased parameter estimates. Several approaches exist to deal with missing data. Inverse Probability Weighting (IPW) is the most commonly used method (Carpenter and Lewis 2011). This approach involves conducting CCA but weighting units according to their propensity to respond at t+1 according to observed characteristics at t. Cases with a lower probability of responding are given more weight. All cases are weighted by the inverse of their predicted probability of responding. An alternative to IPW is multiple imputation (MI). This method comprises of the creation of multiple imputed datasets, taking account of residual variability and uncertainty in parameter estimates during regression modelling. The model of interest is fitted to each dataset and averaged. A restriction of both IPW and MI is the assumption of MAR. Where data are non-ignorable (MNAR) standard statistical models using weighted or imputed data will result in biased results. To obtain valid results joint models are required. These models specify the joint distribution of the longitudinal outcome and the drop-out process.

5.5.2   Selection models

This research uses selection models to investigate the longitudinal relationship between women's combination of their maternal and economic roles and health whilst taking account of attrition in the sample. Heckman (1974) first accounted for selection in his analysis of wage determinants among married women. He recognised that women may self-select into the labour force. This is problematic where those engaged and those not engaged in the labour force differ and the determinants of their work status are also related to wage levels. Where the selection and outcome processes are related regression analyses that do not take account of the selection mechanism will produce biased estimates (Vella 1998). Selection models can also be used with

panel data in order to take account of the influence the attrition process may have on the outcome. To account for potential issues of selection bias Heckman's methodology implements a two-step procedure with the specification of two models assuming bivariate normality; the selection model and the outcome model.

Model 1-The Selection Equation

$$Y_1 \begin{cases} 1 \, if \, Y_1^* > 0 \\ 0 \, if \, Y_1^* \leq 0 \end{cases}$$

Where $Y_1^* > 0$ denotes selection into the sample and $0 \, if \, Y_1^* \leq 0$ denotes absence in the sample.

The selection model investigates the mechanism of selection into the sample through the specification of a probit model. This model uses the probit link function to transform the binary response variable into a continuous outcome ($Y' \varepsilon (-\infty, \infty)$) ensuring predicted probabilities are confined to between 0 and 1 (Woodridge 2009). This function uses the standard normal cumulative distribution ($F(Y) = \phi^{-1}(Y)$) which results in a S shape curve similar to the logit function. Selection is determined by a linear combination of observed (Z_i) and unobserved (δ_i) covariates (Briggs 2004). Through the specification of this selection function the parameters are used to estimate a measure of selection bias for every case. Where selection has occurred δ_i is no longer normally distributed but has a truncated normal distribution (Briggs 2004). The Inverse Mills Ratio, calculated using parameter outcomes of the probit model, captures this bias.

The outcome model is estimated for cases that have selected into the sample:

$$Y_2 \begin{cases} Y_2^* \, if \, Y_1^* > 0 \\ - \, if \, Y_1^* \leq 0 \end{cases}$$

Whereby Y_2 is only observed for those who are selected into the sample. The IMR is incorporated into the outcome model as a covariate to capture selection bias. In order to account for the two-step method bootstrapping is used to correct standard errors (Vella 1998).

5.4.3.6   Estimation of the IMR

The first stage of the analysis involved specifying the probit model to estimate the IMR. No guidance exists as to what variables should be incorporated into the selection stage of the model and it is recommended to test several variations to investigate the sensitivity of the outcome model to different selection function specifications (Briggs 2004). Three different selection functions were specified through the setting up of three different probit models which contained different independent covariates. The first selection model (SM1) used in this research incorporates variables depicting women's socio-economic and demographic characteristics at the time of the WHSA-I. The second selection model (SM2) contained these same socio-economic and demographic variables, but also two variables from the surveys paradata showing interview cooperation at WHSA-I and participation in medical and clinical examinations at WHSA-I. A third variable showing how long individuals had been resident at their household as listed in WHSA-I was also included. In selection modelling some authors note it is important to include at least one instrumental variable that does not add significantly to the model of interest but is a significant predictor of selection (Briggs 2004). Participation in the medical examinations required women to attend the outpatient clinic at the Korle Bu Teaching Hospital. It also involved fasting prior to the appointment so blood sugars could be taken and the research team noted this was a difficult process with women kept waiting. This experience could have led to individuals being reluctant to take part in another survey. Measures of interview compliance and cooperation have been found to be good predictors of drop-out in other surveys (Uhrig 2008). A third instrumental variable, how long individuals had been resident in their WHSA-I household, was also included. Individuals who have been resident for shorter periods of time may be more mobile and may have been harder to relocate in the second wave of the survey. Post estimation Wald tests show these instrumental variables when incorporated into the outcome models, singly or jointly, are not significant; however they do show a significant relationship with selection into both waves of the survey (Table 5.26 and 5.27).

Table 5-26: Post estimation Wald[a] tests to assess the significance of the contribution of the instrumental variables (interview cooperation, participation in medical examinations at WHSA-I, years resident at household as recorded in the WHSA-I) to change in mental and physical health between the WHSA-I and WHSA-II, women in the final analytical sample, ordinary linear regression models

Instrument	Mental change score model[b]			Physical change score model[c]		
	df	Wald	P-value	df	Wald	P-value
Interview cooperation	2	0.89	0.410	2	0.50	0.607
Medical participation	1	1.16	0.282	1	2.13	0.145
Years resident at WHSA-I household	4	0.07	0.992	4	0.51	0.726
All instruments	7	0.49	0.840	7	0.72	0.659

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Note:[a] the Wald test tests the hypothesis that coefficient estimates of the instruments were 0, [b] response variable change in mental component summary score between WHSA-I and WHSA-II, [c] response variable change in physical component summary score between WHSA-I and WHSA-II
Covariates included: change in wealth, partnership dynamics, age, , religion, education, birth, ethnicity, whether a woman was born in the Greater Accra region, relation to household head, household composition.

Table 5-27: Post estimation Wald[a] tests to assess the significance of the contribution of the instrumental variables (interview cooperation, participation in medicial examinations at WHSA-I, years resident at household as recorded in the WHSA-I) to the probability of women aged 18-49 years (at WHSA-I) being present in both waves of the WHSA (probit model)

Instrument	Model of attrition		
	df	Wald	P-value
Interview cooperation	2	7.06	0.029
Medical participation	1	31.43	<0.0001
Years residence at WHSA-I household	4	43.05	<0.0001
All instruments	7	81.48	<0.0001

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Note: [a] the Wald test tests the hypothesis that the coefficient estimates of the instruments were 0.
Covariates included: wealth, age, marital status, religion, education, ethnicity, relationship to head, household composition, mental and physical wellbeing as measured at the baseline.

The final selection model (SM3) took a mechanical approach incorporating only significant predictors of selection into both waves of the survey. Table 5.28 shows the variables contained in each of the three probit models.

Table 5-28: Independent variables included the probit models estimating the probability of selection into both waves of the WHSA among women of reproductive age at WHSA-I

Selection Model 1	Selection Model 2	Selection Model 3
Age	Age	Wealth
Wealth	Wealth	Ethnicity
Marital Status	Marital Status	Education
Religion	Religion	Number of children aged 6-11 years in hhld
Ethnicity	Ethnicity	Participation in medical examination
Education	Education	Cooperation
Relation to head of household	Relation to head of household	Years resident at hhld
Number of children aged 0-5 years in hhld	Number of children aged 0-5 years in hhld	
Number of children aged 6-11 years in hhld	Number of children aged 6-11 years in hhld	
Number of females aged 12-15 years in hhld	Number of females aged 12-15 years in hhld	
Number of males aged 12-15 years in hhld	Number of males aged 12-15 years in hlld	
Number of males aged 15-64 years in hhld	Number of males aged 15-64 years in hhld	
Number of females aged 16-54 years in hhld	Number of females aged 16-54 years in hhld	
Number of males aged 55 years + in hhld	Number of males aged 55 years + in hhld	
Number of females aged 55 years + in hhld	Number of females aged 55 years + in hhld	
Mental component summary score	Mental component summary score	
Physical component summary score	Physical component summary score	
	Participation in medical examination	
	Cooperation in interviews	
	Years resident in hhld	

Note: values of all variables are those as recorded at the WHSA-I

5.5.3 The change score model

The second stage of the analysis involved the specification of the outcome models which included one of the three constructed IMRs as an independent variable. In this analysis health as measured in the WHSA-I could be considered as the pre-test (Y_1) and health as measured in WHSA-II as the post-test scores (Y_2). Individuals in the sample can also be divided into two groups, the treatment and control, according to whether they had a child alive at the WHSA-II born in the survey interval. This study uses the unconditional change score model to compare health at WHSA-II between our two groups of women whilst controlling for their initial health. The change score method involves the application of cross-sectional analysis, Ordinary Least Squares regression, to panel data through the investigation of change in the response variable over time (Berrington et al. 2006):

$$Y_{i2} - Y_{i1} = \beta_0 + \beta_1 X_{i1} + \cdots \ldots + \beta_i \beta_{ip} + e_i$$

5.5.4 Research hypotheses

Based on previous discussion and studies concerned with female health and roles in the developing world (Section 4.3.4), we derive the following hypotheses:

H1: Women with a child born in the survey interval experienced a less favourable change in their health between the WHSA-I and WHSA-II compared to women without a child born in the survey interval.

In this analysis we consider change in physical and mental health as two separate outcomes. First bivariate analysis is used to investigate whether there is a relationship between our birth variable and change in mental health, whereby the only independent variables used in these models were the birth variable and the IMR. Models 1-3 show the bivariate relationship between the birth variable and change in mental health between the WHSA-I and WHSA-II. Model 1 contains the IMR estimated using the first probit model, Model 2 the IMR estimated using the second probit model, and Model 3 the IMR estimated using the third selection model. In the second stage the relationship between the birth variable and change in mental health was investigated using

multivariate analysis so models were set up which included women's social category membership and household demography as control variables. The social category variables included as controls were change in wealth status, partnership dynamics, change in residence, religion, relationship to household head, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. The household variables used as controls were the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I. Models 4-6 show the multivariate relationship between the birth variable and change in mental health. Model 4 contains the IMR estimated using the first probit model, Model 5 the IMR estimated using the second probit model, and Model 6 the IMR estimated using the third selection model.

The above process was repeated using change in physical health as the outcome measure. Models 7-9 show the bivariate relationship between the birth variable and change in physical health between the WHSA-I and WHSA-II. Model 7 contains the IMR estimated using the first probit model, Model 8 the IMR estimated using the second probit model and Model 9 the IMR estimated using the third selection model. Models 10-12 show the multivariate relationship between the birth variable and change in physical health. Model 10 contains the IMR estimated using the first probit model, Model 11 the IMR estimated using the second probit model and Model 12 the IMR estimated using the third selection model.

The literature suggests that social category membership can moderate the relationship between maternal multiple roles and health:

H2: Social category membership and household structure is associated with change in health among women with a child alive at WHSA-II born in the survey interval.

Social category membership considered included change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity, the women's relationship to the household head and whether a woman was born in the Greater Accra region. The household variables examined were relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15

years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I. To investigate this the sample was separated into two; women who had a child alive at the WHSA-II born in the survey interval, and women who did not have a child alive at the WHSA-II born in the survey interval. It was decided to conduct separate regression analyses for the two groups of women instead of performing interactions due to the small sample size which would have made the interactions unstable.

The group of women examined first was women with a child alive at the WHSA-II born in the survey interest (our primary group of interest). Bivariate analysis was used first to investigate whether there was a relationship between each of the social category and household demography variables and change in mental health, whereby only one social category or household demography variable and the IMR were included in the regression at a time. Models 13-15 show the bivariate relationship between each independent variable and change in mental health among women with a child alive at the WHSA-II born in the survey interval. Model 13 contains the IMR estimated using the first probit model, Model 14 the IMR estimated using the second probit model and Model 15 the IMR estimated using the third selection model. Secondly, multivariate models were conducted which contained all the social category and household demography variables. Models 16-18 show the multivariate relationship between these independent variables and change in mental health among women with a child alive at WHSA-II with a child born in the survey interval. Model 16 contains the IMR estimated using the first probit model, Model 17 the IMR estimated using the second probit model and Model 18 the IMR estimated using the third selection model.

The above process was repeated using change in physical health as the outcome variable. Models 19-21 show the bivariate relationship between each independent variable and change in physical health among women with a child alive at the WHSA-II born in the survey interval. Models 22-24 show the multivariate relationships between these independent variables and change in physical health among women with a child alive at WHSA-II with a child born in the survey interval. The significant predictors of change in mental and physical health among women with a child alive at WHSA-II born in the survey interval were compared to the significant predictors that were run for the sample of

women who did not have a child alive at WHSA-II born in the survey interval. Table B.2, located in Appendix B, summarise the details of the 36 outcome models used in this analysis.

5.6 Results

5.6.1 Probit selection models

Table B.3 (located in Appendix B) presents the parameter estimates calculated using the three selection specifications. There is no one criterion to select the 'best choice' specification. However, the three models presented in Table B.13 are nested and their fit to the data can be compared using the likelihood ratio test. The difference in deviance between SM1 and SM3 is 332.68 with a Chi2 distribution on 15 degrees of freedom. The significance level of <0.05 suggests SM1 fits the data better than SM3. SM1 was also compared to the fullest model, SM2. The difference in deviance between these models is 122.62 with a Chi2 distribution on 7 degrees of freedom. The significance level of <0.05 suggests SM2 fits the data better than SM1 and consequently is the best fitting model. According to this model years resident in household, interview cooperation, participation in the WHSA-I medical examinations, MCS score, number of females aged 16-54 years in the household, the number of children aged 6-11 years in the household, highest educational level attained, ethnicity and wealth, all as measured at the WHSA-I are significantly associated with selection into both waves of the survey at the 1 or 5% level. Those belonging to the poorest or second richest wealth quintile are more likely to drop-out than those of a middle wealth quintile membership. The likelihood of drop-out does not differ significantly for those from the second poorest quintile or richest quintile compared to those from the middle wealth quintile. In comparison to those of a Ga ethnicity, Ewes and Akans are more likely to drop-out. Whilst those with no education are more likely to drop out compared to those with JSS as their highest educational attainment, there is no difference for those with primary or SSS or higher education. Considering household demographics two variables are significantly associated with drop-out. Those with two or more children aged 6-11 years in the household are less likely to drop-out compared to those with no children this age. Where four or more women aged 16-54 years are in the household respondents are less likely

to drop-out compared to when they are the only female of this age-group present. Differences do not exist according to when two or three women aged 16-54 years are present compared to only one. The respondents' MCS score at the WHSA-I is the only significant continuous predictor of drop-out. Increases in MCS scores (higher ratings of subjective mental health) are associated with a lower likelihood of drop-out. As noted all instrumental variables were significantly associated with drop-out. Women who had participated in the WHSA-I clinical and medical examinations were more likely to drop-out than those who did not give consent. Due to organisational difficulties medical examinations were not conducted in the WHSA-II. It is likely the lengthy and onerous experience of this component dissuaded some woman from taking part in the survey again. Conversely to expectation those who were reported to give excellent interview cooperation were more likely to drop-out compared to those who were reported to have good cooperation. An explanation for this could have been the greater demands felt by people giving excellent cooperation. Lastly, individuals who had only been living at their residence for 0-4 years were more likely drop-out compared to those of all other resident durations.

5.6.2 Comparison of change in health between women of different birth statuses

H1: Women with a child born in the survey interval experienced a less favourable change in their health between the WHSA-I and WHSA-II compared to women without a child born in the survey interval

Firstly, bivariate analysis was conducted whereby the relationship between the birth variable and change in both mental and physical health was explored without the use of any controls. Table 5.29 shows the results of these regressions. Note that three regression analysis are run for each outcome, each using a different selection specification as discussed in the methods section. Models 1-3 include change in mental health as their outcome, whilst models 7-9 include change in physical health as the outcome. Regardless of the selection specification used the birth variable was insignificant at the 5% level. Change in mental or physical health did not differ significantly at the 1 or

5% level between women with a child born in the survey interval alive at WHSA-II and women without young children.

Table 5-29: Parameter estimates of the change in mental and physical component summary scores between the WHSA-I and WHSA-II controlling for selection, single regression model with the birth variable

	Selection Specification					
	Model 1 (IMR1)		Model 2 (IMR2)		Model 3 (IMR3)	
Change in MCS	β	P-value	β	P-value	β	P-value
Birth	-0.55	0.635	-0.71	0.547	-0.45	0.703
	Model 7 (IMR1)		Model 8 (IMR2)		Model 9 (IMR3)	
Change in PCS	β	P-value	β	P-value	β	P-value
Birth	-0.30	0.723	-0.22	0.680	-0.18	0.833

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=697
Birth variable is a comparison of women with a child alive at the time of the WHSA-II who was born in the survey interval and women without a child alive at the WHSA-II born in the survey interval
Abbreviations: IMR 1 – model containing the inverse mills ratio calculated using probit model 1, IMR 2 – model containing the inverse mills ratio calculated using probit model 2, IMR 3 – model containing the inverse mills ratio calculated using probit model 3

Multivariate analysis was also conducted whereby the relationship between the birth variable and change in both mental and physical health was explored whilst controlling for socio-economic and demographic characteristics at the women and household level. Tables 5.30 and 5.31 show that in the multivariate analysis there is no change to our result. Regardless of the selection specification used the birth coefficient was insignificant at the 5% level. Nonetheless, descriptive analysis revealed that a change in wealth is significantly associated with change in mental health (but not physical health). Scaling back working hours or changing occupation are possible work-family management strategies used by working women with children that could affect the household economy. Wealth could also be effect by the cost of a new child. Nonetheless, cross-tabulation showed that change in wealth is not significantly associated with change in parental status suggesting a birth incurs no shocks to the household economy. Consequently, hypothesis 1 of this analysis was not supported.

Table 5-30: Parameter estimates of the change in mental component summary scores between the WHSA-I and WHSA-II controlling for selection, multivariate regression model (birth variable and socio-economic and demographic controls)

	Model								
	4 (IMR1)			5 (IMR2)			6 (IMR3)		
	95% CI			95% CI			95% CI		
	β	Lower	Upper	β	Lower	Upper	β	Lower	Upper
Wealth									
Wealth status lower in WHSA-II than WHSA-I[a]									
Wealth status higher in WHSA-II than WHSA-I	1.64	-1.16	4.43	3.36*	0.55	6.17	3.91**	1.08	6.73
Wealth status consistent	1.21	-1.23	3.66	2.28	-0.19	4.74	2.58	0.12	5.05
Partnership dynamics									
Never married WHSA-I and WHSA-II	-1.25	-5.34	2.85	0.43	-3.70	4.56	0.88	-3.25	5.02
Married[a] WHSA-I and WHSA-II									
Separated, divorced or widowed WHSA-I and WHSA-II	2.19	-2.02	6.40	2.74	-1.53	7.01	2.81	-1.47	7.10
Never married in WHSA-I, married in WHSA-II**	0.51	-3.93	4.96	2.96	-1.49	7.41	3.63	-0.81	8.06

Sep, div or wid in WHSA-II, married in WHSA-II	-1.98	-3.93	4.96	-1.45	-5.24	2.35	-1.00	-4.80	2.80
Never married/married in WHSA-I, sep, div or wid in WHSA-II	-3.00	-7.47	1.47	-3.00	-7.73	1.73	-2.42	-7.17	2.32
Change in residence WHSA-I and WHSA-II								
Yes	-0.46	-2.97	2.04	-0.69	-3.24	1.86	-0.60	-3.16	1.96
No[a]								
Birth								
Yes	-0.24	-2.83	2.35	-0.69	-3.33	1.96	-0.60	-3.25	2.06
No[a]								
Religion								
Christian[a]								
Muslim	1.59	-3.37	6.56	0.10	-4.89	5.09	-0.89	-5.85	4.08
Other	-3.70	-9.11	1.70	-3.85	-9.42	1.71	-4.00	-9.59	1.60
Highest Educational Attainment WHSA-I								
None	-3.72	-7.84	0.40	-0.74	-4.70	3.22	0.88	-3.02	4.77
Primary	-0.61	-4.26	3.05	0.35	-3.35	4.05	1.73	-1.95	5.40

JSS[a]								
SSS +	2.95*	0.40	5.50	2.42	-0.18	5.02	2.43	-0.18	5.04
Ethnicity								
Ga[a]								
Akan	-9.11**	-12.67	-5.56	-4.45**	-7.44	-1.47	-2.74	-5.71	0.22
Ewe	-5.02**	-9.13	-1.29	-2.01	-5.72	1.69	-0.63	-4.38	3.12
Other	-9.21**	-14.40	-4.03	-5.70*	-10.73	-0.68	-4.40	-9.41	0.62
Born in the Greater Accra region								
Yes	0.18	-2.26	2.63	0.96	-1.55	3.48	0.75	-1.78	3.27
No[a]								
Age at WHSA-I	0.15	-0.05	0.35	0.02	-0.17	0.22	-0.03	-0.23	0.16
Relationship to household head								
Head	-1.59	-5.35	2.17	-0.14	-3.90	3.63	0.17	-3.60	3.95
Wife[a]								
Daughter/ Daughter in-law	-3.12	-7.18	0.93	-2.91	-9.06	-0.76	-5.07	-9.24	-0.91
Other	-7.19**	-12.12	-2.26	-4.33*	-9.13	0.45	-3.39	-8.14	1.36

Not specified	-4.45	-9.26	0.37	-3.64	-8.51	1.23	-3.61	-8.51	1.28
Household Demographics									
Number of children aged 0-5 yrs									
0[a]									
1	1.87	-0.75	4.50	1.16	-1.54	3.86	1.29	-1.43	4.01
2+	-3.75*	-7.38	-0.12	-3.59	-7.26	0.09	-3.78*	-7.47	-0.10
Number of children aged 6-11 yrs									
0[a]									
1	-0.26	-2.85	2.32	-1.19	-3.81	1.44	-2.02	-4.07	1.20
2+	1.95	-1.55	5.45	-0.59	-3.96	2.78	-1.44*	-5.39	1.35
Number of females aged 12-15 yrs									
0[a]									
1+	-2.19	-4.86	0.49	-3.45*	-6.15	-0.75	-3.77**	-6.47	-1.06
Number of males aged 12-15 yrs									
0[a]									

1+	0.83	-2.03	3.69	0.15	-2.75	3.05	0.01	-2.91	2.93
Number of females aged 16-54 yrs									
1 [a]									
2	0.87	-2.06	3.80	0.33	-2.64	3.31	-0.10	-3.07	2.87
3	5.60**	2.16	9.05	4.44*	1.00	7.88	3.71*	0.28	7.14
4+	7.32**	2.97	11.67	3.54	-0.57	7.64	1.84	-2.09	5.76
Number of males aged 16-54 yrs									
0	1.83	-0.77	4.44	1.16	-1.50	3.82	1.23	-1.45	3.91
1 [a]									
2+	3.93*	0.45	7.40	1.73	-1.73	5.19	1.01	-2.42	4.45
Number of females aged 55 yrs+									
0 [a]									
1+	1.20	-2.09	4.48	-0.09	-3.36	3.19	-0.98	-4.20	2.24
Number of males aged 55 yrs+									
0 [a]									
1+	-2.20	-5.34	0.95	-1.47	-4.66	1.71	-1.21	-4.40	1.99

Constant	-19.51**	-30.58	-8.44	-5.78	-15.00	3.45	0.68	-8.40	9.75
IMR	25.71***	15.82	35.59	7.37*	1.35	13.40	-1.32	-6.96	4.33

Author's own analysis of the Women's Health Study of Accra (2003, 2008/09), n=697 in both bivariate and multivariate models
Abbreviations: WHSA-I – Women's Health Study of Accra Wave-1, WHSA-II – Women's Health Study of Accra Wave 2, MCS – Mental Component Score, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mill ratio calculated using probit model 1, IMR2 inverse mill ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3
*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

Table 5-31: Parameter estimates of the change in physical component summary scores between the WHSA-I and WHSA-II controlling for selection, multivariate regression model (birth variable and socio-economic and demographic controls)

	Model								
	10 (IMR 1)			11 (IMR 2)			12 (IMR 3)		
		95% CI			95% CI			95% CI	
	β	Lower	Upper	β	Lower	Upper	β	Lower	Upper
Wealth									
Wealth status lower in WHSA-II than WHSA-I[a]									
Wealth status higher in WHSA-II than WHSA-I	1.30	-0.76	3.37	1.20	-0.87	3.26	1.17	-0.89	3.24
Wealth status consistent	1.16	-0.65	2.96	0.95	-0.86	2.75	0.92	-0.89	2.72
Partnership dynamics									
Never married WHSA-I and WHSA-II	1.86	-1.17	4.89	1.21	-1.83	4.25	1.07	-1.95	4.09
Married[a] WHSA-I and WHSA-II									
Separated, divorced or widowed WHSA-I and WHSA-II	1.28	-1.84	4.39	1.04	-2.09	4.18	1.00	-2.13	4.14
Never married in WHSA-I, married in WHSA-II**	0.90	-2.39	4.19	0.37	-2.90	3.63	0.20	-3.05	3.44

Sep, div or wid in WHSA-I, married in WHSA-II	3.49*	0.74	6.25	3.17*	0.39	5.96	3.13*	0.34	5.91
Never married/married in WHSA-I, sep, div or wid in WHSA-II	0.44	-2.87	3.75	-0.01	-3.49	3.46	-0.06	-3.53	3.41
Change in residence WHSA-I and WHSA-II									
Yes	-0.64	-2.50	1.21	-0.57	-2.44	1.30	-0.57	-2.44	1.30
No[a]									
Birth									
Yes	0.37	-1.54	2.29	0.47	-1.47	2.42	0.49	-1.46	2.42
No[a]									
Religion									
Christian[a]									
Muslim	-3.79*	-7.46	-0.11	-3.52	-7.18	0.15	-3.36	-7.00	0.27
Other	4.10*	0.10	8.10	3.50	-0.59	7.59	3.43	-0.66	7.52
Highest Educational Attainment WHSA-I									
None	0.56	-2.49	3.61	-0.24	-3.15	2.67	-0.39	-3.24	2.46
Primary	2.83*	0.13	5.54	2.17	-0.55	4.89	2.07	-0.62	4.75
JSS[a]									

SSS +	0.66	-1.23	2.55	0.84	-1.07	2.75	0.84	-1.07	2.75
Ethnicity									
Ga[a]									
Akan	2.36	-0.27	4.99	1.36	-0.83	3.55	1.28	-0.89	3.45
Ewe	2.50	-0.40	5.41	1.89	-0.83	4.61	1.87	-0.87	4.61
Other	1.10	-2.74	4.93	0.44	-3.25	4.14	0.33	-3.33	4.00
Born in the Greater Accra region									
Yes	1.26	-0.54	3.08	1.29	-0.56	3.13	1.29	-0.55	3.14
No[a]									
Age at WHSA-I	0.01	-0.14	0.15	0.03	-0.11	0.17	0.04	-0.11	0.18
Relationship to household head									
Head	-1.02	-3.80	1.76	-1.60	-4.36	1.16	-1.70	-4.46	1.05
Wife[a]									
Daughter/ Daughter in-law	-3.60*	-6.60	-0.60	-3.59*	-6.63	-0.54	-3.56*	-6.61	-0.51
Other	-1.40	-5.05	2.25	-2.36	-5.88	1.15	-2.61	-6.09	0.86
Not specified	-0.89	-4.46	2.67	-1.29	-4.86	2.29	-1.39	-4.97	2.19
Household Demographics									
Number of children aged 0-5 yrs									

0[a]									
1	-0.93	-2.87	1.02	-0.77	-2.75	1.22	-0.72	-2.71	1.27
2+	-2.37	-5.05	0.32	-2.45	-5.15	0.25	-2.40	-5.10	0.29
Number of children aged 6-11 yrs									
0[a]									
1	-0.75	-2.66	1.16	-0.39	-2.32	1.54	-0.38	-2.30	1.55
2+	-0.55	-3.14	2.04	0.16	-2.31	2.64	0.24	-2.23	2.70
Number of females aged 12-15 yrs									
0[a]									
1+	2.33*	-4.31	-0.35	-2.11*	-4.10	-0.13	-2.07*	-4.04	-0.09
Number of males aged 12-15 yrs									
0[a]									
1+	1.90	-4.03	0.21	-1.93	-4.06	0.21	-1.83	-3.97	0.30
Number of females aged 16-54 yrs									
1[a]									
2	0.76	-1.41	2.93	1.23	-0.95	3.41	1.30	-0.87	3.47
3	1.49	-1.05	4.04	2.00	-0.53	4.52	2.09	-0.42	4.60

4+	0.84	-2.38	4.06	1.81	-1.21	4.83	2.15	-0.72	5.02
Number of males aged 16-54 yrs								
0	0.84	-1.88	1.98	0.29	4.83	2.24	0.35	-1.61	2.31
1[a]								
2	0.00	-2.57	2.57	0.91	-1.63	3.45	1.04	-1.47	3.55
Number of females aged 55 yrs+								
0[a]								
1+	0.68	-1.75	3.11	1.06	-1.35	3.46	1.22	-1.14	3.57
Number of males aged 55 yrs+								
0[a]								
1+	0.16	-2.17	2.48	-0.08	-2.42	2.26	-0.19	-2.53	2.14
Constant	2.88	-5.31	11.07	-0.37	-7.15	6.40	-0.73	-7.36	5.91
IMR	-6.28	-13.60	1.03	-1.99	-6.42	2.43	-1.55	-5.68	2.58

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=697 in both bivariate and multivariate models
Abbreviations: WHSA-I – Women's Health Study of Accra Wave 1, WHSA-II – Women's Health Study of Accra Wave 2, PCS – Physical Component Score, JSS- Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mill ratio calculated using probit model 1, IMR2 – inverse mill ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3
*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

5.4.4 Change in health and associations with social category membership and household demography

<u>H2: Social category membership and household structure is associated with change in health among women with a child alive at WHSA-II born in the survey interval</u>

In the last stage of the research we wished to investigate whether social category membership and household structure was associated with change in health among women with a child alive at the WHSA-II born in the survey interval. Table 5.32 shows the results from the bivariate and multivariate models for this group of women with change in mental health between the WHSA-I and WHSA-II as the outcome. The results are presented for each of models containing the different IMR created using the different probit models. Table 5.33 shows the results for change in physical health between the WHSA-I and WHSA-II among women with a child alive at the WHSA-II born in the survey interval. To ensure that these associations between change in health and social category membership and household structure are unique to this group of women with young biological children, we also ran the same regression model for women without a child alive in the WHSA-II born in the survey interval. Table B.4 located in Appendix B presents the results for the bivariate and multivariate models for women without a child alive at WHSA-II born in the survey interval with change in mental health between the WHSA-I and WHSA-II as the outcome. Table B.5, also located in Appendix B, shows the bivariate and multivariate models among this group of women with change in physical health between the WHSA-I and WHSA-II as the outcome. Again multiple models are presented which include different IMRs created from the different probit models described previously in the methods section.

<u>Change in mental health: comparison between bivariate and multivariate models</u>

Considering first change in mental health between the WHSA-I and WHSA-II among women with a child alive at the WHSA-II born in the survey interval (Table 5.32), comparing the results from the bivariate models and multivariate models we can see the influence of confounding. Mother's education status, the number of females aged 16-54 years resident in the household at the

WHSA-I and the number of males aged 16-54 years resident in the household are significant at the 5% level in both the bivariate and multivariate models. The significance of these variables at the 5% level holds whether the IMR1, IMR2 or IMR3 was included in the multivariate model to account for attrition between the two survey waves. However, whilst change in wealth status was significantly associated with change in mental health in the bivariate models, regardless of the selection specification (IMR) used, it lost its significance in all the multivariate models. In the bivariate models mothers whose wealth status was higher in the WHSA-II compared to the WHSA-I experienced a more positive change in their mental health compared to mothers to whose wealth status was lower in the WHSA-II compared to the WHSA-I. The value of this difference between these two groups of women was similar in the models using the different selection specifications (between 4.03 and 5.36 points).

Similarly, whether a woman was born in the Greater Accra region was significantly associated with change in mental health in the bivariate models at the 5% level, regardless of the selection specification used, but in all multivariate models this variable lost its significance. In the bivariate models, women who were born in the Greater Accra region experienced a more positive change in their mental health between the WHSA-I and WHSA-II compared to women who were not born in the Greater Accra region. The size of this difference was similar when using the different selection specifications (between 4.40 and 5.15 points).

When considering the women's relation to the household head, in the bivariate models women who were the head of their household were shown to have a more positive change in their mental health compared to women who were the wife of the household head. The coefficient for this remains stable in the bivariate models using the different selection specifications (between 8.23 and 8.83 points). Nonetheless, in the multivariate models women who are the head of their households were found to experience no different change in their mental health compared to women who were the wife of the household head. Instead in the multivariate models (regardless of the IMR used) women who were the daughter/daughter in-law of the household head or a relation not specified experienced a significantly (at the 5% level) more negative change in

their mental health compared to women who were the wife of the household head. Yet these differences were not found in the bivariate models.

Change in mental health: interpretation of multivariate models

Considering the results from the multivariate models, we can see that the models using the different selection specifications show the same results in terms of the variables that are significant at the 5% or 1% level. There were no cases where a variable was significant at the 1 or 5% level in one multivariate model, but not significant in a multivariate model that contained a different selection specification (IMR). However, the value of the coefficients for variables did differ between models using different selection specifications. Below discusses the interpretation of the significant variables in the multivariate models with change in mental health as the outcome. In this discussion comparison between model 16 (IMR 1), model 17 (IMR 2) and model 18 (IMR 3) are made.

Women's education is significant at the 5% level regardless of the IMR used to account for attrition. Women with no education experienced a less positive change in their mental health compared to women with JJS education. The size of the difference in change of mental health between these two groups of women does differ according to the IMR incorporated into the multivariate model to capture selection effects. We can see the size of this difference between women with no education and those with JSS education is the greatest in the model 16, which uses IMR1, with a coefficient of -9.26 points. The smallest difference between change in mental health between women of no education and JSS education was shown by model 18, which used IMR3, with a coefficient of -7.74 points.

In terms of relationship to the household head, women who were the daughter/ daughter in-law to the head experienced a less positive change in their mental health compared women who were the wife of the household head. This difference in the change in mental health between these two groups of women was significant at the 5% level regardless of the selection specification used. The value of the difference between these two groups of women was also similar regardless of the IMR used in the multivariate model. Model 16, which used IMR1, displayed the smallest difference with a coefficient of -11.40 points whilst model 18, which used IMR3, displayed the largest

difference with a coefficient of -12.92 points. A similar pattern was displayed when comparing the change in mental health of women with a relation to the head of the household 'not specified' with women who were the wife of the head. Women who had a non-defined relationship experienced a less positive change in their mental health compared to women who were the wife, a difference that was significant at the 5% level in all three multivariate models. The difference between these two groups of women was the smallest in model 16, which used IMR 1, with a coefficient of -11.58 and greatest in model 17, which used IMR 2, with a coefficient of -11.78. Therefore, the size of the difference was very similar in all three multivariate models.

In terms of household demography, women who were resident in a household at the WHSA-I where there was three women present aged 16-54 years experienced a significantly (at the 5% level) more positive change in their mental health between the WHSA-I and WHSA-II compared to women who were resident in a household with only one woman of this age present. This result was true regardless of the selection specification used in the multivariate model. The size of this difference between these two groups of women was also similar regardless of the selection specification used (between 6.00 and 6.42 points).

Lastly, women who were present in a household where 2 or more men aged 16-54 years were present at the WHSA-I experienced a significantly (at the 5% level) more positive change in their mental health compared to when there was only one man this age present, regardless of the multivariate model considered. The size of this difference was greatest in model 16, which used IMR 1, with a coefficient of 11.97 points and was smallest in model 18, which used IMR 3, with a coefficient of 10.56 points.

It should be noted that all the above interpretations are valid when all other factors in the model are held constant. In addition to these interpretations, we are interested in whether these social category membership and household demography associations are unique for women with a child alive at WHSA-II born in the survey interval, or if they are common to all women regardless of birth status. Table B.4 located in Appendix B shows among women without a child alive at WHSA-II born in the survey interval of the above discussed

covariates only education is significantly associated with change in mental health. However, the nature of this relationship differs with those with secondary or higher education experiencing a significantly more positive change in mental health compared to women with JSS education. Among these women, ethnicity, the number of females aged 12-15 years present in the household at WHSA-I, and the number of males aged 55 years and over present in the household at WHSA-I were also found to be significantly associated with change in mental health in the multivariate models, regardless of the selection specification used.

Table 5-32: Parameter estimates (point difference) of the bivariate and multivariate models of the unconditional change in mental health among women with a child alive in WHSA-II born in the survey interval

	13 (IMR1) Bivariate	16 (IMR1) Multivariate			14 (IMR2) Bivariate	17 (IMR2) Multivariate			15 (IMR3) Bivariate	18 (IMR3) Multivariate		
	β	β	95% CI		β	β	95% CI		β	β	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Wealth												
Wealth status lower in WHSA-II than WHSA-I[a]												
Wealth status higher in WHSA-II than WHSA-I	5.98	1.91	-3.54	7.35	2.34	2.70	-2.66	8.06	2.33	2.88	-2.50	8.27
Wealth status consistent	4.03***	2.60	-2.26	7.47	5.36***	2.46	-2.49	7.41	4.77***	3.03	-1.90	7.97
Partnership dynamics												
Never married WHSA-I and WHSA-II	4.38	6.37	-3.09	15.83	5.02	7.37	-2.17	16.91	5.04*	7.35	-2.29	17.00
Married[a] WHSA-I and WHSA-II												
Separated, divorced or widowed WHSA-I and WHSA-II	1.61	1.08	-11.35	13.52	1.90	0.99	-11.55	13.54	1.54	1.68	-10.91	14.26

Never married in WHSA-I, married in WHSA-II**	0.98	3.85	-3.06	10.77	1.41	4.69	-2.45	11.84	1.75	5.36	-1.74	12.47
Sep, div or wid in WHSA-II, married in WHSA-II	1.30	0.65	-7.03	8.32	1.16	0.22	-7.58	8.02	1.22	0.89	-6.91	8.70
Never married/married in WHSA-I, sep, div or wid in WHSA-II	-2.40	1.52	-6.67	9.71	-4.75	-0.23	-9.16	8.71	-4.44	0.48	-8.47	9.44
Change in residence WHSA-I and WHSA-II												
Yes	-1.08	-1.66	-6.45	3.13	-0.73	-1.76	-6.68	3.15	-0.62	-1.58	-6.52	3.35
No[a]												
Religion												
Christian[a]												
Muslim	-0.54	6.69	-2.89	16.28	-0.43	6.81	-2.89	16.52	-0.88	5.90	-3.78	15.57
Other	-1.46	-2.14	-12.56	8.28	-0.98	-1.88	-12.40	8.65	-0.63	-2.08	-12.68	8.52
Highest Educational Attainment WHSA-I												
None	-4.92*	-9.26**	-16.66	-1.85	-5.05**	-8.98**	-16.37	-1.59	-4.17**	-7.74**	-15.11	-0.38
Primary	1.51	-0.39	-7.15	6.36	1.41	0.37	-6.33	7.07	2.23	1.79	-4.82	8.39
JSS[a]												
SSS +	1.76	-0.61	-5.69	4.47	5.97*	-1.47	-6.77	3.83	1.62	-1.48	-6.81	3.84

Ethnicity												
Ga[a]												
Akan	-3.44*	-1.49	-8.85	5.87	-2.04	0.44	-5.69	6.57	-1.01	2.07	-3.96	8.10
Ewe	1.07	0.70	-7.15	8.54	1.73	1.33	-6.29	8.96	2.68	3.11	-4.58	10.80
Other	-4.52*	-7.05	-17.37	3.27	-3.91*	-6.22	-16.34	3.90	-3.67*	-4.91	-14.98	5.16
Born in the Greater Accra region												
Yes	5.13***	4.01	-0.90	8.91	5.15***	4.90*	-0.23	10.03	4.40***	4.79*	-0.37	9.94
No[a]												
Age at WHSA-I	-0.06	0.14	-0.36	0.64	-0.11	0.17	-0.33	0.67	-0.16	0.23	-0.44	0.56
Relationship to household head												
Head	8.23***	4.17	-3.99	12.33	8.58****	4.12	-3.90	12.14	8.83****	5.23	-2.69	13.14
Wife[a]												
Daughter/daughter in-law	0.36	-11.40***	-19.85	-2.95	0.26	-12.74***	-21.50	-3.98	-0.15	-12.92***	-21.71	-4.12
Other	1.80	-9.73*	-19.77	0.32	2.41	-9.46*	-19.12	0.19	2.63	-7.77	-17.19	1.65
Not specified	-3.26	-11.58**	-22.07	-1.10	-3.05	-11.80*	-22.44**	-1.17	-3.22	-11.78**	-22.48	-1.08
Household Demographics												

Number of children aged 0-5 yrs												
0[a]												
1	0.92	2.80	-2.12	7.72	0.08	2.71	-2.34	7.75	0.10	2.89	-2.21	7.99
2+	-0.56	-1.50	-8.42	5.43	-0.77	-1.30	-8.32	5.73	-1.30	-1.17	-8.24	5.90
Number of children aged 6-11 yrs												
0[a]												
1	0.25	-0.08	-5.36	5.20	-0.43	-0.02	-5.46	5.42	-0.26	0.16	-5.30	5.63
2+	-4.14*	-4.34	-11.69	3.01	-4.25*	-4.92	-12.07	2.22	-5.24**	-6.67*	-13.75	0.41
Number of females aged 12-15 yrs												
0[a]												
1+	0.73	0.11	-5.77	5.99	0.11	-0.63	-6.61	5.35	0.03	-0.36	-6.40	5.68
Number of males aged 12-15 yrs												
0[a]												
1+	-3.71*	-1.88	-8.52	4.75	-3.93*	-1.93	-8.74	4.88	-4.59*	-1.52	-8.44	5.39
Number of females aged 16-54 yrs												
1[a]												

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2	1.45	5.29	-1.23	11.81	1.79	6.13*	-0.77	13.02	1.64	5.17	-1.74	12.08
3	6.00***	9.82**	2.19	17.44	6.42***	10.44***	2.74	18.14	6.07***	9.08***	1.42	16.73
4+	0.87	4.18	-4.55	12.92	0.56	3.79	-4.54	12.11	-0.71	1.45	-6.28	9.18
Number of males aged 16-54 yrs												
0	3.99**	2.07	-3.30	7.44	4.61***	2.68	-2.86	8.22	4.36***	2.28	-3.26	7.81
1 [a]												
2+	11.97****	10.05**	2.75	17.34	11.75****	10.49***	2.76	18.21	10.56***	9.39**	1.73	17.05
Number of females aged 55 yrs+												
0 [a]												
1+	2.51	3.81	-2.33	9.94	3.59	3.71	-2.35	9.76	1.79	3.26	-2.78	9.31
Number of males aged 55 yrs+												
0 [a]												
1+	3.78*	3.19	-3.08	9.47	3.59*	2.51	-4.02	9.04	3.37	2.69	-3.88	9.27
Constant		-17.83	-39.92	4.25		-17.77	-37.59	2.04		-9.96	-29.52	9.60
IMR		11.43	-8.38	31.24		7.83	-4.45	20.11		-0.64	-11.96	10.69

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=270 in both bivariate and multivariate models
Abbreviations: MCS – Mental Component Score, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mills ratio calculated using probit model 1, IMR2 – inverse mills ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3
*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

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<u>Change in physical health: comparison between bivariate and multivariate models</u>

Secondly, considering the change in physical health between the WHSA-I and WHSA-II among women with a child alive at the WHSA-II born in the survey interval (Table 5.33), comparing the results from the bivariate models and multivariate models we can see the influence of confounding. In the bivariate models, women who were of a Muslim religion experienced a less positive change in their physical health compared to women of a Christian religion. This difference was significant at the 1% level regardless of the IMR used in the regression. The value of this difference was also very similar between the three bivariate models ranging from -4.83 points to -4.98 points. Nonetheless, in the multivariate analysis no significant difference was found between these two groups of women in all three models (22-24). Similarly, in the bivariate models women of an ethnicity defined as 'other' were found to have experienced a significantly (at 1%) less favourable change in their physical health between the WHSA-I and WHSA-II in comparison to women of a Ga Ethnicity. This result was found regardless of the IMR included in the bivariate analysis and the value of this difference remained similar across models (between -4.23 and -4.80 points). However, again this difference was not found to be significant in the multivariate models (models 22-24) regardless of the selection specification included.

In comparison, relation to the household head was found be insignificant in the bivariate analysis of change in physical health regardless of the selection specification used, but in the multivariate analysis women who were the daughter/daughter in-law and relation defined as 'other' to the household head experienced a less positive change in their physical health compared to women who were the wife of the head. The interpretation of the exact coefficients and difference between the three multivariate models using different IMRs will be discussed in the next section. Similarly, the number of females aged 16-54 years resident in the household at the WHSA-I was found to be insignificant at the 5% level in the bivariate analyses (model 19-21). Yet in the multivariate analysis, when using IMR 1 (model 22) or IMR 2 (model 23), women who were co-resident in a household with three women aged 16-54 years present experienced a more positive change in their physical health at the 5% significant level compared to women resident in a household at WHSA-I

with only one woman of this age present. The size of this significant difference in model 22 (IMR 1) and model 23 (IMR 2) was not similar being 9.08 points and 5.09 points difference respectively. In model 24, which used IMR 3, the difference in change in physical health between these two groups of women was only significant at the 10% level. When considering women's education, the bivariate relationship between this variable and change in physical health was insignificant at the 5% level regardless of the selection specification used in the analysis. In the multivariate analysis when using IMR2 (model 23) and IMR (model 24) to control for attrition between the WHSA-I and WHSA-II, the multivariate relationship between these two variables remained insignificant at the 5% level. However, model 22, which used IMR1, showed that women who had no education experienced a significantly (at the 5% level) less positive change in physical health compared to women with JSS education.

Change in physical health: interpretation of multivariate models

Considering the results from the multivariate models (models 22-24), we can see that the models using the different selection specifications do not show the same results in terms of the variables that are significant at the 5% or 1% level. As discussed above the significant difference in the change in physical health between women with no education and JSS was only found by model 22 which used the IMR calculated using probit model 1. Additionally, the significance of the number of women aged 16-54 years in the household at WHSA-I in models 22 and 23, but not 24, was also discussed in the section above.

In addition to these two variables, the significance of whether a women was born in the Greater Accra region and the number of women aged 55 years and over in the household WHSA-I also varied in significance in the multivariate models according to the selection specification used. Women present in a household in WHSA-I with one or more females aged 55 years and over present were found to have experienced a significantly (at the 5% level) more positive change in their physical health by model 23 (IMR 2) and model 24 (IMR 3). The size of this difference was similar in these two models, at 5.07 points and 4.87 points respectively. Nonetheless, change in physical health between these two groups of women was not found to be significant at the 5% level in model 22 (IMR 1). When considering whether a woman was born in the Greater Accra

region, in model 23 (IMR 2) and model 24 (IMR 3) women born in the Greater Accra region were found to have experienced a more positive change in their physical health between the WHSA-I and WHSA-II compared to women not born in this region (significant at the 5% level). The difference in this change was found to be similar in the two models at 4.91 and 4.97 points respectively. The difference in model 22 (IMR 1) was found to be 4.79 points, but this coefficient was only significant at the 10% level.

Regardless of the selection specification used, women's relationship to the household head and the number of males aged 16-54 years resident in the household at the WHSA-I were found to be significant in the multivariate models at the 5% level. Women who were the daughter/daughter in-law experienced a less positive change in their physical health compared to women who were the wife of the head. The size of this difference in the change in physical health varied according to the selection specification used in the model. The smallest estimated difference was in model 23 (IMR 2), which has a coefficient of -8.62 points, whilst the largest estimated difference was in model 22 (IMR 1) which has a coefficient of -12.92 points. It should be noted women who were a relation defined as 'other' to the head also experienced a significantly less positive change in their physical health compared to women who were the wife of the head in model 23 (IMR 2) and model 24 (IMR 4) with an estimated difference of -11.32 and -11.37 points respectively. Nonetheless, the difference between these two groups of women was not found significant by model 22 (IMR 1).

Lastly, in all multivariate models women who were resident in a household at the WHSA-I with two or more males aged 16-54 years present experienced a more positive change in their physical health compared to women present in a household with just one male of this age present. The size of this difference did differ according to the selection specification used in the multivariate model, with the smallest difference being found by model 23 (7.51 points) and the largest difference being found by model 22 (9.39 points). Models 23 (IMR 2) and 24 (IMR 3) further found that women who were resident in a household at the WHSA-I with no males aged 16-54 years present experienced a more positive change in their physical health compared to women present in a household with just one male of this age present. The size

of this difference was similar in both models at 5.02 and 5.01 points respectively. Nonetheless, the difference between these two groups of women was not found to be significant at the 5% level by model 22 (IMR 1).

It should be noted that all the above multivariate interpretations are valid when all other factors in the model are held constant. In addition to these interpretations, we are interested in whether these social category membership and household demography associations are unique for women with a child alive at WHSA-II born in the survey interval, or if they are common to all women regardless of birth status. Table B.5, located in Appendix B, reveal that among women without a child alive at the WHSA-II born in the survey interval, none of the above variables were found to be significantly associated with change in physical health at the 5% level in the multivariate models.

Table 5-33: Parameter estimates (point difference) of the bivariate and multivariate models of the unconditional change in physical health among women with a child alive in WHSA-II born in the survey interval

	19 (IMR1) Bivariate	22 (IMR1) Multivariate			20 (IMR2) Bivariate	23 (IMR2) Multivariate			21 (IMR3) Bivariate	24 (IMR3) Multivariate		
	β	β	95% CI		β	β	95% CI		β	β	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Wealth												
Wealth status lower in WHSA-II than WHSA-I[a]												
Wealth status higher in WHSA-II than WHSA-I	0.70	2.88	-2.50	8.27	0.79	2.62	-1.49	6.73	0.82	2.59	-1.50	6.69
Wealth status consistent	1.67	3.03	-1.90	7.97	1.56	0.31	-3.48	4.10	1.45	0.19	-3.56	3.95
Partnership dynamics												
Never married WHSA-I and WHSA-II	2.40	7.35	-2.29	17.00	2.13	1.78	-5.53	9.09	2.16	2.22	-5.12	9.55
Married[a] WHSA-I and WHSA-II												
Separated, divorced or widowed WHSA-I and WHSA-II	-3.73	1.68	-10.91	14.26	-3.86	-4.84	-14.45	4.78	-3.75	-4.97	-14.54	4.60
Never married in WHSA-I, married in WHSA-II**	1.13	5.36	-1.74	12.47	1.16	4.17	-1.31	9.64	1.11	4.30	-1.10	9.70

Sep, div or wid in WHSA-II, married in WHSA-II	4.22*	0.89	-6.91	8.70	4.16*	0.61	-5.37	6.59	4.14*	0.49	-5.44	6.42
Never married/married in WHSA-I, sep, div or wid in WHSA-II	2.41	0.48	-8.47	9.44	1.55	3.10	-3.75	9.94	1.46	2.93	-3.88	9.74
Change in residence WHSA-I and WHSA-II												
Yes	-0.72	-1.58	-6.52	3.35	-0.83	-1.14	-4.91	2.62	-0.83	-1.20	-4.95	2.55
No[a]												
Religion												
Christian[a]												
Muslim	-4.94***	5.90	-3.78	15.57	-4.98***	-4.34	-11.77	3.10	-4.83***	-4.29	-11.65	3.07
Other	3.37	-2.08	-12.68	8.52	3.11	1.56	-6.51	9.63	3.01	1.81	-6.25	9.87
Highest Educational Attainment WHSA-I												
None	-1.98	-7.74**	-15.11	-0.38	-1.93	-2.57	-8.23	3.10	-2.14	-2.91	-8.51	2.69
Primary	2.94*	1.79	-4.82	8.39	3.39*	3.13	-2.01	8.26	3.20*	2.78	-2.24	7.81
JSS[a]												
SSS +	-0.68	-1.48	-6.81	3.84	-0.25	-1.78	-5.84	2.28	-0.26	-1.77	-5.82	2.28
Ethnicity												
Ga[a]												

Akan	1.70	2.07	-3.96	8.10	1.14	3.10	-1.59	7.80	0.83	2.65	-1.93	7.23
Ewe	2.12	3.11	-4.58	10.80	2.62	3.26	-2.58	9.10	2.35	2.57	-3.27	8.42
Other	-4.23***	-4.91	-14.98	5.16	-4.74***	0.12	-7.64	7.87	-4.80***	-0.14	-7.80	7.52
Born in the Greater Accra region												
Yes	3.95***	4.79*	-0.37	9.94	3.99***	4.91**	0.99	8.84	4.11***	4.97**	1.05	8.89
No[a]												
Age at WHSA-I	-0.09	0.06	-0.44	0.56	-0.07	0.23	-0.15	0.61	-0.06	0.27	-0.11	0.65
Relationship to household head												
Head	0.61	-5.23	-2.69	13.14	0.54	-6.06*	-12.20	0.09	0.52	-6.09**	-12.11	-0.08
Wife[a]												
Daughter/daughter in-law	0.09	-12.92***	-21.71	-4.12	0.48	-8.62**	-15.33	-1.91	0.57	-8.69**	-15.38	-2.01
Other	-0.16	-7.77	-17.19	1.65	-0.31	-11.32***	-18.72	-3.92	-0.30	-11.37***	-18.53	-4.21
Not specified	3.74	-11.78**	-22.48	-1.08	3.80	-3.24	-11.39	4.91	3.88	-3.01	-11.15	5.13
Household Demographics												
Number of children aged 0-5 yrs												
0[a]												

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1	-0.27	2.89	-2.21	7.99	-0.34	0.94	-2.92	4.81	-0.36	0.73	-3.15	4.61
2+	-3.83*	-1.17	-8.24	5.90	-3.89*	-4.74*	-10.13	0.64	-3.76*	-4.91*	-10.28	0.47
Number of children aged 6-11 yrs												
0[a]												
1	2.32*	0.16	-5.30	5.63	2.64*	3.23	-0.94	7.40	2.60*	3.19	-0.97	7.34
2+	1.07	-6.67*	-13.75	0.41	1.15	1.96	-3.52	7.43	1.39	2.48	-2.90	
Number of females aged 12-15 yrs												
0[a]												
1+	-1.52	-0.36	-6.40	5.68	-1.01	-1.76	-6.34	2.82	-1.02	-2.01	-6.60	2.59
Number of males aged 12-15 yrs												
0[a]												
1+		-1.52	-8.44	5.39		-4.01	-9.23	1.20		-4.39	-9.64	0.87
Number of females aged 16-54 yrs												
1[a]												
2	2.96*	5.17	-1.74	12.08	3.54*	4.68*	-0.60	9.96	3.60**	5.00*	-0.26	10.25
3	2.03	9.08**	1.42	16.73	2.19	5.09**	-0.81	10.99	2.34	5.46*	-0.36	11.28

4+	1.30	1.45	-6.28	9.18	2.25	4.15	-2.23	10.53	2.33	4.23	-1.64	10.11
Number of males aged 16-54 yrs											
0	2.98**	2.28	-3.26	7.81	3.29***	5.02**	0.78	9.26	3.34***	5.01***	0.80	9.22
1 [a]											
2+	4.51**	9.39**	1.73	17.05	5.55***	7.51**	1.60	13.43	5.60***	7.70***	1.87	13.52
Number of females aged 55 yrs+											
0 [a]											
1+	3.25**	3.26	-2.78	9.31	3.29*	5.07**	0.43	9.71	3.30**	4.87**	0.27	9.46
Number of males aged 55 yrs+											
0 [a]											
1+	1.50	2.69	-3.88	9.27	1.68	-0.69	-5.69	4.32	1.80	-0.42	-5.42	4.58
Constant		-9.96	-29.52	9.60		-12.84	-28.02	2.35		-15.45	-30.32	-0.58
IMR		-0.64	-11.96	10.69		1.86	-7.55	11.27		4.57	-4.04	13.18

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), m=270 in both bivariate and multivariate models

Abbreviations: MCS – Mental Component Score, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mills ratio calculated using probit model 1, IMR2 – inverse mills ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3

*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

5.7   Discussion

5.7.1   Change in parental status and health among employed women

Results from the bivariate and multivariate analysis among all women in the sample showed that the change in both physical and mental health between the WHSA-I and WHSA-II did not significantly differ between women with a child alive at the WHSA-II born in the survey interval and women without a child alive at the WHSA-II born in the survey interval. This result was found regardless of the selection specification, used to control for attrition between the two waves, included in the model. Despite concerns of the negative consequences of women's combination of their economic and maternal roles in SSA, this study indicates the participation in these dual roles among women with pre-school children in the AMA, Ghana, does not result in health penalties compared to employed women without young children.

Despite past fertility decline biological motherhood is still seen as the primary role in a woman's life and valued socially (Wilkinson and Callister 2010). Through contributing to women's gendered identity formation and social interaction childbearing is an important determinant of health and wellbeing. As discussed further in Chapter 3, whilst womanhood is centred on biological motherhood, this role is not focused on childrearing. The engagement of women in economic activity is an important criterion for them in fulfilling their responsibilities as mothers. Drawing upon identity theory, engagement in economic activity is important for the maintenance of mothers' identity and how others perceive them. Whilst in the West, due to societal expectations, women may feel pressured to focus exclusively on mothering and where any conflict from work occurs this may result in strain. In Ghana where the meaning of motherhood differs, strain may be less likely to occur due working mothers being perceived as good mothers. Although the literature and this thesis' qualitative fieldwork suggests the greater involvement of mothers in activities of care the latter study also suggests supportive networks still exist for women to call upon. Female kin, especially maternal grandmothers, remain important sources of care. The identification of fictive

kinship, shown in the reference of individuals not related by consanguineal or affinal ties as mother, sister, aunt or grandmother suggests the substantial involvement of non-kin in childrearing allowing women to ensure their children are receiving sufficient care.

Another explanation for working mothers' health balance could include the adjustment of individuals' expectations and definitions of health as a result of their changing circumstances (becoming a mother to a young child). In Maclean et al.'s (1996) study of female health in Britain the stability of self-assessed health in comparison to the deterioration in objective measures of health with age was attributed to individuals' changing anticipations of quality of health. This thesis' qualitative interviews among mothers of young children in Accra found whilst women reported a decline in their health relative to prior to giving birth to their youngest child they emphasised this was the norm for all mothers. Mothers of young children may change how they rate their health seeing implications to their wellbeing as a transitional reality of their role and consequently viewing their wellbeing as good for their group membership.

5.7.2   Social category membership and household demographics as mediators in the relationship between roles and health

Support is given to the conceptual framework shown in Chapter 3, which shows the potential moderating role of social category membership in the relationship between roles and health. When considering change in mental health between the WHSA-I and WHSA-II among women with a child alive at the WHSA-II born in the survey interval, women's educational status, their relationship to the household head, and the number of males and females aged 16-54 years present in the household at WHSA-I were significant regardless of the selection specification included in the model

In terms of its influence on change in mental health, a women's relationship to the household head had the largest effect. Women who were the daughter/daughter in-law of the head experienced a less positive change in mental health by between -12.92 and -11.40 points (depending on the IMR included in the model) compared to women who were the wife of the head. A similar pattern was found for women who were a relation defined as 'other' to the head compared to women who were the wife of the head. Relationship to

the household head is a signpost of status in the household (Fafchamps and Quisumbing 2003). The unitary household model, as proposed by Becker, is rejected in the Ghanaian context due to recognised intra-household inequality in the allocation of resources and time (Lloyd and Gage-Brandon 1993). Status influences bargaining position affecting the tasks assigned to individuals and the resources they receive. Similarly social norms and roles, assigned differently to members of the household, dictate these outcomes (Ilahi 2000). A difference in bargaining power or roles, and consequently inequality in the distribution of tasks and resources between wives and daughter (in-laws) of the household head may be responsible for the less favourable change in mental health among the latter group in the event of childbirth. Relation to household head was also found to be the strongest influence of change in physical health among women with a child alive at the WHSA-II born in the interval.

In terms of household demography, the number of males aged 16-54 years resident in the household at the WHSA-I had a slightly larger influence on change in mental health compared to the number of females of this age present. Women who were present in a household with two or males of this age experienced a more positive change in their mental health of between 10.56 and 11.97 points compared to women who were resident in a household with only one male of this age present. The influence of this variable is of a similar size as the relation of women to the household head variable. The number of females aged 16-54 years in the household had a smaller influence on mental health and was not significantly associated with change in physical health. Women who were resident in households with three females aged 16-54 years present experienced a change in their mental health between 9.08 and 10.44 points more positive than women who were resident in a household with only one women of this age present. The number of males and females aged 16-54 years in the household could be indicators of social support. Co-residence with a greater number of adults may provide greater opportunities for the sharing of productive and domestic responsibilities (Lloyd and Gage-Brandon 1993). Where women have new maternal demands, the presence of other adults in the household may allow for the reallocation of tasks to ensure the health of mothers and children.

The significant variable that had the smallest influence on change in mental health among women with a child alive at the WHSA-II born in the survey interval was maternal education. Women with no education experienced a less positive change in their mental health (by between 7.74 and 9.36 points depending on the selection specification included in the model) compared to women with JSS education. In Accra maternal education has been found to be a vital determinant of good care among women with young children in terms of feeding, use of preventative health services and hygiene practices (Armar-Klemesu et al. 2000). Knowledge of appropriate childcare methods may influence the mental health of mothers directly through increasing their self-esteem and confidence in their mothering abilities, and indirectly through its influence on child development. Interventions being tested, such as the Care for Child Development of The Integrated Management of Illness project[13], have suggested positive results showing the potential of maternal education to enhance maternal mental health (Engle 2009).

5.8   Conclusion

In the backdrop of argued intensified roles demands of mothers in SSA, this study set out to examine whether in Accra, Ghana, multiple role performance of women with young children has implications for their health. The results suggests that economic activity does not present these women with any additional health burdens or rewards in comparison to working women without offspring of pre-school age. Despite the time and attention demands of young children, working mothers in Accra seem to be resilient, successfully managing their economic work and maternal responsibilities whilst maintaining their own health.

Many of the strengths of this research comes from the uniqueness of the dataset; the WHSA. Surveys concerned with female health in SSA have predominantly focused on reproductive issues. The breadth of health and

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[13] The Care for Child Development project provides support and information to mothers to increase their awareness of responsiveness to children's development needs

morbidity data collected as a part of the WHSA presents researchers with the opportunity to investigate female health beyond the traditional attention on women in their maternal roles. Through using subjective measures of everyday living this paper captures the WHO's definition of health through including positive dimensions of wellbeing. This paper also focuses on mental health, an under-researched but increasing recognised domain of health. The finding of the mediation of social category membership and household demographics in the relationship between roles and mental health helps identify vulnerable sub-groups.

A common methodological problem in work-family research is the cross-sectional design of many studies (Grant-Vallone and Donaldson 2002). The examination of change in health between two time points means this research was able to investigate the dynamic process of health. However, whilst the longitudinal nature of this analysis is a strength, caution must still be taken in making causal interpretations. Measurement overtime brings certain analytical issues. The change score method has been criticised due to 'regression toward the mean' effects (Berrington et al. 2006). This phenomenon refers to the case where individuals with high scores in the pre-test tend to have lower post-test scores and those with low pre-test scores tend to have higher post-test scores. Such issues have resulted in preference for the regressor variable method where the post-test score is regressed on the pre-test score along with explanatory covariates. Nonetheless, the latter method can suffer from the 'initial conditions' problem where if unobserved factors are correlated with the pre-test score results will be biased. The unconditional change score method has been argued to be valid where research objectives are to compare two or more stable groups (Allison 1990). Lastly, although it should be noted whilst the analysis was restricted to women working at both time points, it is unknown whether women were working consistently through the survey interval. It is likely the temporary withdrawal from economic activity is a common strategy of mothers after childbirth. The timing of the resumption of work may have important consequences for maternal health that was not examined in this study. A further important missing dimension considered by this research, due to the small sample size, was the nature of female work, such as their working hours and sector or type of employments.

6. Intra and inter-generational relationships: influence of maternal employment and siblings on youths' educational outcomes

6.1   Introduction

Focus on the implications of maternal employment for children's development has focused predominantly on health outcomes for those under the age of five (as reviewed by Glick 2002). Nonetheless, maternal employment can have important effects for other forms of human capital accumulation, for example education. Relationships are expected to be complex. The incomes mothers earn have the potential to improve child educational outcomes through financial investment. Yet, simultaneously work can have negative impacts through possibly increasing maternal demands from offspring for instrumental support. Although studies of children's education frequently incorporate maternal characteristics, such as educational levels, their labour force participation is a relatively neglected consideration. Using a 10% sample from the 2010 Ghanaian Population and Housing Census this paper examines the influence of maternal employment on children's educational progress in urban Ghana. In addition attention is given to intra-generational relationships through an investigation of the effects of co-resident siblings on education. Article 38 of the 1992 Constitution of Ghana requires the government to provide access to Free Compulsory Universal Basic Education (FCUBE) and, where resources permit, to Senior Secondary, Technical and Tertiary Education (Government of Ghana 1992). Policy initiatives such as FCUBE, the Capitation Grant and the School Feeding Programme have facilitated rising access to basic education. However, considerable challenges remain in constant high levels of grade repetition and drop-out. Consequently, research needs to take a wider definition of educational access and extend focus beyond initial engagement and consider appropriate progression and completion (Ananga 2011). This chapter examines educational progress as defined as the timely completion of primary and basic schooling. Schooling beyond the basic level is also given attention with secondary school attendance also considered.

6.2 Literature

6.2.1 Trends in educational access at the basic level

Considerable progress has been made in increasing educational access at the basic level in Ghana. Focusing on the period since 1999 the net enrolment rate (NER) at the primary level has risen from 60% and 62% for females and males respectively to 87% in 2013 (Table 6.1). Whilst improvements have also been made at the junior secondary level, this has been a smaller absolute percentage increase and from a lower starting level. Whilst in 2001 27% of males and females of JSS age were enrolled in this level of education, in 2013 this figure was approximately 50%.

Despite this achievement, there is concern that rapid expansion has put pressure on school systems at the cost of quality and the progress of students. Using data from the GLSSs Rolleston (2009) highlights that whereas the proportion of children aged between 6 and 17 years having ever attended school rose by 10% between 1991 and 2006, primary (by 17 years[14]) and basic (by 20 years[1]) school completion remained constant at approximately 75% and 50% respectively, suggesting stagnation in trends of late enrolment, temporary drop-out, grade repetition and consequently over-aged pupils. Data assembled by UNESCO (2014) gives further details on these trends. Improvements have been documented in the on-time enrolment of children into Grade 1 of primary schools. Between 1999 and 2009 the net intake in Grade 1 of primary education increased by 8%, however in 2009 over 60% of children of eligible school-entrance age were still not enrolled in this stage of education. Whilst the nominal starting age of primary education in Ghana is 6 years, Figure 6.1 shows (using data from 2005) that the majority of children enrolled in Grade 1 are older. 60% of children in Grade 1 are between the ages of 7 and 10 years, and it is likely that a sizable proportion of these children entered school at these ages.

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[14] Rolleston (2009) assumes that the vast majority of children who finish primary school will do before age 17 years and those who finish JSS will do so before 20 years.

Table 6-1: The number of children of official primary, junior secondary and senior secondary school age who are enrolled in the correct stage of education or higher as a percentage of the total children of the official primary, junior secondary or senior secondary school age population respectively (net enrolment rates), 1999-2013, Ghana

	Primary		Junior Secondary School		Senior Secondary School	
	Female	Male	Female	Male	Female	Male
1999	60.17	62.47	-	-	-	-
2000	63.91	65.76	-	-	-	-
2001	58.93	59.96	27.30	27.93	8.97	9.1
2002	61.60	62.23	-	-	-	-
2003	64.34	64.21	-	-	-	-
2004	59.85	59.39	-	-	-	-
2005	66.19	66.82	-	-	-	-
2006	66.34	65.78	-	-	-	-
2007	72.05	71.91	29.07	29.07	16.54	19.21
2008	77.64	77.27	32.45	33.20	14.54	16.47
2009	76.17	76.12	32.72	32.83	10.88	11.47
2010	79.91	79.77	-	-	-	-
2011	83.65	83.42	-	-	-	-
2012	80.53	83.00	-	-	-	-
2013	87.21	86.94	52.40	46.75	24.63	25.67

Source: UNESCO 2014

Net enrolment: Total number of pupils in the theoretical age group for a given level of education as a percentage of the total population of that age group

Moving beyond Grade 1, Figure 6.2 shows at the primary level the proportion of over-aged pupils enrolled in primary education in 1999 and 2013 was approximately similar at one-fifth. However, this hides the increasing proportions of over-age pupils in primary education in the mid to late 2000s, reaching a peak of nearly one-third in 2006. A similar trend is revealed at the primary level when considering the repetition rate (for all grades). In 1999 and

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2008[15] the repetition rate was 3.07% and 3.81% respectively with levels reaching 6.79% in 2005.

Figure 6-1: The age of children attending Grade 1 of primary education in Ghana, percentage distribution, Ghana Living Standard Survey 2005
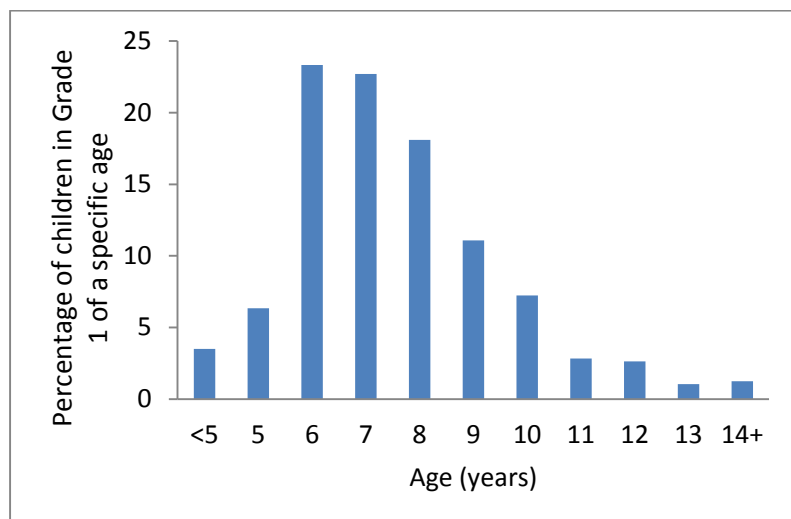
Author's own analysis of the Ghana Living Standards Survey (2005)

Figure 6-2: The percentage of pupils enrolled in primary education in Ghana who are over-aged according to the official primary school age, 1999-2013
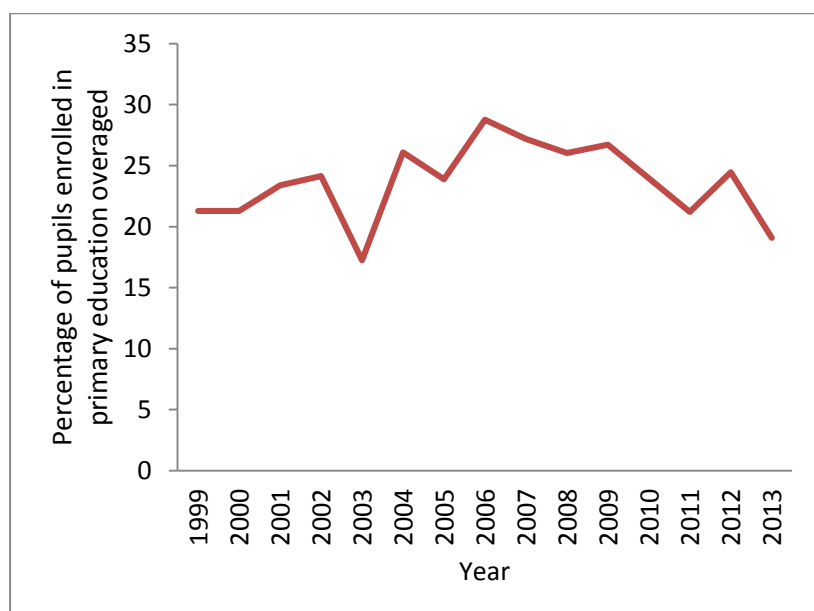
Source: UNESCO (2014)

Progression to JSS among primary school completers is the norm in Ghana. Nonetheless, the transition rate from primary to JSS education has also seen a deterioration between 1999 and 2012. Whilst in 1999 97% of children enrolled in the last grade of primary school started JSS, in 2012 this figure was 90%. Over-age is also evident at this level of education. For example, the nominal starting age is 12 years; however Figure 6.3 shows (using data from 2005) that 67% of pupils in Grade 1 of JSS are older than 13 years. As with the primary level, the repetition rate at the JSS level has remained stagnant at 3.05% and 3.52% respectively in 1999 and 2012.

Figure 6-3: The age of children attending Grade 1 of junior secondary education in Ghana, percentage distribution, Ghana Living Standard Survey 2005
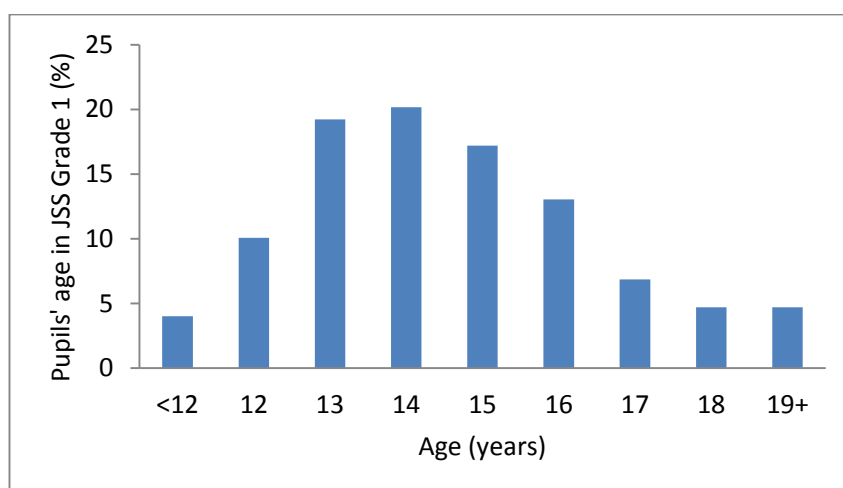
Author's own analysis of the Ghana Living Standards Survey (2005)

Concerns about and dissatisfaction with the quality of education is reflected in the growing number of low cost private schools in Ghana. At the primary level, private school enrolment as a percentage of total primary school enrolment increased from 13% in 1999 to 23% in 2012 (World Bank 2014). In the Mfantesman District in Southern Ghana, research conducted by the Consortium for Research on Educational Access, Transitions and Equity (CREATE) found that despite being significantly more expensive than public schools for low-income families, these households felt low-fee private schools had a greater commitment to pupil achievement (Akaguri 2010). Private schools in the area were also found to employ policies to further attract

demand from lower-income households, including free enrolment into pre-primary education, reduced sibling fees and discounts for prompt payments.

6.2.2   Trends in education access at the senior secondary school (SSS) level

Table 6.1 reveals whilst the increase in enrolment at the SSS level has been absolutely smaller compared to trends at the basic level, relatively its growth is larger. Between 2001 and 2013 the percentage of youth aged 15-17 years old enrolled increased from 9% to 25% (UNESCO 2014). Access to SSS in Ghana is determined by the Computerised School Selection and Placement System (CSSPS) which allocates students to schools according to their performance in the Basic Education Certificate Examination (BECE) (Ahuatrogah and Bervell 2013). Despite progress in increasing enrolment, access at the SSS level remains constrained due to non-completion of basic education, low pass rates of the BECE, and the costs involved with attending SSS in terms of fees but also expenses associated with students' migrating or commuting to the specific school selected for them by the CSSPS (Atuahene and Owusu-Ansah 2013, World Bank 2014). This said the foregoing underlies the commitment of Ghanaian parents to invest in their children's education by paying the additional charges levied in JSS and SSS and even in Primary school and by paying for private education, both high and low cost schools.

6.2.3   Women's work and linkages to children's educational progress

Informing the empirical analysis is Becker's (1965) New Home Economics theory. Economic and altruistic factors underlie parents' desire to educate their children. Whilst education incurs direct and indirect costs in the present, parents also consider the future benefits that educating their children can hold (Akyeampong et al. 2007, Canagarajah and Coulombe 1997, Chimombo 2005, Hunt 2008). Parents may see returns to this investment through education enhancing their children's future employment prospects and consequently the value of remittances back to the family (Glick and Sahn 2000). Secondly, parents may receive a sense of satisfaction from having educated children. Children's education in this sense can be both a consumption and investment good. Households are assumed to maximize utility from market goods subject to both time and budget constraints.

Focusing first on household budget constraints, tuition at the basic level in Ghana has been free with the introduction of the Capitation Grant Scheme in 2003 (Akyeampong 2009). However, other direct costs include uniforms, transport and educational aids (Akyeampong et al. 2007, Colcough et al. 2000) and fees still exist at the SSS level. Maternal employment can maximise utility through income earned increasing the ability to afford the direct financial costs associated with children's education. These costs include both those required to attend school such as transport, but also costs that may increase the performance of children, for example the purchase of additional educational resources such as extra tuition. Maternal income can also reduce the opportunity costs of children's time through lessen the necessity or requirement of children to contribute economically to the household. Attendance of school can reduce the time children have available for the engagement in market activities. Relating to our framework presented in Chapter 3 maternal employment could be seen to result in role enhancement through income earned allowing mothers to provide materially for their children, including increasing their educational opportunities. Through this mechanism women's combination of roles is predicted to result in positive outcomes in terms of children's educational progress. Nonetheless, considering time constraints, maternal employment can conversely increase the opportunity cost of children's time through increasing demand for household services and increasing the marginal value of children's time (Chimombo 2005, Caragarjah and Coulombe 1997). Maternal economic labour hours are here used as an inverse proxy for maternal time spent on domestic and childcare tasks for which youth may be an important substitute. The simplifying assumption made here is that mothers spend all their free time on domestic and childcare activities, and youths' time can be split into schooling and domestic and childcare activities. The time that youths spend on domestic activities and childcare may prevent school enrolment or can influence school performance through preventing maximum school attendance and drawing time away from extra-curricular study. This time constraint could be expected to have a greater impact on girls' educational progression due to traditional gender norms specifying domestic activity and childcare as female tasks (Chimombo 2005, Glick and Sahn 2000, Lloyd and Gage-Brandon 1994). Relating this to our conceptual framework, here maternal employment could

result in lower educational outcomes for children through maternal experience of role conflict. Whether the overall consequences of maternal work are negative, positive or in balance will depend on the relative size of opposing income and time effects.

Ambiguity exists about the economic responsibilities of mothers and fathers in terms of children's educational expenditures in Ghana (Lloyd and Gage-Brandon 1994). Furthermore, kin may be important contributors to the maintenance of children through fostering and/or providing financial assistance (Fiawoo, 1978, Goody, 1978, Lloyd and Gage-Brandon 1994). Nonetheless, in the past a popular division of responsibility involved fathers paying school fees and mothers making significant contributions to the non-fee costs of schooling (Lloyd and Gage-Brandon 1994). This is supported by qualitative fieldwork conducted by Clarke (1994) in Kumasi and myself in Accra (presented in Chapter 4), which highlighted the importance of the economic role of mothers to provide materially. Table 6.2 reveals that for children aged between 6 and 17 years attending basic education, fathers remain the main contributors towards educational expenses. However, in approximately a quarter of cases mothers were also identified as sole or joint contributors to education. Maternal sources of income, such as employment, therefore, could be important in determining educational progress of their children. This could be especially true in recent times where, despite the abolition of school fees at the basic level, the cost of education has continued to place pressure on household resources. Controlling for inflation, the average household expenditure on basic education has increased by 77.3% between 1991 and 1999 and by 42% between 1999 and 2006 (Rolleston et al. 2010).

Table 6-2: The relationship of the individual who mainly pays educational expenses to children aged 12-17 years who are attending basic education, Ghana Living Standard Survey 2005

Who paid educational expenses	Percentage
Father	60.19
Mother	16.14
Both parents	10.64
Other household member	7.21
Other relative	5.33
Non relative	0.11
The individual	0.04
Other	0.33
Total	100 (8,400)

Author's own analysis of the Ghana Living Standards Survey (2005)

Research on school enrolment shows a consistent positive relationship with household resources. For example, in the context of West Africa, Glick and Sahn (2000) found increases in expenditure per adult, used as a proxy for permanent household income, were positively related to higher current school enrolment and grade attainment. These impacts were larger for girls with the relationship with grade attainment for boys being insignificant at the 5% level. Such results suggest that after controlling for hours of work, income from maternal employment should result in favourable school outcomes. Women have been shown in different contexts to use their resources to a greater extent to invest in their children's human capital development. For example, Glick and Sahn (1998) in their study of malnutrition in urban Guinea found the positive influence of maternal income on childhood stunting was ten times larger than the influence of household income. In the two different contexts of rural Cote d'Ivoire and peri-urban Guatemala, Haddad and Hoddinott (1994) and Engle (1991) respectively found maternal earnings as a share of household income to be associated with child nutritional status. Focusing on educational outcomes, Bajracharya (2008) found in Nepal that where maternal earnings consist of a greater proportion of the household income children had improved age-for-grade schooling scores. Nonetheless, the income effect from maternal work may only occur where women have control over their earnings. In Ghana

women and men have separate control over their resources (Brown et al 1994). Consequently, increases in income from maternal employment could be expected to have an impact on child educational outcomes. In contrast to expectations however, insignificant relationships have been found between maternal wages and school enrolment (Canagarajah and Coulombe 1997) and hours spent on schooling (Ray 2003) in Ghana. It should be noted these latter analyses however did not control for hours of work. Furthermore in circumstances where informal labour activity dominates, increases in female income may be too low to have an impact on schooling. Francavilla et al. (2012) give this explanation for their result of the negative mother-child correlation in their joint modelling of maternal employment and school enrolment in India.

The empirical discussion suggests that controlling for income, the time effects of maternal employment are likely to be detrimental to educational outcomes. This affect is expected to be biased against girls who, due to traditional gender norms, are expected to provide domestic and childcare help in Ghana. Simulations performed on Kenyan data found that whilst a 10% increase in maternal wages increased school enrolment of boys by 11%, it reduced the enrolment of girls by 8.8%. This study did not control for maternal hours spent on economic activity (Lokshin et al. 2000). The author attributes these gender differences due to the contrasting income and time substitute effects on schooling for boys and girls respectively. This conclusion is further supported by the significant association found by the same study between the price of childcare and girls' enrolment, a relationship insignificant for boys. Deolalikar's (1998) quantitative analysis of the influences of primary and secondary school enrolment in Kenya also suggests the caring role of girls is costly for their education. Conditional on other determinants the probability of a girl aged 14-17 years being enrolled in secondary schooling was 41% lower if there was a child under the age of three present in the household compared to if no children of this age were resident. Nonetheless, this effect may be moderated by household income/wealth due to those with higher incomes having greater ability to purchase market substitutes such as formal childcare, domestic help and time saving devices (Glick 2002). Lastly, in his analysis of child labour in Pakistan, Ray (2000) found an interaction between women's and children's labour markets, with effects being larger for girls' labour status. The

analysis found that as women's wages rise girls are less likely to be attending school. The argument here could be that women who have employment in the informal sector involve their children in their work, leaving less time for these children's education.

6.3   Research questions

The determinants of exclusion from basic education in Ghana have been examined by Rolleston (2009) using the GLSSs. Exclusion was defined as never having enrolled into school, dropping out of primary education, completion of primary education without a transition to JSS and dropping out of JSS. In terms of employment of household members, only the occupation of the household head was considered. Public sector formal employment, private formal employment, export farming and non-farm-employment were found to increase the likelihood of children having higher access to education compared to where household heads were not working. This study however did not investigate the influence of maternal employment on educational outcomes. Educational exclusion at the secondary level, a comparatively under-researched sector of education, was also not studied. During the qualitative fieldwork for this thesis the majority of mothers highlighted the importance of their economic role in allowing them to provide materially for their children, especially in terms of education. Using a 10% sample from the 2010 Ghanaian Population and Housing Census this paper aims quantitatively to explore the relationship between maternal employment and youth's educational progress in the urban SSA context. The paper has four main objectives:

1. to identify mother-child pairs in households using information on household members' relationship to the household head and assumptions based on living arrangements of the predominant ethnic groups in Ghana;
2. to investigate the relationship between maternal employment and child educational outcomes considering the status and sector of employment of mothers in addition to their work status (not working vs formal employee, informal employee, self-employed without employees in the non-agricultural sector, self-employed with employees in the agricultural sector, family worker, other);

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3. to examine the influence of (maternal) siblings on educational outcomes through considering their birth position amongst co-resident siblings, and

4. to investigate whether the relationship between maternal employment and child educational outcomes differs according to the stage of education considered.

Three levels of educational outcomes were defined; 1. timely completion of primary education, 2. timely completion of junior secondary education, and 3. timely enrolment of senior secondary education.

6.4 Data

6.4.1 2010 Ghanaian Population and Housing Census

This analysis uses data from a 10% sample of the 2010 Ghanaian Population and Housing Census, the official enumeration of all persons and households nationally on 26 September 2010. The 2010 Census is the fifth of its kind since Ghana's independence, with previous censuses being conducted in 1960, 1970, 1984 and 2000. The 2010 census marks the second time that a housing census has been conducted in combination with a population census, the first being in 2000. The 2010 census was implemented and managed by the GSS and the Ministry of Finance and Economic Planning, with financial support from the Government of Ghana, the UNDP, the United Nations Population Fund, the United Nations Children's Fund, the Danish International Development Agency, the Republic of China and the United Kingdom's Department for International Development. The household questionnaire, administered to the household population collects information on housing (conditions), households (composition, emigrants, information and communication technology (ICT) usage, agricultural activities and mortality) and individuals (literacy and education, economic, activity and fertility.

6.4.2 Sample selection

Several stages were involved in the sample selection process. The total sample size for the 10% Ghanaian Population and Housing Census data file was 2,466,289. To ensure correspondence with the broad geographical area of

interest to this thesis, the sample was restricted to urban areas in the Greater Accra region. This reduced the sample size to 363,762 units. Due to the outcomes considered, the timely completion of primary and JSS education and the timely enrolment into SSS, the sample was restricted to youth aged between 12 and17 years. The decision to limit youth to those under 18 years is a reflection of the definition of a child being under 18 years in the Children's Act of Ghana (Government of Ghana 1998). Restricting the age of the sample further reduced the sample size to 40,307.

Our interest was on youth who were co-resident with their biological mothers. There was two rationales of this focus. Firstly, to fit in with the overall theme of this thesis, but also as the census only collects information on household members so information on non-co-resident mothers was not available. Youth living alone or in institutions were excluded reducing our sample to 39,837. As the census does not ask individuals if their parents are present in the household and their identification numbers, mother-to-child relationships were derived using information from all household members on their relationship to the household head and their age and ethnicity. The relationship of children to the household head was merged to the information on all household members. As in some circumstances multiple children were resident in a single household, these children were ranked and separated into different datasets. The process described to identify mother-child pairs was applied to all child data-files, which in the final stage were appended together. Possible maternal co-residence was identified using the following assumptions:

<u>Child is the head of the household</u>

0.9% of youth aged 12 to 17 years reported that they were the heads of their households. Using information provided by the Census it is not possible to distinguish between parents and parent in-laws. If no household member was reported to be the spouse of the head, these individuals were assumed to be living with their mother if a female parent/parent in-law was present in the household. If a spouse was present in the household, the head was assumed to be living with their mother if they were male and the ethnicity of the parent/parent in-law was Mole-Dagbani, Guan or Ewe. If a spouse was present in the household, the head was assumed to be living with their mother if they

were female and the ethnicity of the parent/parent in-law was Akan. 43% of household heads were identified as living with their mothers.

Child is the spouse of the household head

Just 0.3% of youth aged 12 to 17 years were identified as the spouse of the head of the household. These individuals were assumed to be living with their mother if a female parent/parent in-law of the head was present who was Mole-Dagbani, Guan or Ewe and the youth was male. Where the youth was female they were assumed to be living with their mother if the ethnicity of the the female parent/parent in-law was Akan. 3% of spouses were identified as living with their mothers.

Child is the child of the household head

62% of youth aged 12 to 17 years were identified as a child of the head of the household. These individuals were assumed to be living with their mother if the head of the household was a female. Where the head was a male, they were assumed to be living with their mothers where a spouse of the head was living in the household and there were no stepchildren of the head present. 90% of children were identified as living with their mothers.

Child is the grandchild of the household head

Some 10% of youth aged 12 to 17 years were identified as a grandchild of the head of the household. These individuals were assumed to be living with their mother if there was an adult female in the household between the ages of 15 (plus the grandchild's age) and 50 (plus the grandchild's age) who was a child of the household head. The census also asks all females aged twelve years and older the number of children born alive still surviving by gender. Identified mothers must have had a child alive of the same gender. 26% of grandchildren were identified as living with their mothers.

Child is the sibling of the head

5% of youth aged 12 to 17 years were identified as siblings of the head of the household. These individuals were assumed to be living with their mothers if the head of the household was male and a female parent/parent in-law was present in the household who was of Ewe, Guan or Mole-Dagbani ethnicity. 2% of siblings were identified as living with their mothers.

Child is the step-child of the head

3% of youth aged 12 to 17 years were identified as a stepchild of the head of the household. These individuals were assumed to be living with their mothers if the head of the household was male and a spouse is present. 63% of step-children were identified as living with their mothers.

Child is an 'other relative' of the head

14% of youth aged 12 to 17 years were identified as 'other relatives' of the head of the household. These individuals were assumed to be living with their mothers if there was a female present in the household who was also defined as an 'other relative' of the head and between the ages of 15 years (plus the child's age) and 50 (plus the child's age). These females were also required to report having a child born alive and surviving of the same gender of the child in question. 9% children defined as other relatives were identified as living with their mothers.

Other relationships to the head

5% of youth aged 12 to 17 years were identified as being the foster child, son or daughter in-law, or non-relative of the household head. These individuals were assumed not to be living with their mothers.

Using the assumptions described above 62% of children aged 12-17 in the sample were identified as living with their mothers (Table 6.3). The Fifth Round of the GLSS (2005) asks all respondents whether their mothers are present in the household. Among youth aged 12-17 years resident in urban areas of the Greater Accra region, this survey estimates that 67% are co-resident with their biological mothers. A likely reason for the difference between the census and the 2005 GLSS is the higher percentage of children in the 2005 GLSS that report their relationship to the head as a child in comparison to the census. Despite the ability to directly identify mothers in the 2005 GLSS, this survey was not used due to small sample size (526).

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Table 6-3: Relationship to the head of household and whether assumed to be co-resident with their biological mother, children aged 12-17 years in urban areas of the Greater Accra region, 2010 Ghanaian Population and Housing Census (percentage distribution)

Relationship to household head	% of each relation to head	% co-resident with mother	Total Frequency
Head	0.91	43.26	363
Spouse	0.32	3.11	129
Child	62.35	89.72	24,840
Son/ daughter in-law	0.31	0.00	122
Grandchild	9.90	26.41	3,942
Sibling	5.11	2.36	2,035
Stepchild	3.02	63.39	1,202
Adoptive/foster child	0.80	0.00	318
Other relative	13.78	8.98	5,491
Non-relative	3.50	0.00	1,395
Total	100	62.13	39,837

Author's own analysis of the 2010 Population and Housing Census

In 1% of cases (n=242) two or more individuals in the household were identified as being possible mothers. Due to difficulties further distinguishing possible relationships these individuals were excluded from the analysis. In the majority of cases where a single possible mother could not be identified the child in question was the grandchild of the household head or a relation defined as other and several women of suitable age and with surviving children of the correct gender were also present in the household (Table 6.4).

Table 6-4: Identified number of individuals who could be co-resident biological mothers, among children aged 12-17 years assumed to be living with their biological mothers, by child's relationship to the household head, urban areas of the Greater Accra region, the 2010 Ghana Population and Housing Census (percentage distribution) (n=24,703)

	Number of identified possible mothers	
Child's relationship to head	1	2+
Head	100	0.00
Child	100	0.00
Grandchild	83.96	16.04
Sibling	93.75	6.25
Stepchild	100	0.00
Other	86.21	13.79
Total	99.02	0.98

Author's own analysis of the 2010 Population and Housing Census

This analysis was also interested in the influence of sibling relationships on educational outcomes of youth. Section 6.4.4.3 describes the creation of the sibling variable. The last stage of the sample selection involved checking the consistency of linking youth to both possible mothers and siblings in the dataset. Using information on the sex of youth and their identified co-resident siblings, numbers of males and females in the co-resident sibset were compared to the number of surviving male and female children of the youth's identified possible mothers. Cases in which males and females identified co-resident siblings exceeded the number of children women stated as surviving were excluded from the final analysis. This bought the final sample size to 21,550, of which 11,369 cases were aged 12-14 years and 10,181 cases were aged 15-17 years. Table 6.5 shows a summary of this sample selection process.

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Table 6-5: Sample selection process for analysis of the association between maternal employment and co-resident biological children educational outcomes in urban areas of the Greater Accra region

Stage	Selection Process	Sample Size
0	Original 10% sample of Population and Housing Census	2,466,289
1	Restricted to urban areas of the Greater Accra region	363,762
2	Restricted to those aged between 12 and 17 years	40,307
3	Those living in institutions or alone excluded	38,837
4	Restriction to children matched to possible co-resident biological mothers	24,703
5	Restriction to children matched with only one possible co-resident mother	24,641
6	Exclusion of cases were sibling and maternal information inconsistent	21,550

6.4.3   Variables

6.4.3.1   Dependent variable

There were three dependent variables in this analysis all which reflected educational progress. These three levels were defined as:

1. Completion of primary education among 12-14 year olds,
2. Completion of JSS among 15-17 year olds, and
3. Attendance of SSS among 15-17 year olds

In each case the dependent variables was binary reflecting a yes/no response. In Ghana the nominal age for the completion of primary schooling and JSS is 11/12 years and 14/15 years respectively. Delays in educational progress are common in Ghana due to late enrolment into education, temporary drop-outs and grade repetition. Due to low levels of completion at the nominal age, timely completion was also considered for those delayed by two years. The nominal age for attendance of SSS education is from age 15 years to age 17

6.4.3.2   Independent variables of interest

The primary interest if this analysis was the implication of maternal employment for educational progress of children. Information on whether women had engaged in any activity for pay (cash or kind), profit, or family gain, for at least one hour in the seven days prior to the census was used to identify working and non-working mothers. Working mothers were further classified using information on their employment status in their work establishment or industry. For employees, individuals were also distinguished using information on sector of employment, whilst those self-employed were separated according to involvement in agricultural or non-agricultural labour. Table 6.6 reveals the majority (82%) of youth in the sample had mothers working at the time of the census. The main form of labour was self-employment (without employees) in the non-agricultural sector with just over two-thirds of youth having mothers engaged in this form of work. 12% youth had mothers who were employees; the majority belonging to the formal sector (9%).

Table 6-6: The work status of mothers of children aged 12-14 and 15-17 years who are co-resident with their biological mothers in urban areas of the Greater Accra region

	Age group of youth (years)	
Mother work status	12-14	15-17
Not working	17.67	17.96
Employee in the formal sector	8.74	8.93
Employee in the informal sector	2.75	2.64
Self-employed (with employees) in non-agricultural labour	7.14	6.83
Self-employed (without employees) in non-agricultural labour	61.36	61.08
Family worker	1.07	1.38
'Other' (including self-employed agricultural work)	1.26	1.18
Total	100 (11,369)	100 (10,181)

Source: Compiled using the 2010 Ghanaian Population and Housing Census

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6.4.3.3   Sibling variables

In addition to maternal employment, the influence of sibling relationships on educational outcomes remains relatively understudied with much focus given simply to the number of siblings. Furthermore, where studied inconsistent results have been found, a finding attributed to differences in kin and community networks across contexts (Trinitapoli et al. 2014). This study investigates the influence of a youth's birth position among co-resident siblings. Possible co-residence of siblings of the youth in our sample were identified using information from all household members concerning their relationship to the household head. The relationship of our sampled youth to the household head and their age was merged to the information on all household members. The generation of personal identification numbers ensured where information regarding our sampled youth was merged to themselves, these cases where deleted. The identification of siblings (of the same mother) was based on the following assumptions:

1. If the youth was the head of the household, those in the household identified as siblings of the head were assumed to be a sibling of the youth.
2. If the youth was the child of a female head in the household, those in the household identified as also being a child of the head were assumed to be a sibling of the youth.
3. If the youth was the child of a male head, those in the household identified as also being a child of the head were also assumed to be a sibling of the child if a female spouse was present in the household and no step-children were present.
4. If the youth was the grandchild of the head, those in the household identified as also being grandchildren of the head were assumed to be a sibling of the youth.
5. If the youth was a relative to the head defined as other, those in the household identified as also being defined as other relatives were assumed to be the sibling of the youth.

Using information on the sex of youths and their siblings, numbers of males and females were compared to the number of surviving male and female children of their identified possible mother. As stated previously, cases in which males and females siblings exceeded those surviving of a woman were

excluded from the analysis. Using information on the number and age of possible siblings and the age of our sampled youth, the position of the youth in the household sibset was derived. The most common position among siblings in the household is to be the middle of three or more children (38%) (Table 6.7). Just over a third of the sample was the oldest sibling in the household, whilst approximately 20% were the youngest sibling. Just less than 10% of our youth were the only child of their mother in the household.

Table 6-7: The relative age location of children among co-resident siblings and whether presence of siblings who are not co-resident among children aged 12-14 years and 15-17 years co-resident with their biological mother in urban areas of the Greater Accra region, 2010 Ghanaian Population and Housing Census

	Age group of youth (years)	
Youth location among siblings in household	12-14	15-17
Middle child of 3+	37.94	37.40
Oldest child of 3+	20.67	22.74
Youngest of 3+	12.63	11.34
Oldest of 2	10.96	10.58
Youngest of 2	8.78	8.56
Same age as only sibling	0.67	0.41
Only child	8.36	8.97
Sample size	11,369	10,181

Author's own analysis of the 2010 Ghanaian Population and Housing Census

6.4.3.4   Additional covariates

Additional controls at the individual, mother and household level were considered. PCA was used to construct wealth scores from dwelling characteristics and a small number of assets, for all members of households in urban areas of the Greater Accra region. Wealth is included in the model as a set of quintiles. Household structure is represented by a series of dummy variables showing the number of individuals present in the household of specific ages and by sex. Covariates included at the maternal level include age, marital status, educational attainment, and whether the mother was the head

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of the household. At the individual level sex, ethnicity and relationship to the household head are considered. The sample composition according to these household, maternal and individual characteristics is displayed in Table 6.8.

Table 6-8: Individual, maternal and household socio-economic and demographic characteristics of children age 12-14 years and 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region, 2010 Ghanaian Population and Housing Census

	Age group of youth (years)	
Household level	12-14	15-17
Household wealth quintile		
Poorest	20.87	20.83
Poor	20.57	19.78
Middle	20.77	19.04
Rich	19.91	20.62
Richest	17.88	19.73
Household demography		
Number of children 0-5 years		
0	54.83	61.10
1	31.14	26.93
2	11.03	9.05
3+	3.00	2.92
Number of children 6-11 years		
0	39.36	44.45
1	39.76	36.84
2+	20.88	18.71
Number of females aged 12-15 years		
0	38.90	59.71
1+	61.11	40.29
Number of males aged 12-15 years		
0	43.41	62.75
1+	56.59	37.25
Number of females aged 16-54years		
0	1.44	1.67
1	53.38	34.04
2	28.14	36.19
3+	17.04	28.09
Number of males aged 16-54 years		
0	26.04	19.55
1	46.34	37.68
2	17.84	26.07
3+	9.78	16.71
Number of females aged 55 + years		
0	88.13	83.97
1+	11.87	16.03

Number of males aged 55 + years		
0	85.53	81.67
1+	14.47	18.33
Maternal characteristics		
Mother's age (mean)	41.02	43.73
Mother's marital status		
Married	81.72	78.89
Never married	2.70	2.69
Separated/divorced/widowed	15.58	18.42
Mother's education		
None	20.08	20.39
Primary	14.36	14.85
JSS	43.55	43.17
SSS+	22.01	21.59
Mother is the head of the household		
Yes	37.00	39.16
No	63.00	60.84
Individual characteristics		
Sex		
Female	48.19	52.26
Male	51.81	47.74
Relationship to household head		
Child	92.35	91.61
Grandchild	4.17	3.91
Stepchild	1.50	1.49
Head	0.00	0.63
Other (including sibling)	1.99	2.36
Ethnicity		
Akan	41.31	39.40
Ga	25.50	26.29
Ewe	17.78	18.81
Mole Dagbani	4.30	4.57
Other	11.12	10.93
Sample size	11,369	10,181

Author's own analysis of the 2010 Ghanaian Population and Housing Census

6.5   Research hypothesis

Based on the conceptual framework previously discussed (Section 5.3.3), we derive the following hypothesis:

H1: In comparison to youth of non-working mothers, youth with mothers engaged in formal employment or self-employment with employees have more favourable educational outcomes as defined by timely completion of primary and JSS education and attendance SSS.

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The relatively stable and predictable income from formal employment may allow for the continuous investment into children's education, for example tuition and books, allowing children to progress appropriately through school. Formal work may entail only small time impacts. Standardised working hours may facilitate the planning and co-ordination of domestic and childcare activities. Predictable levels of income may also allow for the purchasing of market substitutes and energy saving devices removing the need to find family substitutes for maternal time. Rules and regulations at places of employment are likely to also reduce the value of children's time through preventing children from being able to assist women with their work resulting in possible lower absence rates as well as more time to study outside of school. Lastly, formal employees may perceive greater benefits to educating their children, for example by enhancing their future employment prospects resulting in greater investment into their children's education in terms of finance and time. Youth with mothers in self-employment with employees have been included in this hypothesis. This form of employment is relatively uncommon compared to self-employment without employees, and may reflect entrepreneurship and the generation of sufficient business to warrant the hiring of employees.

H2: In comparison to youth of non-working mothers, youth with mothers engaged in family work or work defined as 'other' by this study have less favourable educational outcomes as defined by timely completion of primary and JSS education and attendance SSS.

It could be expected that youth of family workers will have less favourable educational outcomes in comparison to youth of non-working mothers due to the predominance of time effects. Family work is frequently unremunerated; although it may have indirect effects on schooling through contributions to household income. Using maternal hours of work as a proxy for maternal time spent on domestic activity and childcare, family work may increase the value of youth's time where substitutes for maternal time are sought. Moreover, children could be a form of assistance with family economic work increasing the opportunity costs of their time further. DeGraff and Levison's (2009) analysis of maternal and child employment in Brazil found this joint outcome was most likely when both individuals were engaged in unpaid family work. Similarly children could be a form of assistance with agricultural labour, meaning in this context time effects also outweigh income effects. Due to the

small sample size mothers engaged in agricultural work were included in the category 'other', with this form of work making up the majority of this category.

H3: In comparison to youth of non-working mothers, youth with mothers engaged non-agricultural self-employment (without employees) and informal employment do not have different educational outcomes as defined by timely completion of primary and JSS education and attendance of SSS.

Whilst a diversity of circumstances exists within the informal sector, this labour sector is generally characterised by insecurity, unpredictability and low earnings. Earnings therefore may be too uncertain and viable for mothers to invest additional resources into children's education. In comparison to formal employees, informal employees may be in a less favourable position to purchase market substitutes for their time raising the value of their children time to assistance with household's duties. Furthermore, the opportunity cost of children's time may be increased due to their potential to assist their mothers with their jobs or as children become older their mother may have job-related networks through which they can find their children work (DeGraff and Levinson 2009).

H4: Youth who are the youngest or oldest of their siblings in the household have more favourable educational outcomes in comparison to middle positioned youth.

It is hypothesised that siblings can have important consequences for educational outcomes. On the one hand the resource dilution perspective (Blake 1986) theorises that as the number of children a parent has increases there is a decline in the resources that can be invested in each child. In terms of education, resources may refer to parental attention, for example in ensuring their child is focused on their learning, or financial investments into educational aids. However, this perspective fails to recognise the existence of lateral relationships whereby in early adulthood siblings can take on parental responsibilities for younger siblings (Lloyd and Gage-Brandon 1994). As children make the transition into employment, patterns of support can change among family members as these individuals contribute to the household. First-borns are also likely to be advantaged in terms of educational investment

because returns from their investment could be expected at an earlier date (Gomes 1984). Therefore the age of youth in relation to their siblings may be important in determining the relationship between siblings and educational outcomes.

6.6   Analytical strategy

6.6.1   Rationale for multilevel models

This research uses multilevel models to investigate the relationship between maternal employment and child educational outcomes whilst taking account of clustering in the data. Potentially the data have a three level structure of children (level 1) who have the same mother (level 2) and different mother-children combinations resident in the same household (level 3). Figure 6.4 suggests clustering at the household level in both samples of youth is small with the majority of households only having one mother-children pair resident. However, clustering is evident at the mother level in both datasets with there being between 1 and 4 children present sharing the same mother.

Figure 6-4: The number of households, mothers and children in the sample of children aged 12-14 years and 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region, 2010 Ghanaian Population and Housing Census
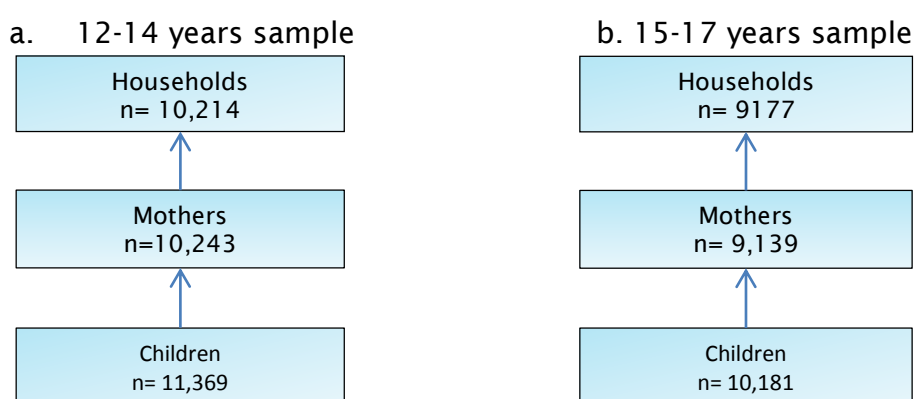
This hierarchical structure has the potential to result in correlated data violating the assumption of independence made by single level models. For example, features of mothers such as their perceived value of education and their engagement with children in learning outside school are likely to

influence children's educational progress. Including group level characteristics which are thought to influence individual outcomes is not sufficient to account for clustering in the data as it is likely not all sources of group effects will be captured by the survey. This is illustrated by the example above, information on mothers' perception of the value of education is not sought by the census. If the hierarchal nature of data is not accounted for in analysis, and educational progress is clustered by mothers, the standard errors of regression coefficients will be underestimated potentially resulting in the incorrect identification of predictors as significant. Through allowing for variation among groups, multilevel modelling provides a means of obtaining correct standard errors.

6.6.2   Multilevel logistic models

For each measure of educational progress used by this study, the outcome is binary with either a yes or no response. We are interested in the probability of a successful outcome, for example an individual having completed primary education. This is denoted by $\pi = \Pr[Y = 1]$. In a logistic model, we model the log of the odds which is the logit of the probability of success divided by the probability of a failure:

$\log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 X_1 + \cdots \beta_k X_k$ In a two level model the logistic model is specified as:

$$\log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + u_{oj} + \beta_1 X_1 + \cdots \beta_k X_k$$

In our example, the intercept β_0 is shared by all mothers whilst the random effect u_{0j} is specific to mother j. This group level residual is the difference between a specific mother's mean and the overall mean. The random effect is assumed to follow a normal distribution with a zero mean and a variance of σ_{u0}^2. The analyses were conducted in STATA using the xtmelogit command.

In order to ease interpretation, results from the logit equations were used to calculate the probabilities of completing primary and JSS and attending SSS. Equation 6.1 shows the method of calculating predicted probabilities in a single level logistic model.

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Equation 6.1: Predicted probability of a successful educational outcome for child *i* in a single-level logistic model

$$\pi_i = \frac{\exp(\beta_0 + \beta_1 X_i)}{1 + \exp(\beta_0 + \beta_1 X_i)}$$

In a multilevel model a cluster specific coefficient u_j is introduced. There are several possible methods to take account of this parameter:

1. Substituting $u_j = 0$
2. Integrating out u_j
3. Averaging over simulated values of u_j

Method 2, the integrating out of u_j is not recommended when calculating predicted probabilities from logistic or probit regressions due to the requirement of using an approximation in integration. Method 1 involves substituting the value zero for the group-level random effect. Whilst this produces probabilities at the mean of the group residuals, this is not the mean probability for specific X values, but the median, as π is a nonlinear function of u. In order to calculate a mean predicted probability for a given set of explanatory variables a population average approach is taken where predictions of that average across different values of u are calculated. Method 3 generates values for u from a normal distribution assuming a mean of 0 and the group level variance from the fitted model. For each generated value of u a predicted probability is calculated from which a mean is calculated. Where probabilities are in the range of 0.2 and 0.8 the logistic transformation is fairly linear and consequently the median and mean predicted probabilities are expected to be similar. This study uses the method of substituting out u_j to equal 0 to calculate predicted probabilities.

6.6.3 Model building

As hypothesis were specified regarding the relationship between firstly maternal employment and educational progress of children, and secondly the sibling variable (the youth's position among co-resident siblings), these independent variables were forced into the final regression models regardless of their significance.

With regards to the control variables a stepwise approach was taken where variables were considered in turn and were only added to the model if they significantly improved the fit of the model as determined by the log likelihood ratio test. The significance of these variables was considered at the single level. Covariates which did not significantly improve the explanatory power of the model at the 5% level were not included in the model. At the end of this process where included covariates no longer retained significance at the 5% level, according to their p-value associated with the Wald Test, they were removed. A two-level model varying at the mother level was specified including all the coefficients retained in the single-level model. Table 6.9 to 6.11 shows the model building process for the models that included completion of primary education among 12-14 year olds, completion of JSS education among 15-17 year olds and attendance of SSS among 15-17 year olds respectively.

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Table 6-9: The 2*Log Likelihood of nested single level logistic models with completion of primary education among 12-14 year olds as the outcome, and the p-values associated with log-likelihood ratio tests

Stage	Variables included in the model	Log Likelihood	P value
1	Inte	-7686.26	
2	Inte+cage	-7270.06	<0.0001
3	Inte+cage+crel	-7263.00	<0.0001
4	Inte+cage+crel+csex	-7258.80	0.011
5	Inte+cage+crel+csex+eth	-7194.61	<0.0001
6	Inte+cage+crel+csex+eth+cloc	-7160.86	<0.0001
7	Inte+cage+crel+csex+eth+cloc+mmart	-7098.15	<0.0001
8	Inte+cage+crel+csex+eth+cloc+mmart+mwkst	-6997.73	<0.0001
9	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med	-6702.39	<0.0001
10	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch	-6681.83	<0.0001
11	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med_surch+mage	-6646.35	<0.0001
12	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh	-6640.86	<0.0001

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13	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth	-6572.26	<0,0001
14	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05	-6445.27	<0.0001
15	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611	-6441.33	0.048
16	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215	-6437.34	0.019
17	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215+m1215	-6425.01	0.878
18	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215+f1654	-6425.35	<0.0001
19	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215+f1654+m1654	-6425.01	0.878
20	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215+f1654+f55	-6420.67	0.002
21	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1215+f1654+f55+m55	-6420.61	0.730
22	Final stage remove variables that are now insignificant in the model according to wald test: f1215 and c611		

Abbreviations: inte - intercept, mwkst – mother's work status, cloc – youth's relative age location among co-resident siblings, eth – youth's ethnicity, rel – youth's relationship to the household head, sex – youth's sex, mh – whether the mother of the youth is the head of the household, mage – age of the mother, surch – number of surviving children to the mother, med – mother's educational status, mmart – mother's martial status, hwealth – household wealth quintile membership, c05 – number of children aged 0-5 years present in the household, c611 – number of children aged 6-11 years present in the household, f1215 – number of females aged 12-15 years present in the household, m1215 – number of males aged 12-15 years present in the household, f1654 – number females aged 16-54 years present in the household, m1654 – number males aged 16-54 years present in the household, f55 – number of females aged 55 years and over present in the household, m55 – number of males aged 55 years and over present in the household, cage – child's age

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Table 6-10: The 2*Log Likelihood of nested single level logistic models with completion of JSS education among 15-17 year olds as the outcome, and the p-values associated with log-likelihood ratio tests

Stage	Model	Log Likelihood	P value
1	Inte	-7033.05	
2	Inte+cage	-6651.51	<0.0001
3	Inte+cage+crel	-6644.58	0.008
4	Inte+cage+crel+csex	-6642.29	0.032
5	Inte+cage+crel+csex+eth	-6570.11	<0.0001
6	Inte+cage+crel+csex+eth+cloc	-6512.11	<0.0001
7	Inte+cage+crel+csex+eth+cloc+mmart	-6473.26	<0.000
8	Inte+cage+crel+csex+eth+cloc+mmart+mwkst	-66411.07	<0.0001
9	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med	-6152.14	<0.0001
10	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch	-6128.53	<0.0001
11	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage	-6105.15	<0.0001
12	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh	-6100.74	<0.0001
13	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth	-5993.66	<0.0001
14	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05	-5977.50	<0.0001
15	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611	-5972.09	0.013
16	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1215	-5971.87	0.506
17	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+m1215	-5972.02	0.710
18	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654	-5963.26	0.001

19	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654 +m1654	-5962.43	0.648
20	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654 +f55	-5960.77	0.026
21	Inte+cage+crel+csex+eth+cloc+mmart+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654 +f55+m55	-5960.50	0.458
22	Final stage remove variables that are now insignificant in the model according to wald test: none		

Abbreviations: inte - intercept, mwkst – mother's work status, cloc – youth's relative age location among co-resident siblings, eth – youth's ethnicity, rel – youth's relationship to the household head, sex – youth's sex, mh – whether the mother of the youth is the head of the household, mage – age of the mother, med – mother's educational status, mmart – mother's martial status, hwealth – household wealth quintile membership, surch –number surviving children of the mother, c05 – number of children aged 0-5 years present in the household, c611 – number of children aged 6-11 years present in the household, f1215 – number of females aged 12-15 years present in the household, m1215 – number of males aged 12-15 years present in the household, f1654 – number females aged 16-54 years present in the household, m1654 – number males aged 16-54 years present in the household, f55 – number of females aged 55 years and over present in the household, m55 – number of males aged 55 years and over present in the household, cage – child's age, JSS – Junior Secondary School

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Table 6-11: The 2*Log Likelihood of nested single level logistic models with attendance of SSS among 15-17 year olds as the outcome, and the p-values associated with log-likelihood ratio tests

Stage	Model	Log Likelihood	P value
1	Inte	-6624.25	
2	Inte+cage	-6288.06	<0.0001
3	Inte+cage+crel	-6277.95	0.0005
4	Inte+cage+crel+csex	-6277.83	0.622
5	Inte+cage+crel+eth	-6199.57	<0.0001
6	Inte+cage+crel+eth+cloc	-6156.46	<0.0001
7	Inte+cage+crel+eth+cloc+mmrt	-6119.82	<0.0001
8	Inte+cage+crel+eth+cloc+mmrt+mwkst	-6029.13	<0.0001
9	Inte+cage+crel+eth+cloc+mmrt+mwkst+med	-5718.03	<0.0001
10	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch	-5672.49	<0.0001
11	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage	-5649.51	<0.0001
12	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh	-5640.27	<0.0001
13	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth	-5497.27	<0.0001
14	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05	-5473.62	<0.0001
15	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611	-5467.86	0.003
16	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1215	-5467.76	0.645
17	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611+m1215	-5467.81	0.645
18	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654gp	-5463.14	0.024
19	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654gp+m1654gp	-5461.51	0.355
20	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+survch+mage+mh+hwealth+c05+c611+f1654gp+f55	-5461.63	0.082

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21	Inte+cage+crel+eth+cloc+mmrt+mwkst+med+surch+mage+mh+hwealth+c05+c611+f1654gp+f55 +m55	-5457.69	0.005
22	Final stage remove variables that are now insignificant in the model according to wald test: f55		

Abbreviations: inte - intercept, mwkst – mother's work status, cloc – youth's relative age location among co-resident siblings, eth – youth's ethnicity, rel – youth's relationship to the household head, sex – youth's sex, mh – whether the mother of the youth is the head of the household, mage – age of the mother, med – mother's educational status, mmart – mother's martial status, surch – number of surviving children to the mother, hwealth – household wealth quintile membership, c05 – number of children aged 0-5 years present in the household, c611 – number of children aged 6-11 years present in the household, f1215 – number of females aged 12-15 years present in the household, m1215 – number of males aged 12-15 years present in the household, f1654 – number females aged 16-54 years present in the household, m1654 – number males aged 16-54 years present in the household, f55 – number of females aged 55 years and over present in the household, m55 – number of males aged 55 years and over present in the household, cage – child's age, SSS – Senior Secondary School

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Two models were built for each level of education considered. The first model included mothers' work status, the youth's position amongst co-resident siblings and all significant controls except for the household demography variables. The second model included all significant controls including the household demography variables. This was due to the potential correlation between household structure, especially in terms of the number of children of certain ages in the household, and the co-resident sibling variable. Table C.1, located in Appendix C, summarises the six models produced in this analysis in terms of the outcome and control variables incorporated.

6.7   Results

6.7.1   Bivariate analysis

Bivariate analysis of the association between maternal employment and educational outcomes of youth showed a significant relationship at the 1% level regardless of the definition of educational progress used (Figure 6.5). Youth with mothers who were formal employees had the best educational outcomes. Of those with mothers engaged in formal employment 76% of 12-14 year olds had completed primary education, 64% of 15-17 year olds had completed JSS education and 54% of this latter age group were also attending SSS. This is in comparison to 58% and 44% of youth aged 12-14 years and 15-17 years with mothers not engaged in work having completed primary and JSS education respectively. Among the latter age group only 32% were attending SSS. Completion and attendance rates were broadly similar among youth with mothers not working, in informal employment or who were self-employed without employees. Youth with mothers who were family workers report similar levels of completion of JSS education and attendance of SSS as these latter groups, whilst their primary school completion is the lowest and comparable to youth with mothers in work defined as other (45%). Completion of JSS and attendance of SSS among youth aged 15-17 years is the lowest amongst those with mothers engaged in work defined as other at 30% and 24% respectively.

Figure 6-5: Percentage of children aged 12-14 years and 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region who have completed primary and junior secondary schooling and the percentage of those aged 15-17 years attending senior secondary schooling, by mothers' work status
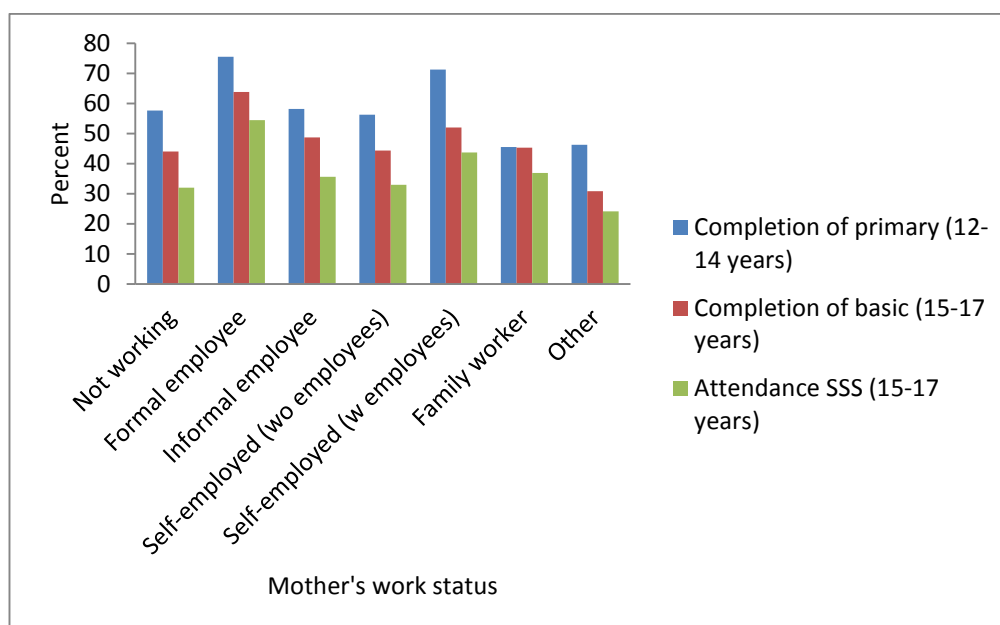
Author's own analysis of the 2010 Ghanaian Population and Housing Census
Abbreviations: self-employed (wo employees) – self-employed without employees in the non-agricultural labour sector, self-employed (w employees) – self-employed with employees in the non-agricultural labour sector
Note: self-employment in the agricultural sector included in other,
sample size of those 12-14 years=11,369, smaple size of those 15-17 years= 10,181

Figure 6.6 reveal there are only small differences in the educational outcomes of youth according to their position among co-resident siblings. Being the youngest of two siblings in the household seems to incur advantage with youth aged 12-14 years of this status having the highest percentage who had completed primary schooling (65%), whilst youth aged 15-17 years of this status had the second highest percentage who had completed basic schooling (59%) or who were attending SSS (47%). Completion of basic schooling and attendance of SSS was highest among those who were the same age of their only co-resident sibling at 67% and 47% respectively.

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Figure 6-6: Percentage of children aged 12-14 years and 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region who have completed primary and junior secondary schooling and the percentage of those aged 15-17 years attending senior secondary schooling, by their relative age location among co-resident siblings
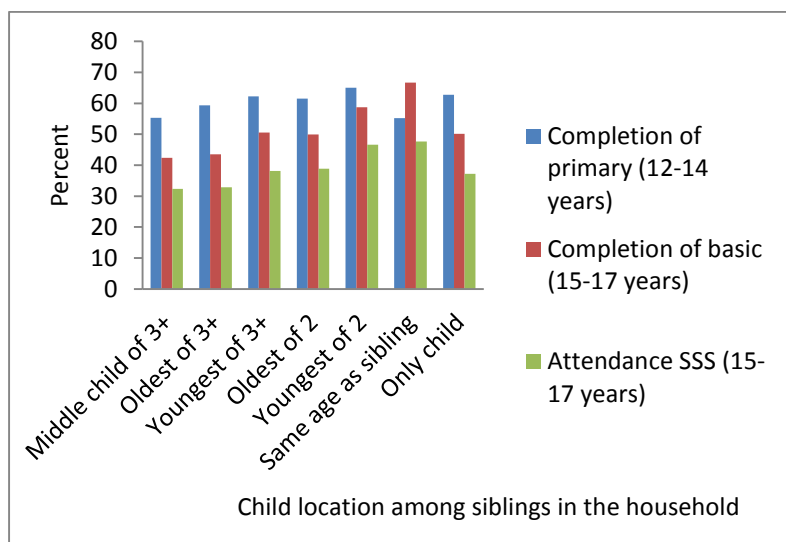
Author's own analysis of the 2010 Ghanaian Population and Housing Census
sample size of those 12-14 years=11,369, smaple size of those 15-17 years= 10,181

6.7.2   Multilevel analysis

The first stage of the multilevel analysis involved statistically testing whether a random effect at the mother level was needed. We can test the null hypothesis that there is no group (mother) effect by comparing a null intercept model at the single level with a two level null intercept model which varies at the mother level. This comparison is done using the log-likelihood ratio test. Table 6.12 displays the difference in the log-likelihood statistics for the single and two level models for each of the three outcomes of educational progress. The p-values of <0.0001 means that for each model we can reject the null hypothesis suggesting there is a group effect at the mother level. Consequently, the use of multilevel models is preferred.

Table 6-12: Results of the log-likelihood ratio test comparing the single level null (intercept only) model with the two level null (intercept only) varying at the mothers' level, with the outcomes of completion of primary education among 12-14 years, completion of basic education and attendance of SSS among 15-17 years in the sample, respectively

	Model (outcome variable)		
	Completion of primary education among 12-14 yr old	Completion of basic education among 15-17yr olds	Attendance of SSS among 15-17 yr olds
Difference in likelihood statistics (single vs two level model)	111.35	108.47	146.74
P-value	<0.0001	<0.0001	<0.0001

Author's own analysis using the 2010 Ghanaian Population and Housing Census Sample size for 12-14 year olds 11,369, sample size for 15-17 year olds 10,181

Table 6.13 shows the parameter estimates from the two level null (intercept) models for each of our three levels of educational progress. Using the random parameter at the mother level we are able to calculate the variance partition coefficient (VPC) which measures the proportion of total variance in the outcome that is due to differences between groups.

$$VPC = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2}$$

Whereby σ_u^2 is the random variance at level two and σ_e^2 is the variance at level one, which in a logistic model is fixed at 3.29. Table 6.13 shows that 42% of the variance in completion of primary education among 12-14 year old is attributed to unobserved maternal characteristics. The percentage is similar for the variance in completion of basic education among 15-17 year olds, where the VPC is 0.44. Lastly, 53% of the variance in attendance of SSS among 15-17 year olds can be attributed to unobserved maternal characteristics.

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Table 6-13: Random variance at the mother level and the variance partition coefficient for the two level models with completion of primary education among 12-14 yr olds, completion of basic education and attendance of SSS among 15-17 yr olds as the outcomes

	Model (outcome variable)		
	Completion of primary education among 12-14 yr old	Completion of basic education among 15-17yr olds	Attendance of SSS among 15-17 yr olds
Fixed effect parameter			
Intercept	.55	-.19	-9.95
Random effect parameter			
At the mother level	2.38	2.58	3.76
VPC	0.42	0.44	0.52

Author's own analysis using the 2010 Ghanaian Population and Housing Census Sample size for 12-14 year olds 11,369, sample size for 15-17 year olds 10,181, VPC – Variance Partition Coefficient

Tables 6.14-6.16 presents the results in terms of the odds for completion of primary schooling among 12-14 year olds, completion of basic education and attendance of SS among 15-17 year olds respectively. Models 1, 3 and 5 contain all variables found to be significant in the model building process. Models 2, 4 and 6 exclude the significant household demography variables due to possible confounding between these variables and the variable representing the youth's position among co-resident siblings.

Table 6-14: The odds ratios of children aged 12-14 years co-resident with their biological mothers in urban areas of the Greater Accra region completing primary education, 2010 Ghanaian Population and Housing Census (n=10,181)

	Model 1			Model 2		
	Odds	95% CI		Odds	95% CI	
Variables of Interest		Lower	Upper		Lower	Upper
Maternal employment						
Not working[a]						
Formal employee	1.76***	1.29	2.41	1.91***	1.39	2.62
Informal employee	0.99	0.65	1.50	1.08	0.71	1.64
Other (including agricultural)	0.83	0.44	1.54	0.84	0.45	1.57
Self-employed (wo emp.) nonagricult	1.13	0.92	1.40	1.22	0.99	1.51
Self-employed (w emp) nonagricult	1.93***	1.39	2.66	2.07***	1.50	2.87
Family worker	0.62	0.35	1.12	0.65	0.36	1.16
Youth's position among co-resident siblins						
Middle of 3+[a]						
Oldest of 3+	1.49***	1.22	1.82	1.16	0.97	1.39
Youngest of 3+	1.02	0.81	1.27	1.20	0.96	1.49
Oldest of 2	1.04	0.81	1.32	1.00	0.79	1.26
Youngest of 2	1.02	0.78	1.32	1.09	0.84	1.41
Same age as sibling	0.47	0.19	1.18	0.52	0.21	1.32
Only child	1.00	0.75	1.34	1.00	0.76	1.31
Control variables						
Youth's age	3.28***	2.85	3.76	3.35***	2.91	3.85
Youth's ethnicity						
Akan[a]						

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Ga	0.78***	0.66	0.93	0.77***	0.66	0.92
Ewe	0.81**	0.67	0.97	0.79**	0.66	0.96
Mole Dagbani	0.91	0.65	1.26	0.88	0.63	1.22
Other	0.89	0.71	1.12	0.87	0.69	1.09
Youth's relation to household head						
Child[a]						
Grandchild	0.67*	0.44	1.00	0.48***	0.34	0.68
Step child	0.74	0.43	1.27	0.65	0.38	1.13
Other (including sibling)	0.53**	0.32	0.87	0.44***	0.27	0.72
Sex of youth						
Male[a]						
Female	1.17**	1.05	1.33	1.17**	1.03	1.33
Mother's education						
None	0.32***	0.26	0.40	0.32***	0.26	0.40
Primary	0.45***	0.36	0.55	0.44***	0.36	0.55
JSS[a]						
SSS+	1.62***	1.33	1.98	1.63***	1.34	1.99
Mother's marital status						
Married[a]						
Never married	0.58**	0.39	0.89	0.60**	0.39	0.91
Separated/divorced/widowed	0.78***	0.63	0.97	0.80**	0.65	0.99
Mother's age (centred)	1.04***	1.03	1.05	1.03***	1.02	1.04
Number of surviving children of the mother	0.84***	0.80	2.22	0.82***	0.78	0.86
Mother is head of the household						
No[a]						

Yes	0.80**	0.68	0.95	0.80***	0.68	0.94
Household wealth membership						
Poorest	0.56***	0.46	0.69	0.56***	0.45	0.68
Poor	0.68***	0.56	0.83	0.67***	0.55	0.82
Middle[a]						
Rich	1.60***	1.30	1.97	1.64***	1.33	2.02
Richest	3.63***	2.79	4.72	3.82***	2.93	4.98
Number of children aged 0-5 years in the household						
0[a]						
1	0.79***	0.67	0.92			
2	0.45***	0.36	0.58			
3+	0.47***	0.31	0.71			
Number of females aged 16-54 years in the household						
0[a]						
1	2.32***	1.26	4.26			
2	2.73***	1.47	5.08			
3	2.96***	1.56	5.64			
4+	3.14***	1.61	6.14			
Number of females aged 55 years and over in the household						
0[a]						
1+	0.67***	0.51	0.88			
_cons	0.00	0.00	0.00	6.82E-07	1.2E-07	3.86E-06
Random Effect Parameters						
Random Intercept at the Mother Level	3.31	2.33	4.69	3.36	2.38	4.76

Source: Author's own analysis of the 2010 Ghanaian Population and Housing Census, n=11,369
Abbreviation: JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling [a]denotes reference category, *** significant at the 1% level, ** significant at the 5% level, * significant at the 10%, [a]reference category

Table 6-15:   The odds ratios of children aged 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region completing basic education, 2010 Ghanaian Population and Housing Census (n=11,369)

	Model 3			Model 4		
	Odds	95% CI		Odds	95% CI	
		Lower	Upper		Lower	Upper
Maternal employment						
Not working[a]						
Formal employee	1.57**	1.17	2.11	1.67***	1.24	2.24
Informal employee	1.36	0.86	2.13	1.39	0.89	2.18
Other (includ agricultural)	0.48**	0.24	0.97	0.49**	0.24	0.98
Self-employed (wo emp.) nonagricult	1.23*	1.02	1.48	1.28**	1.06	1.54
Self-employed (w emp) nonagricult	1.34***	0.99	1.83	1.40**	1.03	1.90
Family worker	1.32	0.72	2.40	1.37	0.75	2.50
Youth position among co-resident siblings						
Middle of 3+[a]						
Oldest of 3+	1.22*	1.00	1.49	0.98	0.82	1.18
Youngest of 3+	1.11	0.87	1.42	1.32**	1.04	1.67
Oldest of 2	1.07	0.83	1.39	1.10	0.86	1.40
Youngest of 2	1.63***	1.23	2.15	1.88***	1.43	2.46
Same age as sibling	2.99*	0.84	10.68	3.58**	1.01	12.71
Only child	1.03	0.76	1.38	1.12	0.85	1.47
Youth's age	3.25***	2.81	3.74	3.37***	2.91	3.89
Youth's ethnicity						
Akan[a]						
Ga	0.79***	0.66	0.94	0.76***	0.64	0.91

Ewe	0.81**	0.67	0.98	0.79**	0.66	0.96
Mole Dagbani	0.57***	0.40	0.81	0.56***	0.39	0.80
Other	0.77**	0.61	0.98	0.77**	0.60	0.97
Youth's relation to the household head						
Child[a]						
Grandchild	0.74	0.49	1.11	0.58***	0.40	0.83
Step child	0.78	0.44	1.38	0.65	0.37	1.16
Other (including sibling)	0.53***	0.33	0.85	0.43***	0.27	0.70
Head	1.50	0.66	3.41	1.43	0.63	3.25
Sex of Youth						
Male[a]						
Female	1.19**	1.03	1.37	1.23***	1.07	1.40
Mother's education						
None	0.33***	0.26	0.41	0.32***	0.26	0.40
Primary	0.50***	0.40	0.62	0.49***	0.40	0.62
JSS[a]						
SSS+	1.84***	1.50	2.25	1.85***	1.51	2.27
Mother's marital status						
Married[a]						
Never married	0.77	0.50	1.19	0.77	0.50	1.17
Separated/divorced/widowed	0.69***	0.57	0.83	0.71	0.59	0.85
Mother's age (centred)	1.03***	1.02	1.04	1.03***	1.02	1.04
Number of surviving children of mother	0.87***	0.83	0.91	0.83**	0.79	0.88
Household wealth membership						
Poorest	0.67***	0.54	0.84	0.68***	0.54	0.84

Educational Outcomes

Poor	0.69***	0.55	0.86	0.69***	0.56	0.86
Middle[q]						
Rich	1.72***	1.39	2.14	1.76***	1.41	2.18
Richest	2.72***	2.12	3.48	2.83***	2.21	3.64
Number of children aged 0-5 years in the household						
0[a]						
1	0.68***	0.58	0.81			
2	0.55***	0.42	0.72			
3+	0.52***	0.33	0.80			
Number of children aged 6-11 years in the household						
0[a]						
1	0.87	0.73	1.04			
2+	0.69***	0.55	0.86			
Number of females aged 16-54 years in the household						
0[a]						
1	1.64*	0.92	2.92			
2	1.75*	0.97	3.16			
3+	2.02**	1.11	3.70			
Number of females aged 55 years and over in the household						
0[a]						
1	0.77**	0.60	0.98			
_cons	0.00	0.00	0.00	0.00	0.00	0.000
Random Parameters						
Random Intercept at the mother level	3.41	2.39	4.85	3.42	2.40	4.87

Source: Author's own analysis of the 2010 Ghanaian Population and Housing Census, n=10,181

Abbreviation: JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, *** significant at the 1% level, ** significant at the 5% level, * significant at the 10%, [a] denotes reference category, [a] denotes reference category, *** significant at the 1% level, ** significant at the 5% level, * significant at the 10%, [a] reference category

Table 6-16: The odds ratios of children aged 15-17 years co-resident with their biological mothers in urban areas of the Greater Accra region attending Senior Secondary Schooling, 2010 Ghanaian Population and Housing Census (n-11,369)

	Model 5			Model 6		
	Odds	95% CI		Odds	95% CI	
Variables of interest		Lower	Upper		Lower	Upper
Maternal Employment						
Not working[a]						
Formal employee	1.86***	1.33	2.59	1.98****	1.42	2.76
Informal employee	1.35	0.81	2.26	1.40	0.83	2.34
other (including agricultural)	0.69	0.30	1.57	0.69	0.31	1.58
Self-employed (wo emp.) nonagricult	1.42***	1.14	1.77	1.48***	1.19	1.84
Self-employed (w emp) nonagricult	1.93***	1.35	2.76	2.01***	1.41	2.88
Family worker	1.84	0.93	3.64	1.93	0.97	3.83
Youth's position among co-resident siblings						
Middle of 3+[a]						
Oldest of 3+	1.14	0.91	1.44	0.90	0.73	1.12
Youngest of 3+	0.96	0.72	1.27	1.15	0.88	1.50
Oldest of 2	0.92	0.68	1.23	0.97	0.73	1.28
Youngest of 2	1.42***	1.04	1.94	1.68**	1.24	2.27
Same age as sibling	1.78	0.44	7.26	2.12	0.52	8.66
Only child	0.82	0.58	1.14	0.91	0.67	1.24
Control variables						
Youth's age	3.60***	3.05	4.24	3.75	3.18***	4.4

Educational Outcomes

Youth's ethnicity						
Akan[a]						
Ga	0.80**	0.65	0.97	0.77**	0.63	0.93
Ewe	0.73***	0.58	0.91	0.70***	0.56	0.87
Mole Dagbani	0.53***	0.35	0.81	0.50***	0.33	0.77
Other	0.61***	0.46	0.81	0.59***	0.44	0.79
Youth's relation to the household head						
Child[a]						
Grandchild	0.57***	0.37	0.88	0.49***	0.32	0.76
Step child	0.46***	0.22	0.92	0.37**	0.18	0.75
Other (includ sibling)	0.52***	0.30	0.91	0.42***	0.24	0.72
Head	0.92	0.35	2.39	0.90	0.35	2.34
Youth's sex						
Male[a]						
Female	0.99	0.84	1.16	1.02	0.88	1.18
Mother's education						
None	0.29***	0.23	0.39	0.28***	0.22	0.37
Primary	0.46***	0.35	0.59	0.45***	0.35	0.58
JSS[a]						
SSS+	2.24***	1.78	2.82	2.27***	1.80	2.86
Mother's marital status						
Married[a]						
Never married	0.39***	0.24	0.66	0.40***	0.24	0.68
Sep/div/wid	0.55**	0.44	0.69	0.59***	0.48	0.74
Mother's age	1.03	1.02	1.04	1.03	1.02	1.04

Number of surviving children to mother	0.82	0.77	0.87	0.77	0.73	0.82
Household wealth membership						
Poorest	0.51***	0.39	0.66	0.51***	0.39	0.67
Poor	0.61***	0.48	0.80	0.62***	0.48	0.80
Middle[a]						
rich	1.88***	1.47	2.41	1.94***	1.51	2.48
richest	3.52***	2.64	4.70	3.69***	2.76	4.94
Number of children aged 0-5 yrs in the household						
0[a]						
1	0.65***	0.53	0.79			
2	0.38***	0.28	0.54			
3+	0.32***	0.19	0.57			
Number of children aged 6-11 yrs in the household						
0[a]						
1	0.85	0.70	1.03			
2+	0.64***	0.50	0.84			
Number of females aged 16-54 yrs in the household						
0[a]						
1	1.95*	0.99	3.82			
2	2.19**	1.11	4.33			
3+	2.43***	1.21	4.87			
Number of males aged 55 yrs and over in the household						
0[a]						
1+	0.83**	0.66	1.03			
_cons	0.00	0.00	0.00	0.00	0.00	0.00

Educational Outcomes

Random effect parameter						
Random intercept at the mother level	4.71	3.36	6.62	4.77	3.41	6.69

Source: Author's own analysis of the 2010 Ghanaian Population and Housing Census, n=10,181
Abbreviation: JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling
*** significant at the 1% level, ** significant at the 5% level, * significant at the 10%, [a] denotes reference category

<u>H1: The more favourable educational outcomes of youth with mothers engaged in formal employment and self-employment (with employees) in the non-agricultural sector compared to youth with non-working mothers</u>

Support is given to hypothesis 1 regardless of the outcome of education considered, with maternal formal employment and maternal self-employment (with employees) having a significant positive impact on education of youth in all our models. Using model 1 (Table 6.14), the odds of youth aged 12-14 years old with mothers engaged in formal employment having completed primary education is 1.76 times the odds of those with mothers not working. For youth with mothers engaged in self-employment (with employees) the odds are 1.93 times the odds of youth with mothers not working. Both these interpretations are valid when all other variables in the model are held constant. The removal of the significant household demography variables (model 2) does not change the pattern of results, although there is a small increase in the odds.

A similar pattern is observed when considering completion of basic education among those aged 15-17 years (Table 6.15). Using model 3, the odds of youth with mothers engaged in formal employment completing basic education is 1.57 times the odds of those with mothers not working. The odds of youth with mothers engaged in self-employment in the non-agricultural sector (with employees) is 1.34 times the odds of youth with mothers not working. These interpretations are valid when all other variables in the model are held constant. The removal of the significant household demography variables (model 4) does not change the pattern of results, although there is a small increase in the odds.

Lastly, youth aged 15-17 years with mothers in these forms of employment are also more likely to be attending SSS. The odds of youth with mothers engaged in formal employment attending SSS is 1.86 times the odds of those with mothers not working. The odds of youth with mothers in self-employment (with employees) attending SSS is 1.93 times the odds of those with mothers who are not working at the time of the survey. These interpretations are valid when all other variables in the model are held constant.

Educational Outcomes

<u>H2: The less favourable educational outcomes of youth with mothers engaged in family work or work defined as 'other' compared to youth with non-working mothers</u>

When considering primary school completion among those aged 12-14 years old no support is given for hypothesis 2. The odds of youth with mothers engaged in family work or work defined as 'other' is not significantly different to those with mothers who were not working at the time of the survey (Table 6.14), when holding all other variables in the model constant. This is regardless of whether model 1 or model 2 is considered. This is the same result when attendance of SSS among youth aged 15-17 years is considered (Table 6.16).

Partial support is given to this hypothesis when considering JSS completion among youth aged 15-17 years (Table 6.15). Using model 2, the odds of youth with mothers engaged in work defined as other completing basic education is 0.48 times the odds of those with mothers not working. The odds of completing basic education does not significantly differ between youth with mothers engaged in family work and youth with mothers not working. These interpretations are valid when all other variables in the model are held constant.

<u>H3: The insignificantly different educational outcomes of youth of non-working mothers and youth with mothers engaged in self-employment (without employees) or informal employment</u>

At the primary level full support was given to this hypothesis (Table 6.14). There was no significant difference in the odds of youth aged 12-14 years with mothers engaged in self-employment (without employees) or informal employment in the non-agricultural sector completing primary education compared to those with mothers not working when holding all other variables in the model constant.

Nonetheless, when considering the completion of JSS among those aged 15-17 only partial support is given to this hypothesis (Table 6.15). The odds of youth with mothers in informal employment completing basic education does not differ significantly from the odds of those with mothers not working. However, in model 4, the model which excludes significant household

demography variables, the odds of youth with mothers engaged in self-employment (without employees) in the non-agricultural sector completing basic education is 1.28 times the odds of those with mothers not working. This interpretation is valid when holding other variables in the model constant. When including household demography this positive impact retains significance only at the 10% level.

A similar pattern is found when considering attendance of SSS among those aged 15-17 years. Using model 5, the odds of youth with mothers engaged in self-employment (without employees) attending SSS is 1.42 times the odds of those with mothers who are not working. A similar result is found (1.48) when using model 6 (which excludes household demography from the model). The odds of youth with mothers in informal employment attending SSS does not differ significantly from the odds of those with mothers not working.

H4: The more favourable educational outcomes of youth who are the youngest and oldest of their siblings in the household compared to those who are middle positioned youth

When considering the completion of primary education among those aged 12-14 years and its association with youth's birth location among co-resident siblings confounding is evident with household demography (Table 6.14). When the significant variables of household demography are excluded (model 2), youth's birth position among co-resident siblings is insignificant. Nonetheless, when the significant variables of household demography are incorporated into the model (model 1), youth being the oldest of three or more co-resident siblings is found to be positively related to the completion of primary education. The odds of youth who are the oldest of three or more co-resident siblings having completed primary education is 1.49 times the odds of those who are the middle of 3+ co-resident siblings, when holding all other variables in the model constant. An explanation could be being the oldest of a large group of siblings is protective when there are pre-school children present in the household. It should be noted that these children are not necessarily the sibling of the youth in question.

Confounding is also evident when considering the completion of basic education among youth aged 15-17 years (Table 6.15). When household

demography is excluded, being the youngest (whether of two or of three or more siblings) in the household is positively significantly related to the completion of JSS education (model 4). The odds of youth who are the youngest of 3+ co-resident siblings completing basic education are 1.32 times the odds of those who are the middle of 3+ co-resident siblings. The odds of youth who are the younger of 2 co-resident siblings completing basic education are 1.88 times the odds of those who are the middle of 3+ co-resident siblings. These interpretations are valid when all other variables in the model are held constant. Nonetheless, when taking account of household demography the positive effect of being the youngest sibling is reduced (model 3). When there are any children under the age of five years present in the household or when there are two or more children aged 6-11 years present, being the youngest of three or more siblings becomes insignificant. Being the younger of two remains significant but its protective factor is reduced (odds 1.63). Table 6.15 shows that those with are the only sibling in the household or are the same age as a co-resident siblings are also more likely to have completed basic education compared to those who are the middle of 3+ co-resident siblings, but it should be noted the small sample size of the category of 'same age as sibling' makes this result unstable.

Considering SSS attendance being the younger of two siblings in the household is significant. Nonetheless, when taking account the number of preschool children and the number of children aged 6-11 years in the household the effect of this variable is reduced (model 5). This suggests again the protective nature of being the youngest is reduced when young children are present in the household.

6.8   Discussion

6.8.1   Maternal employment and youths' educational progress

Inconsistent results have been found in Western settings regarding the implications of maternal employment for children's educational outcomes (Goldberg et al. 2008) with non-significant (Paulson 1996), positive (Muller 1995) and negative (Bogenschneider and Steinberg 1994) effects being found. In the SSA context the consequence of maternal employment for educational outcomes is relatively understudied, with most attention being directed to

maternal education. This is in contrast to the growing empirical literature which studies the implications of maternal employment for child anthropometric outcomes (as reviewed by Glick 2002). Our qualitative interviews conducted among working mothers, in addition to literature on the roles of mothers in the Ghanaian context (Clarke 1999), suggests maternal income from working could form an important contribution towards children's schooling.

In this study we examined the implication of maternal work, distinguished by type of employment, and children's educational outcomes – as measured at three levels of education. We found maternal employment has a significant influence on youth's educational outcomes in urban areas of the Greater Accra region, even when controlling for socio-economic and demographic factors such as household wealth and maternal education. Regardless of the level of education considered, youth with mothers engaged in formal employment or self-employment (with employees) in the non-agricultural sector had more favourable outcomes in comparison to youth with mothers not working. At the basic level only, youth with mothers engaged in work defined as other had less favourable outcomes in comparison to youth with mothers not working. We are unable to identify with certainty the possible mechanisms through which these forms of maternal employment influence youth's educational progress. One possible channel could be maternal income. Comparative studies have found that average earnings are higher in the formal sector compared to the informal sector, and that diversity exists within the informal sector with those self-employed who hire others (micro-enterprises) having an average higher income than those in the formal sector (Women in Informal Employment: Globalising and Organising 2014). Concern about the quality of education in Ghana is resulting in a large proportion of students undertaking supplementary schooling causing new costs in educating children. In Southern Ghana, Montgomery et al.'s (2000) study found that 33% of children having ever attended primary school had engaged in supplementary schooling, whilst this figure at the JSS level was 50%. Maternal occupation was found to be a strong determinant of whether children had engaged in this form of education, whilst importantly maternal education was found to be insignificant. It should be noted however that occupation in Montgomery et al's (2000) study was only distinguished by farm and non-farm work. Whilst

customs dictate father's support of children's education in Ghana, the income earned by mothers might be important in allowing children to access additional tuition beyond their normal attendance at school. Inadequate quality of teaching and learning in the educational system raise concerns about growing disparities in educational progress as successful movement through the system appears dependent on the ability of students to attend higher quality private institutions or receive supplementary education – all incurring additional costs. If maternal income is important to pay for extra tuition to overcome the inadequacies of state provision, the higher levels of progression among children of mothers who are working in the formal sector, or who are self-employed with employees, seems plausible due to their comparatively higher and predictable incomes of women in other forms of employment.

Kohn (1969 as cited in Eccles et al. 2005) hypothesises the type of jobs that parents are involved in may influence the values and aspirations they and their children have regarding future employment. Chant and Jones (2005), however, find that the majority of youth in Ghana have pronounced career goals for white collar occupations or setting up formal businesses, including those whose parents are engaged in low scale self-employment. What is important is despite these aspirations emphasis is not placed on education by youth as a means to achieve gainful employment. Instead social contacts are seen as more central to creating employment opportunities, with youth describing its 'know who, not know how' (p194). Nonetheless, statistical analysis has found that educational attainment does increase the prospect of entering formal wage employment (Baffour 2012). Furthermore, educational attainment was found to be important for increasing returns in terms of income within the private sector, but this relationship was not found in the public sector or in self-employment (Baffour 2012). The limited opportunities to enter formal employment, even with the securing of secondary education, must be noted. Consequently for mothers engaged in self-employment (without employees) or as employees in the informal sector greater emphasis may be given to youth in securing and forming contacts, rather than to education. Chant and Jones (2005) found that approximately half of the youth in their study had started undertaking part-time remunerated work around the age of 12 years, with some individuals describing their work as being a means to make connections. For youth with mothers who are engaged in forms of

work that they aspire to, such as white collar jobs and micro-enterprises, there may be a perspective of the greater importance of education especially at the tertiary level, due to observations of returns to education viewed by mothers. The disconnections between government commitments to increasing educational attainment and the availability of jobs requiring these forms of skills in the labour market highlights the need for a more integrated approach to policy. Further work is also required to explore and understand the channels through which certain forms of maternal employment result in improved educational outcomes for children.

6.8.2   Siblings and youths' educational progress

In investigations of health and education the implications of numbers of siblings has been given considerable attention. Much focus has been directed to rivalry and competition between siblings; however there is also recognition of the positive influence that siblings, particularly those older, can have on outcomes through instrumental or financial support provided to the household. Circirelli (1994 as cited in Trinitapoli et al. 2014) argues, whilst in industrial settings such assistance is often voluntary, in non-industrial contexts involvement is directed by strictly defined responsibilities and obligations to the family. When investigating the effect of siblings it is important to consider the nature of such relationships which may vary by birth order or age.

We investigated the influence of siblings on educational outcomes of youth through considering the birth order of youth amongst their co-resident siblings. We found the protective nature of a youth's position among co-resident children is dependent on the presence of young children in the household. Among those aged 12-14 years there being pre-school children in the household enhances the protective nature of being the oldest of three or more co-resident siblings. It could be where the youth is the oldest of a number of siblings in the household, where preschool children are present it could be that the youth's younger siblings are providing a greater amount of childcare. This could consequently result in less time distraction to their studies.

Among those aged 15-17 years this study suggests that being the youngest sibling in the household, particularly when only one other sibling is

present in the household, results in more favourable educational outcomes. This positive effect is nonetheless reduced when taking account the presence of young children (both less than five years and aged 6-11 years) in the household. The protective nature of being the youngest in the household corresponds to the findings of Lloyd and Gage-Brandon (1994) concerning the positive influence of older siblings on educational outcomes in Ghana. In this study the number of older siblings was found to be significantly associated with increasing access to education, an effect that was found to be stronger for teenagers compared to children. Trinitapoli et al.'s (2014) study on sibling support and educational prospects of youth aged 15-18 years in Malawi suggests the mechanisms through which siblings may influence educational outcomes. Financial support was found to be common amongst siblings, with older siblings providing support to those younger. The significant relationship found between this financial support and appropriate grade progression of youth one year later suggests the importance of such assistance for educational achievement. The impact of being the youngest child in the household may have been significantly associated with our oldest (15-17 years) youth and not the younger youth (12-14 years) as the former group are more likely to have siblings that are engaged in productive labour. However, whilst youth may be advantaged by older siblings, this raises the question of whether there are consequences of this support given for the sending sibling. For example, do felt obligations to contribute to the household affect their decisions regarding education or ability to re-invest into their employment? The positive effect of being the youngest in the household may be reduced among older youth by household demography through creating demand for childcare. The likely engagement of older siblings in the sibset being engaged in economic activity may induce greater demand for the youngest to provide childcare. This study did not consider siblings outside the household due to insufficient information on these individuals. However, it is likely that non-resident siblings could also play an important role in youth's education. In Hashim's (2007) study of youth migration in Ghana, individuals reported that earnings from their labour were used as remittances to fund younger siblings' education. However, siblings being non-resident may not necessary signal their independence or ability to contribute economically to the household, for example the practice of fostering can be used to secure the education of children and youth.

6.9   Conclusion

This paper adds to the literature on children's educational access and progress by investigating the influence of inter and intra-generation relationships of support in Ghana on the completion of primary/JSS education and the attendance of SSS. Both maternal employment and the youth's position among co-resident siblings were found to be significantly associated with educational progress. Further work needs to consider the mechanisms through which maternal employment influences educational outcomes.

Whilst the determinants of children's schooling in SSA have been extensively researched, few studies have explicatively considered the relationship between maternal employment and their children's education despite theories positing its importance. Through using a 10% sample from the 2010 Ghanaian Population and Housing Census this study was able to consider not only whether a mother was engaged in work or not, but also distinguish their work by employment status and in some cases by employment sector, contributing to the literature on maternal and child human capital accumulation in SSA. A further strength is the wider focus given to educational access, with appropriate progression considered through the outcome of primary/JSS completion being used. Attention is also directed beyond the common focus of basic schooling with the determinants of the attendance of SSS being considered. In countries such as Ghana great progress has been made with increasing access to formal basic education, however challenges remain with ensuring completion of compulsory basic education and encouraging the attendance of higher levels of education – both of which remain low.

A weakness of this study is the temporal limitations presented by the definitions of educational outcomes adopted. Maternal contemporary work status is linked to the completion of primary/basic schooling and attendance of secondary schooling at appropriate ages. However, these forms of achievement are also likely to reflect choices made in the past where maternal employment status may have differed. As displayed by the descriptive analysis of the Women's Health Study of Accra in the previous chapter change in maternal work status can occur even in a short period of time, such as five

years. The use of panel data would overcome this methodological challenge through allowing an exploration of the prospective relationship between maternal employment at time t and child's progress through the educational system between t and $t+1$. Additionally, the possible dynamic nature of maternal employment across time makes taking a life-course perspective important. Factors such as when a mother began work, hours that she worked and transitions between employment states may have implications for their children's education later in life. Limited longitudinal data availability in the SSA context makes the investigation of how maternal work history influences educational progress of children difficult.

7. Conclusion

Shaffer et al. (2011) argue that the focus of the work-family interface literature on Western settings has resulted in a "disparate and fractured understanding of the dynamic interplay between work and family" (p222). Differences in the cultural meanings of work and family, the structure of work and family and the provision of organisational policies or community initiatives across countries means variation is likely to exist in individuals' experiences of combining their roles. In particular SSA has been identified as a context in which a paucity of research exists (Aryee 2005). This thesis contributes to this gap through exploring women's combination of their economic and maternal roles in urban Ghana. This conclusion will discuss the main results of the thesis linking them back to the conceptual framework presented in Chapter 3.

In the conceptual framework an overlap between women's maternal and economic roles in Ghana was presented. The literature highlighted the greater separation of activities of mothering from the role of motherhood, where in comparison to the West the meaning of motherhood is less centred on activities of care but on maternal economic activity and financial provision (Clarke 2000). Ghana could therefore be classified as a 'collective' country in terms of the culture surrounding the combination of work and family (Spector et al. 2007). The decision not to incorporate these as two complete distinct and separate spheres, as is done in Western frameworks, was supported by the qualitative fieldwork. The majority of mothers discussed the key importance of their work to provide materially for their children. Nonetheless, in contrast to descriptions by Clarke (2000), of Asante traders in the 1970s, there seems to be a changing definition of motherhood in the Ghanaian context with mothers taking on greater responsibility for the activities of mothering, in addition to that of economic provision. This could be connected to changes in the availability of female kin to take on the role of caring intensively for children. Chapter 2 revealed a complexity of change is occurring in women's occupational and maternal roles, as well as in the systems of support available. The literature does not unequivocally show that that the availability of support is in decline as suggested by the writings of Christine Oppong (1999, 2001, 2004), but instead there has been adaption by women. The greater

Conclusion

involvement of children in education (UNESCO 2013) and the intensification of females' roles in economic activity following economic restructuring (Silberschmidt 2003) found by the literature instead suggests women may be required to use a patchwork of childcare arrangements. Such results were revealed by the qualitative fieldwork where women were found to be using numerous family members to provide care, even in cases where children were enrolled into crèches as the main form of childcare whilst women worked. Furthermore, this involvement of family members in care arrangements was based on careful negotiation by women, for example through economic transactions such as supporting individuals in their day-to-day living or assisting with family members' schooling costs. As discussed by Adoberin, the fact that interconnections between family members are becoming more voluntary and based upon reciprocity suggests that there may be the strengthening of family ties.

The next stage of the conceptual frameworks suggests the importance of social category membership in influencing the form of coping strategy adopted by women. Chapter 4 particularly focused on childcare arrangements as a method used by women to combine the work and caring for their young children. The quantitative investigation of childcare arrangements found this outcome to be significantly associated with the child's age, women's educational status, ethnicity, marital status and the number of females aged 12-15 years present in the household. The qualitative interviews provided insights especially into variations by the age of the child. There was a great mistrust of crèches, or the use of alternative caregivers outside the family, for children who were younger than two years. This was linked to women's concerns of the quality of care of these providers, combined with the vulnerability of young children, creating health risks. This is in contrast to findings by Bray and Brandt (2007) of the preference of non-kin as providers of childcare. Nonetheless, the difference in these results is likely to be due to our focus on young children. In the qualitative fieldwork, crèches were seen as the best childcare option for children over the age of two due to the opportunity for social interaction, which was seen to stimulate cognitive development of children.

In addition to influencing the adoption of coping strategies, the conceptual framework hypotheses the role of social categories in determining

the experience of role conflict or role enhancement, and consequently outcomes of role combination. The qualitative fieldwork highlighted the importance of occupational status in the experience of role conflict, especially in the context of women resuming their economic activity for the first time after childbirth. Women in the professional, managerial and clerical occupation expressed greater guilt compared to those engaged in trading in the informal sector. A part of this difference could be linked to the difference in physical distance between mothers when at work and their children. For women in professional, managerial and clerical occupations their commutes to work often were between one and two hours due to issues of traffics, and this combined with their lack of autonomy in leaving work without permission meant returning home in times of childcare emergencies was difficult. In contrast, women working in the informal sector frequently either cared for their child in the workplace, or the alternative care arrangement they used was located close to their workplace. The additional time pressure of commuting to work could add to the demands of professional, managerial and clerical women's occupational role, suggesting that Goode's (1960) theory of overload could explain why this group of women describe greater conflict in their roles. Nonetheless, Burke's (1991) identity theory provides a compelling explanation. For women in the informal sector their work is closely linked to them being able to provide economically for their children, and consequently any conflict experienced between work and caring for children may not threaten their identity as mothers. For women in professional, managerial and clerical occupations work is also a means to provide for children. Nevertheless, it is also seen by women themselves, as perhaps by others, as a source of gratification and personal development. Therefore, where work conflicts with childcare this may threaten women's identity as mothers to a greater extent.

Yet, it should be highlighted that the qualitative fieldwork did not find an absence of role conflict for women in self-employment in the informal sector as indicated by much of the literature. Instead there was continuity with Clarke's (2000) findings among Asante traders, especially with regards to the interference of children with work. Furthermore, role enhancement was only discussed among women of professional, managerial and clerical occupations whereby the combination of work and family was seen as an accomplishment, a benefit labelled as personality enhancement by Sieber (1972). Social support

by work colleagues was also highlighted. Yet, the absence of this discussion by women in Nima and Ga Mashie does not reflect an absence of these positive benefits, and if probing was used similar discussion may have arisen.

In addition to role experience, social category membership was also found to moderate the combination of economic activity and motherhood among women with young children and the outcome of changes in physical and mental health (Chapter 5). In terms of change in mental health, women's educational status and their relation to the household head were important predictors. Relation to household head was also found to be significantly associated with change in physical health among mothers of young children. Interruption to the identity maintenance process (Burke 1991) could also explain the influence of educational status on change in mental health among this group of women. In this research those with no education experienced a less positive change in their mental health between the survey waves compared to those with JSS education. Education has been found to be a determinant of good care practices mong mothers with young children in Accra (Armar-Klemesu et al. 2000). Women's knowledge of care-practices may influence others' perception of them, or their own perception of themselves, as a good mother. The significance of women's relationship to the household head was linked to differences in the status of household members and consequently inequality in the distribution of resources and time (Fafchamps and Quisumbing 2003). It is possible that Goode (1960) theory of overload could explain the less positive change in health of daughters/daughter in-laws and women defined as relations 'other' compared to women who were the wife of the head if the unequal allocation of time means the former group of women have the responsibility for the completion of additional or more time intensive tasks.

The absence of information in the WHSA on childcare arrangements, or other coping strategies, meant we were unable to assess the potential role this could play in mediating the relationship between women's maternal and economic role combination and their health (Chapter 5). Yet, the potential provision of support by male and female adults (16-54 years) in the household was suggested. The positive influence of the number of males in the household on the health of mothers suggests the breaking down of gender roles with regards to childcare could be occurring. Yet, as will be discussed in the

limitations section of this chapter, support by the family is not restricted to only those living in the household. Furthermore, females aged 55 years and over present in the household were not found to be significantly associated with change in health in our quantitative analysis. This was surprising as the qualitative fieldwork identified these individuals as the preferred caregiver for young children. Nonetheless, the qualitative fieldwork also highlighted the complexity and conflict inherent in kin relations with instrumental support seeming to come with strings attached. The majority of women in the qualitative fieldwork reporting their mothers as being the main source of childcare whilst they worked also described themselves as supporting their mothers financially in their day-to-day living. This form of exchange may place additional strain on women, especially those engaged in labour where incomes are low and unpredictable.

This thesis suggests that mothers who are co-resident with their young biological children are resilient in the management of their work and family responsibilities. The qualitative interviews suggest that Grzywacz and Carlson's (2007) definition of role balance is relevant to women to in the Ghanaian context. Women described themselves as being successful in the management of their work and childcare roles, as defined by women as the fulfilment of both responsibilities. This was despite the reporting of this process to be difficult, suggesting to these women balance was not the equal experience of role conflict and role enhancement as defined by Barnett (1998) and Frone (2003). Despite suggestion of overload in women's description of their daily activities (Chapter 4), the quantitative analysis of the WHSA (Chapter 5) indicated that this has no health impacts. There was no difference in the change in physical or mental health of working women who had a child alive at WHSA-II borne in the survey interval compared with working women without young biological children. The non-significant result of this study could again be attributed to Burke's (1991) identity theory. Despite past fertility decline in Ghana, biological motherhood is still seen as women's primary role (Wilkinson and Callister 2010). Through contributing to women's gendered identity, childbearing is an important determinant of wellbeing. Despite the conflict that work may bring to the practicality of providing childcare, economic activity is important to the maintenance of mothers' identity and how others perceive them due to the overlap between the maternal and economic role described

previously. Alternatively, the outcomes measures in health may have not been sensitive enough to detect any differences in the change in health between our two groups of women. Health measures focused more on stress may find difficult results.

Despite the focus on possible role conflict between women's economic and maternal roles in the SSA by the literature (for example Oppong, Ayree and Mokomane), our final analysis showed that this role combination does result in potential benefits, in this example for children's educational progress. Chapter 6 revealed the importance of distinguishing between working women. Youth with mothers in formal employment or with mothers engaged in self-employment with employees were more likely to complete both primary and JSS education and attend SSS education than youth of mothers not working, even when controlling for household wealth and maternal educational. At the JSS and SSS level maternal self-employment without employees was also found to have a positive relationship. These positive outcomes suggests that the combination of work and motherhood can result in role enhancement, where in this example the participation in economic activity resulted in ease in the fulfilment of the maternal role (Sieber 1974). This process is likely to occur through an instrumental pathway with the accumulation of material resources through economic activity, and the use of this by women in their role as mothers to provide for children, being a possible explanation.

7.1 Limitations

7.1.1 Definition of a household

Both the 2010 Ghanaian Population and Housing Census, the WHSA and the 1997 AUFNS adopt the same definition of a household based on co-residence. The common dwelling structure in Ghana, compound housing, does not always consist of individuals from the same core family, and often sub-units exist within these dwellings. Both datasets recognise this arrangement and allow for the identification of multiple households in the same dwelling through the further specification of a household as those who consume from a common-pot or obtain money for street food from a common source (AUFNS) or as having a shared arrangement for food (Census and the WHSA). The focus of these definitions on a single location does not capture the complexity of the

dynamic living arrangements in the Ghanaian context and overlooks the importance of social relations and connections between 'households'. Hanson (2004) argues through employing the term household we "position the domestic arena in a way that detracts from the meaning and power embodied in culture and language" (p26). The AUFNS, the WHSA and Census definition of a household does not take account of relations beyond physical boundaries or recognise that members of the same household involved substantially in economic, social and sexual exchange do not always sleep under the same roof (Hanson 2004). Drawing on the residential arrangements of the Ga, women and men often live in separate compounds even after marriage. Consequently, the domestic boundaries of individuals within a dwelling and of family members between dwellings can be difficult to discern. In our quantitative analyses household demography was used as an indicator of support, especially in our investigations of maternal health, but as discussed above this is unlikely to capture the full extent of family assistance in this context. The qualitative fieldwork did not collect information from participants on the nature and extent of their relationships, and the importance of various individuals in the provision of support. Consequently, theoretically important dimensions of coping strategies were not fully captured by the research.

7.1.2   The narrow focus of women's roles

The focus of this thesis on women's economic and maternal roles is limited in that other potential uses of women's time and other roles that they simultaneously perform are not considered. In her work on the seven roles of women, in addition to parental and occupational roles Oppong (1981) identifies conjugal, domestic, kin, community and individual roles as being possessed by women. Whilst Oppong labels the parental role and the occupational role as being the primary roles in women's lives, her attempt to order the importance of roles fails to recognise their interconnected nature. As this thesis has shown women's kin role is essential in their performances in the role of motherhood with female kin being essential sources of support. In addition to providing access to support, women's kin role has the potential to contribute further to women's time allocation as recognised by Ayree (2005) in his framework of the work-family interface in the SSA context. The individual role is seen to be most relevant to affluent Western countries, whose culture

focuses on individualism and personal development. Nonetheless, activities of leisure, socialising and resting, which can be considered as behaviours of the individual role, are important in women's balance of their roles, including their economic and maternal ones. Adequate rest and recovery is needed to effectively perform roles and maintain wellbeing.

7.1.3   Limitations in modelling the relationships between women's maternal and occupational role combination and outcomes

The conceptual chapter of this thesis outlines a possible framework for studying the associations between women's maternal and occupational role combination and outcomes for maternal and child wellbeing. The framework draws upon the literature on role combination, especially from the West, reflecting upon concepts such as role enhancement, conflict, strain and ease. The adoption of coping strategies are also theorised to be important in moderating the relationship between role combination and outcomes. However, in the quantitative analysis there is an absence of the linking mechanisms between multiple roles and outcomes, or the potential moderation of coping strategies, due to no data being available in the WHSA or the 2010 Ghanaian Population and Housing Census. This undermines the comprehensiveness of our quantitative models.

7.1.4   Deficiency of longitudinal data

As discussed previously, a limitation of our quantitative investigations is the use of cross-sectional data or the absence of variables capturing change in women's circumstances over time. In the analysis of maternal employment and children's educational progress (Chapter 6) the used outcomes of completion of primary and JSS education and the attendance of SSS are indicators of cumulative investment into education. It is likely these outcomes are influenced by circumstances in the past. Work status in the seven days preceding the census is unlikely to be a good proxy for work status over a long period of time. As shown by our descriptive analysis of change in women's work status between Wave I and Wave II of the WHSA (Chapter 5) considerable change is possible even in the duration of five years.

Due to our interest in assessing the effect of a factor that is potentially time-varying it would be better to select an outcome variable that could be related to contemporaneous circumstances, for example whether at the end of the most recent school year the child had pass or failed their grade of schooling, or had dropped out of schooling. However, the census only contains information on whether individuals are currently attending school, the highest grade they have completed and the grade they are currently enrolled in. Although in our analysis of women's health (Chapter 5) two waves of data was used, we only had information on circumstances at the time of the two surveys meaning we did not know the timing of change in statuses or whether multiple changes had occurred in the survey interval. Of particular interest to this question could have been the timing of women's return to work. Whilst women in the sample were working at both waves of the surveys, for women who had given birth in the survey interval it is likely they would have withdrawn from the labour force temporarily after giving birth. The timing of their resumption of economic activity could have important consequences for maternal health that we were unable to investigate.

7.2 Future research

7.2.1 Quantitative investigation of role experience

Chapter 3 presented this study's qualitative investigation of women's daily negotiation of their occupational and childcare responsibilities, with particular focus being given to the subjective experience of role facilitation and role conflict. The interviews with working mothers in Accra found that these concepts, initially developed by Western research, had meaning for women's lives in this context. However, these linking mechanisms, along with role ease and role strain, were absent from our quantitative investigation of women's role combination and women's health. Quantitative research is needed to investigate the salience of these linking mechanisms in the SSA context. For example, we found the combination of childbearing and economic work among women with young children in Accra was not significantly associated with women's health. However, working mothers could differ according to whether they experience conflict or the level of conflict they experience, and this could

be important in determining their health. The deficiency of data on this topic means data collection is required including the construction of appropriate instruments to measure conflict and facilitations for this setting. It is, however, not sufficient to simply transfer questions used to capture and measure these concepts in Western surveys to the Ghanaian context. This is due to important differences in work and family between these contexts that make some questions not relevant and making modifications essential, especially for questions that a clear separation of work and family boundaries. For example, in his measurement of work-family conflict, Hill (2005) include the item 'feel used up at the end of the workday'. This may not be relevant to women in Ghana where often they perform domestic activities around their economic activity, for example the trader who does her laundry in-between serving customers. Instead a more relevant phasing of this question would be 'activities associated with my economic labour leaves me too tired to effectively perform domestic tasks.' Questions on the conflict that family may also cause to work are frequently general, phased as 'family life prevents me from taking on extra work' or 'family life keep me from concentrating on the job'. Questions in the Ghanaian context needs to be more specific, and focused on the possibility of family life providing direct interference to work due to the simultaneous provision of childcare and economic activity on a daily basis. For example, providing care to my children whilst working reduces my productivity in my economic activity.'

7.2.2   The moderators of the work-family interface

Quantitative investigation of the work-family interface should not only focus on antecedents and consequences of role experience but also consider moderators of these relationships. The qualitative research suggested the importance of women's occupational status in determining the use of different coping strategies and women's experience of conflict and enhancement. Another important moderator, which has been studied most extensively in Western research, is gender. This research focused on working mothers only. However, it is also important to include men in research and consider gender differences and similarities in the work-family interface, for example in the type of coping strategies adopted, their experience of type and level of conflict and enhancement, and consequences for outcomes such as their health.

Qualitative research can also explore similarities and differences in women's and men's social construction of the work-family interface in SSA, for example how they define their responsibilities associated with parenthood.

Appendix A: Caring for young children: the experience of working women

Appendix A1: The Accra Urban Food and Nutritional Security Survey

The AUFNS, a representative sample of households with children under the age of three resident, aims to gain a greater understanding of the nature of urban poverty and its links to livelihoods, food insecurity and malnutrition (Maxwell et al 2000). The study was conducted between 29 January and 28 March 1997 by the Noguchi Memorial Institute for Medical Research (NMIMR) and the International Food Policy Research Institute (IFPRI), with funding primarily from the World Health Organisation (WHO). The study area was defined as the AMA, the Tema Metropolitan and the Ga Municipals of the Greater Accra Region.

A two stage sampling strategy was adopted using Enumeration Areas (EAs) as listed by the 1984 census as the primary sampling units (PSUs). The sampling frame, provided by the GSS, was made up of 912 EAs; 734 EAs from the AMA, 137 from the Tema Metropolitan and 41 from the Ga Municipals. 32 EAs were subsequently excluded due to being military or expatriate areas or being the University of Ghana campus. EAs were selected using a probability proportional to their estimated size. A total of sixteen EAs were selected to produce a sample size able to produce estimates of low anthropometric statuses and able to detect statistically significant differences between sub-groups. The selected EAs were Pokoase, Dabsoman, Korle Gonno, Lartebiokorshie, Odorkor, Buvuashie, Jamestown, Osu[16], Adabraka, Teshie, Ladadi, Nima, Accra New Town, Maamobi, Tema New Town, Ashaiman. As it was unknown which households had children under the age of three present, the AUFNS conducted a 'census' of selected EAs to create a sampling framework. Contact was made with local leaders, either sub-metro assembly members or local chiefs, through the Accra Metropolitan Assembly who aided with this mapping exercise. Support was also gained from these individuals in informing communities about the purpose and process of the survey in order to maximise response rates. Whilst it was calculated 36 households were

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[16] The selected EA Osu had to few households and had to be joined with an adjacent EA.

Appendix A

required from each EA, 40 households were randomly sampled in order to allow for a 10% incorrect identification of households with young children present. In total 638 households were selected for interview. Only a very small percentage (1.25%) of households refused. 10.50% of households were mislisted or missed for other reasons. In total 559 households were interviewed collecting information on 2,834 individuals.

Questionnaires of the Accra Urban Food and Nutritional Security Survey

Prior to data-collection, efforts to reduce non-sampling survey errors included extensive interviewer training, questionnaire reviews and pre-testing. Whilst the interviewers could understand and speak several of the local languages, including Akan, Ga, Ewe and Hausa, the majority could not read these making standard translated questionnaires from the original English inappropriate. Instead a two-week language workshop ensured that individuals were able to accurately translate and explain the questions in the various local languages. Questionnaires were tested in Lartebiokorshie and Teshie, migrant and indigenous communities located in the study area. From this process translation, understanding and interview length were reviewed to make adjustments to the questionnaire and to identify further training needs. A final pre-test was conducted in Nima. During fieldwork errors were minimized through questionnaire checking by supervisors and management with any containing incorrect, vague or incomplete information being sent back to the field. Data was doubled entered and compared.

Information on health and care in the AUFNS was collected for one child under the age of three in each household. If more than one child under the age of three was present, the IC was the one whose name was first alphabetically (Ahiadeke et al. 1997). The household survey reveals in 6.26% and 0.89% of households respectively two and three children under the age of three were present respectively.

Appendix A.2: The creation of a wealth index

Information on asset ownership and household characteristics was used to construct wealth quintiles. Table A.8 displays the variables used to calculate the wealth scores. Variables containing information on the ownership of assets were already in the dataset as dichotomous variables. However, household characteristics and services variables were categorizations were broken down into sets of binary variables. In some circumstances categorizations were collapsed to create larger groupings. For example, the responses to 'where do you normally defecate' were collapsed from six categories to three reflecting the use of a private toilet, public toilets or open space/other spaces. One continuous variable was incorporated into the wealth index; the average number of persons per room that was created using information on the number of people listed in the household roster and the number of occupied rooms in the household.

Principle component analysis (PCA) was used to derive weights. Factor loadings were taken from the first principle component (PC), which captures the largest amount of common variance between indicators. This component assigns larger weights to indicators that are more unequally distributed in the dataset (McKenzie 2003), whilst smaller weights are assigned to common indicators. Prior to the weighting of indictors, these binary variables were standardised using information on their means and standard deviations. To calculate the wealth index these z-scores were multiplied by their corresponding factor loading and all products summed. This process is summarised by:

$$y_i = \alpha_1 \left(\frac{x_1 - \bar{x}_1}{s_1}\right) + \alpha_2 \left(\frac{x_2 - \bar{x}_2}{s_2}\right) + \ldots \alpha_k \left(\frac{x_k - \bar{x}_k}{s_k}\right)$$

Where $\bar{x}_k$ is the mean, s_k the standard deviation and α_k the weight of an asset/characteristic for the first PC. Cut off points were defined in order to create equal quintiles.

Appendix A

Table A.1: Means, standard deviations and factor loadings used of items used to create the household wealth index for the analysis of the socio-economic and demographic associations with child arrangements of used by biological mothers to care for their child (aged less than 36 months)

Variable	Mean	SD	Factor Loading
Car	0.070	0.255	.092
Fridge	0.357	0.480	.144
Gas stove	0.197	0.398	.130
Kerosene stove	0.235	0.424	.051
Television	0.501	0.500	.139
Tape deck	0.576	0.495	.117
Radio	0.487	0.500	.101
Person per room	3.504	1.987	-.065
Earth based walls	0.197	0.398	-.101
Stone/brick walls	0.716	0.451	.119
Landcrete walls	0.087	0.281	-.048
Tin roof	0.514	0.500	-.084
Slate roof	0.483	0.500	.086
Grass roof	0.004	0.061	-.013
Tiled floor	0.039	0.193	.085
Cement floor	0.908	0.290	-.019
Natural floor	0.054	0.225	-.049
Private toilet	0.379	0.486	.125
Public toilet	0.534	0.599	-.089
Open/other	0.087	0.281	-.059
Piped water (inside)	0.070	0.255	.109
Piped water (outside)	0.379	0.486	.058
Other water	0.551	0.498	-.113
Household collection (rubbish)	0.110	0.314	.079
Public bin (rubbish)	0.665	0.472	-.019
Comp/field (rubbish)	0.199	0.400	-.036
Other	0.026	0.159	-.011

Author's own analysis of the Accra Urban Food and Nutrition Survey (1997)

Appendix A.3: Semi-Structured Interview Guides for Mother Co-Resident With A Biological Child (Less than 36 Months) in Nima, Legon or Ga Mashie

Individual Interview Guide

Thank you for agreeing to talk to me today. Your time and effort is very much appreciated.

Diary

Could you describe to me a typical day for you starting with the time you wake up in the morning until the time you go to bed? Could you give describe the activities you do, for example what they involve and an estimate of how long each activity takes.

I am interested in specifically if and how the birth of an infant changes patterns of work. By patterns of work I mean whether it causes the withdrawal from work, even if temporary, a change in working hours (the number of time of day), the specific work location, or a change in the type of work performed.

Personal work patterns

Where mothers are currently working:

1. How long after the birth of NAME did you return to work?

2. Did you wish to return to work at this point? Could you explain your answer?

3. When returning to work, was this to the same job as you performed previous to the birth of NAME?
   a. If no, what was your previous occupation?
   b. What led you to change the type of work you are involved in?

4. Could you describe how your work fits in with your childcare responsibilities (*for example, hours flexible, can take child to work)*?
   a. Have you changed your working patterns to fit in with your child care responsibilities?
   b. Have and will changes to your working patterns vary according to the age of NAME? If yes, how has your working pattern changed and will be changed in the future with changes in the age NAME?

Where the mother is not working:

1. Could you describe the factors which influenced your decision not to return to work after the birth of NAME?

2. Is it your preference not to be working currently? Explain your answer?

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3. Would it be possible to fit the job you performed before the birth of NAME with caring for an infant? Explain your answer?

4. Do you plan on returning to work in the future?

If Yes

    a. At what point in the future?

    b. Can you explain why you think you will/ have chosen to return to work at this point? Is this related to the age of NAME?

Household Labour

1. Cleaning the household can involve numerous tasks such as cooking, shopping, sweeping floors and washing clothing and cooking utensils. Could you list the activities that you perform regularly (that is on a daily or weekly basis)?

2. Do you receive any support in the household labour, who from?

    a. If this is from members from outside the household, for what reasons does this happen?

    b. Are such exchanges reciprocal?

3. How many hours on average do you spend per week on your household chores?

Childcare arrangements

Would it be possible to ask about your childcare arrangements of your youngest child?

1. Check and confirm the respondent's current childcare arrangement from their participant fact sheet

2. Could you describe why you choose this particular child care arrangement?

3. Has this always been the arrangement in which your child was cared for?

    a. If no, how did the childcare arrangement differ by the age of NAME?

    b. What were the reasons for the change in the child care arrangements adopted?

4. *Where the child has not been cared for by the mother, if not specified earlier* who is the individual providing the childcare?

    a. Is this individual paid for the child care they provide in cash, kind or time?

    b. Do you feel this current childcare arrangement meets you needs? Can you explain your answer?

    c. Could you describe the quality of the care you think is provided by these alternative care-givers?

5. I would like to ask you about your child feeding practices; is NAME currently being breastfed?

    a. If *yes,* for how long were they exclusively breastfed?
    b. How frequently do you breastfeed? Is this on demand/at a routine time?
    c. In addition to breastfeeding, do NAME given any other foods? At what age was complementary food introduced?
    d. How frequently is NAME fed (no of meals and snacks)?
    e. Who normally prepared NAME's food and feeds NAME? (If not the mother, why this person?)

    a. If *no,* was NAME ever breastfeed? How long for? (Including time exclusively breastfed?)
    b. For what reasons did you stop breastfeeding at this age?
    c. How frequently is NAME fed? What foods?
    d. Who normally feeds NAME? (if not the mother, why this person).

Perceived implications of childcare and work arrangements for infants and mothers

1. Could you describe any difficulties you experience in managing your multiple roles and responsibilities? By multiple roles and responsibilities I mean your roles as a worker (*if working*), a mother and as a member of your household.(*For example, if not mentioned: do you feel there is enough time to manage and perform all your responsibilities?*)

2. Could you describe any help you experience in managing your multiple roles and responsibilities? (*For example, support from friends*)

3. What effects, whether positive or negative, do you think your multiple family and work responsibilities and commitments have on your own wellbeing and health?
    a. Could you describe the effect, if any, you feel this has on for the care of your youngest child?

4. What positive or negative outcomes does the performance of your different tasks have for your children?(*For example income from work may be spent on the children, mother may be worried about caring for the child in the work environment or the quality of care the infant receives from their alternative care giver*).

5. What happens if these arrangements you made fail, what do you do then?

Appendix A

Focus Group Guide Among Mothers Co-Resident With At Least One Biological Child (Less than 6 Months) in Ga Mashie and Nima

Thank you for agreeing to talk to me today. Your time and effort is very much appreciated.

Women's work in the community

First of all I would like to talk to you about the types of work women are involved in the community. When I talk about work I mean activities that women are involved in for pay, profit or family gain. Women may be in official employment where they receive set pay for the hours of work they do, women may have their own business for example fixing clothes or hairdressing, women may sell items such as food, produce goods that they can exchange with others or they may work on a family farm or business.

1. What are the main forms of work that women in the community are involved in? What activities do these types of work involve? (If relevant what goods and services are involved?)

2. If trading is a main activity described-questions related to this occupation
   a. How do women decide what to sell? Do they always sell the same goods?
   b. Where and how do women obtain the products they sell? (time taken to obtain products & how often)
   c. How long do women spend trading each day?

3. Do women mainly work for themselves or do they work for other individuals (if the latter who)?

4. Is it common for when women are working for them to receive assistance from other working women, family members or friends? For example, help with caring for children in the workplace, minding each other stalls or assistance in product preparation or selling?

5. Where do women tend to spend their time working? By this I mean do they perform their livelihood in their homes, in factories, at a market, in a container or along a roadside for example? Perhaps women's livelihoods require them to work in more than one place?

6. Could you describe these workplaces (presence of customers, other working women, environment (hygiene, noise) etc)?

7. Do women normally work in the communities where they live? If women mainly work away from the community, how far away do women typically work and how do they travel to these places?

8. Could you describe the factors that influence the choice of location of work?

9. In addition to having their primary occupation, do women often perform additional work? For example, their main job may be trading but they may also be a hairdresser or they may also assist a family member in selling or in their business?

10. How many hours per day do women typically work? Do women tend to work these hours regularly each day?

In addition to finding out how women make a living in the community, I am interested in understanding the effect that having a child has on the work that women perform.

11. After a birth of a child how long do women in this community usually take off work?
    a. Why is this length of time taken off/women do not return to working until the infant is this age?

12. Are there other factors important in determining when a woman returns to work? Could you explain these?

13. Women when returning to work may change the work that they perform or change the hours (times and number of hours) that they work in order to fit in with their new child care responsibilities. Could you describe any changes that women make to their working patterns when they have young infants in this community?
    a. Do these changes vary according to the age of their infant? (<6mths, 6-17mths, 18-36mths)

14. How do women combine their working responsibilities with the requirements of care of older children (school aged children)?

Women's Household labour

I would also like to gain a greater understanding of the typical household tasks that women in the community commonly perform and the help they receive with these tasks. Household tasks may include activities such as collecting water and firewood, cooking, cleaning the household, washing clothes and pots and shopping for household items including food.

I am interested in the general attitudes that people have towards housework:

Appendix A

    a. Is the performance of household tasks such as washing clothes, cleaning the household and cooking seen as a form of work? Why?

    b. Is the performance of these tasks seen as primarily a women's responsibility or do men and women have an equal responsibility for household chores?

    c. Generally within households how are household tasks divided among household members? Who performs which tasks?

Now thinking about specific household activities:

1. What is the main water supply for households in the community?

2. Does this source of water provide a regular supply of water or is water only available at certain times of the day?

If not indoor plumbing

3. In total how long does it normally take households to collect their water (including travelling time to the water source, waiting time, and time to fill water into containers)? How often does this need to be done?

4. Who in the household normally collects the water?

5. Now thinking about the consumption of food, do members of households in the community normally eat meals together (focus especially on the evening meal)?

    a. Where is the food for meals commonly bought from? (Time taken to travel and buy goods/how often)? Who normally goes shopping for food for family meals?

    b. How long does the preparation of meals take on average? What tasks are involved in this? Who normally performs these tasks?

    c. If not mentioned; what fuel is used for cooking? Where is fuel normally obtained from and who normally performs this task?

    d. Is it common for individuals to eat street foods for their meals? What reasons are there for this?

6. Cleaning the household can involve numerous tasks such as sweeping floors and washing clothing and cooking utensils. Could you list the activities that households perform regularly (that is on a daily or weekly basis)? What does each of these tasks involve and who performs the tasks?

    a. Is it common for individuals to assist with tasks for households that they do not live in?

    b. For what reasons does this happen?

    c. Are such exchanges reciprocal?

    d. How often does this occur-how long do individuals spend assisting other households with such activities?

7. As an estimate, on average how long do women spend on household chores (including caring for children, the elderly and sick) daily in this community?

   a. Do women who work perform as much housework as those not working? Do they receive more assistance in carrying out household tasks?

Childcare Arrangements

A household activity I am particularly interested in is the care of young infants (under the age of three). I am interested in finding out that where women worked previous to giving birth, after the birth who it is who is providing care for the infant and whether childcare arrangements vary by the age of the infant.

1. There is a number of different childcare arrangements that may exist to a working mother; could you tell me if these child care methods occur in your community:
   - Working mothers stop working to care for their infant
   - Women care for their infant whilst working in their place of work
   - Young children attend child care day-centres
   - Infants are cared for by paid carers employed by the family
   - Infants are cared for by neighbours/family members/friends

2. Do any other child care arrangements exist in the community that I have not mentioned? What are these?

3. Which is the main childcare arrangement adopted by women in this community? Why?

4. Generally does the age of the infant affect the decision of who and where the infant should be cared for?

5. Where neighbours and family members are used as sources of child care is this based on any of the following exchanges:

   - Payment in cash
   - Payment in kind
   - The exchange of services/time between households or family members? If this latter 'payment' occurs could you describe this system of support? For example, what reciprocal activities do households perform for others in exchange for child care support?

6. To what extent do you feel the existing sources of childcare for young infants in the community meets the needs of mothers here?

Appendix A

Social Support

We have discussed previously the support that people in the community give to each other in the form of performing tasks (such as child care, help with household chores or assistance in the workplace). I would like to focus on this topic in greater detail now; especially the availability and the extent of this support in the community.

1. In the community where physical support (as described above) is provided who normally provides this support:
   - Family members living within same compound
   - Family members living in separate residences
   - Neighbours
   - Friends outside the community
   - Others not mentioned: please describe

2. Could you describe the organisation of this support? By organisation I mean how do individuals reach an agreement on what activities should be performed for each other, is it an obligation, reciprocal and are the activities performed regularly?

3. Is such support available to the majority of women in the community?
   a. Where support is not available, for what reasons is this due to?
   b. What are the consequences of the lack of support to these women and their families, if there are any?

4. Do you feel that the extent of social support available to women in the community is more than, less than or equal to the social support available in the past? Could you explain your answer?

5. Do you feel that the structures and the organisation of social support available to women in the community have changed over time? *(For example, different individuals providing support? Support no longer being obligations so more uncertain?)*

Leisure time

1. After the performance of the activities discussed previously at work and in the house, how much time on average do women have for their own personal leisure daily? Leisure can include activities such as talking to friends, reading or spending time on a hobby.
2. What sort of activities do women do in their own leisure time?

Is it ok if we now discuss more specifically the work that you normally perform (that is both your livelihood and household chores) and also how you combine this with your role of being a mother to a young infant?

Appendix A

Appendix A.4: Ethical Review

As submitted to the Faculty of Human and Social Sciences Ethnics Sub-Committee, University of Southampton

SSEGM ETHICS SUB-COMMITTEE APPLICATION FORM

Please note:

- *You must not begin your study until ethical approval has been obtained.*
- *You must complete a risk assessment form prior to commencing your study.*
- *It is your responsibility to follow the University of Southampton's Ethics Policy and any relevant academic or professional guidelines in the conduct of your study. This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.*
- *It is also your responsibility to provide <u>full and accurate information</u> in completing this form.*

1. **Name(s):**   Philippa Waterhouse

2. **Current Position**   PhD Research Student

3. **Contact Details:**

Division/School   Social Statistics

Email   pjw2v07@soton.ac.uk

Phone   07527622944

4. **Is the proposed study being conducted as part of an education qualification (e.g., PhD)**

     Yes   ☒   **No**   ☐

5. **If Yes, state name of supervisor**

      Andrew Hinde and Allan Hill

6. **Title of Project:**

      An investigation of childcare and work strategies of informal workers in Accra, Ghana

7. **What are the proposed start and end dates of the study?**

      12th April-4th May 2012

8. **Describe the rationale, study aims and the relevant research questions**

Rationale

   Due to the increasing need of women to contribute to the household economy in Ghana, women often occupy the mutliple roles of both mother and worker. The link between women's work and child health outcomes is complex with both negative and positive impacts expected according to factors such as conditions of employment and childcare strategies adopted by the household. Yet, despite the hypothesised importance of childcare for working mothers little information exists on how children are cared for whilst their mothers work and whether these options resolve time conflicts of mothers and meet the needs of children.

Results from the Accra Urban Food and Nutrition Security Survey showed that the majority of working women (57%) care for their children at their place of work. An important question that arises is whether this due to preference of the mother or the result of a lack of social support.

Transformations in the family have resulted in shifts from extended family structure to nuclear and single female headed units. Such shifts changes are likely to have disrupted traditional patterns of child care (familial care) resulting in perhaps greater pressures for mothers and the emergence new child care practices. Yet, the AUFNU concluded that working mothers in Accra, whilst a vulnerable group, seem to be able to adapt their working patterns to ensure the well-being of their children.

Study Aims

The goal of this research is to recognise both the productive and reproductive roles of working mothers with young infants. Therefore, it aims to explore women's work patterns and activities in addition to those performed in the home to construct a complete picture of maternal time burden and role conflict. In particular this research will focus on the mediating variable of childcare arrangements seeking to reveal the availability of social support, maternal satification with childcare stratigies and the perceived implications strategies have on meeting the needs of mothers and infants.

Research Questions

1) What are the childcare and work strategies adopted by women in Accra to manage role conflicts and demands?

2) What factors influence the choice of these strategies? For example the availability/absence of care support, the age of the infant, the conditions of employment, household income

3) What are the perceived impacts (whether negative or positive) of these strategies for the mother, the alternative care-giver (where it is not the mother) and the infant?

9.   Describe the design of the study

A mixture of qualitative methods is planned on being used to answer the research questions. These are unstructured interviews and walking interviews/observations although in situations these methods may become blurred. For instance an individual for convenience may be interviewed at their workplace whilst they are working. The in-depth interviews are expected to last between 30 and 60 minutes and will cover the topics of work, child care arrangements and support for household tasks. Consent for walking interviews will be obtained at the end of the in-depth interviews from mothers who care for children whilst working. A convenient time will be arranged at this point to conduct the walking interview. The aim of this section of research is to allow women to show the research time the aspect of their work environment which eases or challenges the combination of their multiple roles.

10.   Who are the participants?

Women living in selected low income neighbourhoods in Accra, Ghana with a infant under the age of three years. Individuals will be selected according to the age of their infant (<6mths, 6-18mths, 18-36mths) and their work and care strategy (not working, working whilst caring for their child, working and using an alternative carer). All working women will be those involved in the informal labour market. All participants selected will be over the age of 18 years.

11.   If you are using secondary data, from where are you obtaining it?

This study is a part of a larger PhD project that aims to investigate the relationships between maternal work/home balance, maternal health and child health outcomes in Ghana. This question is also being

investigated using quantitative analysis using datasets such as the Women's Health Survey for Accra and the Urban Food and Nutrition Security Survey. Further research may go beyond the Accra region where datasets such as the Ghana Demographic and Health Survey, World Health Survey for Ghana and The Ghana Living Standard Surveys could be employed. These surveys have been obtained from the organisations that collected the data along with their permission to utilise the data to answer my research questions.

12.   If you are collecting primary data, how will the participants be identified, approached and

recruited to the study?

(please attach a copy of the information sheet if you are using one)

The recruitment of participants will be through field facilitators who have links within the communities being studied. The information sheet that will be given to participants explaining the aims and process of the research, therefore which will inform their decision to participant in the study, is attached.

13.   Will participants be taking part in the study without their knowledge and consent at the

time (e.g. covert observation of people)? If yes, please explain why this is necessary.

No

14.   If no to 13., how will you obtain the consent of participants?

(Please attach a copy of the consent form if you are using one)

Written or oral consent will be sought from all participants before the conduction of the interviews. As the consent form attached shows participants will be informed about voluntary participation, the right to withdraw, the use of digital equipment to record the focus groups and the safe storage of the research data. Where participants are not literature in English a translator will be used to verbally inform the participant of the key aspects of the research and their rights. All participants will also be given the opportunity to ask questions relating to the research before it commences.

15.   Is there any reason to believe participants may not be able to give full informed consent?

If yes, what steps do you propose to take to safeguard their interests?

No

16.   If participants are under the responsibility or care of others (such as parents/carers, teachers or medical staff) what plans do you have to obtain permission to approach the participants to take part in the study?

N/A

17.   Describe what participation in the study will involve for study participants. Please attach copies of any questionnaires and/or interview schedules to be used

Respondents will be required to participant in an interview (schedule attached). The in-depth interviews are expected to take between 30 and 60 minutes and will cover the topics of work, child care arrangements and social support for household tasks. Where mothers care for their children whilst working consent for a walking interview will be requested and an convenient time for this to be conducted arranged . For those consenting to this section of the research participants will be asked to show the research the environment in which they work and care for their child (schedule attached). It is expected that these walking interviews will around 30 minutes.

18. How will it be made clear to participants that they may withdraw consent to participate at any time without penalty?

It will be highlighted in both the information sheet and consent form that participants have the right to withdraw from the study without any rights being affected (sheets attached). This will also be highlighted verbally by the researcher/translator.

19. Detail any possible distress, discomfort, inconvenience or other adverse effects the participants may experience, including after the study, and how this will be dealt with.

The participant will have to take time out of their daily routines to take part in the study. Due to this interviews will not be expected to last longer than an hour. Exact length will vary depending on the responses provided by the respondent. Refreshments will also be given to the participant to thank them for their time.

 The topics that may arise in the interviews could be a source of distress for women. For example, women may have childcare and work strategies they are unhappy with and perceive to have negative consequences for themselves or their children. Therefore feelings of powerlessness or frustrations may arise. Poverty may be a topic that also arises in the discussion which can also be a source of distress due to the influence it can have on multiple outcomes and decisions including whether and when mothers should work. Such topics if arise should be handled in a sensitive manner.

Focus groups were initially considered for this research as the experience of a larger of individuals could be investigated and a diversity of views of various child care strategies uncovered. Focus groups may have been useful for creating a discussion of reasons for various strategies and implication with women able to confirm, expand and also critique each other points. However, focus groups are likely to be more disruptive to participants as it would involve travel to a suitable location. Individual interviews can be conducted within respondents home or at their workplaces and at a time convenient for them. Additionally, with focus groups there is a problem with confidentiality and anonymity in that individuals are discussing their views with others. Where potentially sensitive topics are being discussed such as role conflict/stress, social support for childcare from family/community members and implications of this for infants, respondents may be less willing to discuss this in front of others from their own communities.

20. How will participant anonymity and confidentiality be maintained?

There is the issue privacy in the context of settlements when conducting interviews. Interviews should be conducted away from busy public areas and other individuals. This research will not collect any information such as addresses or contact details as participants are not required to be followed up. Names will not be used in any documents which will be produced as a result of the result. Instead general information will be used that will not make respondents identifiable such as '*Street-food vendor, infant aged 2 years'*.

21.   How will data be stored securely during and after the study?

The information collected during this research project will be stored on a password protected computer and only used for the purpose of the study as stated in the participant information sheet. Any paper, such as consent forms, will be kept in locked shortage.

22.   Describe any plans you have for feeding back the findings of the study to participants

Contact details will be given to participants for those who want to receive the results of the study,(see information sheet)

23.   What are the main ethical issues raised by your research and how do you intend to manage these?

A particular ethic concern is unique to respondents taking part in walking interviews/participant observation of their activities in their workplace. This is the issue of negotiating the response of the research participant if they were to meet an acquaintance during this walk. The issue of confidentiality during the walking interview could be addressed by asking the acquaintances to not have private discussion due to the presence of a digital Dictaphone that would be recording the conversation. People who are met on walks should also be explained the aims of the study and that recording is in progress.

The topics that may arise during the interviews may be sensitive. For example, women may be required to return to work when they are unhappy about this circumstance due to poverty, women may be unhappy about their current childcare or work strategies and the outcomes such as poor health they could have for themselves or their children. Therefore, such topics have to be handled in a sensitive manner and the research observant to the respondent's body language to any signs of distress.

24.   Please outline any other information you feel may be relevant to this   submission.

Having previously conducted qualitative research in the urban environment in Accra I have been able to anticipate some of the likely ethical problems that could arise and appropriate strategies to overcome these issues.

Appendix A.5: Risk Assessment

As submitted to the Faculty of Human and Social Sciences, University of Southampton

Researcher's name: | Philippa Waterhouse

Part 1 – Dissertation/project activities
What do you intend to do?   (Please provide a brief description of your project and details of your proposed methods.) I intend on using in-depth interviews and walking interviews to explore women's work patterns and activities in addition to those performed in the home to construct a complete picture of maternal time use and role balance/conflict. In particular I will focus on the mediating variable of childcare arrangements seeking to reveal the availability of social support, maternal satification with childcare strategies and the perceived implications strategies have on meeting the needs of mothers and infants.
Will this involve collection of information from other people?   (In the case of projects involving fieldwork, please provide a description of your proposed sample/case study site.) Yes, information will be collected from mothers with infants under the age of three. All participants selected will be over the age of 18 years. Individuals will be selected according to the age of their infant (<6mths, 6-17mths, 18-36mths) and their work and care strategy (not working, working whilst caring for their child, working and using an alternative carer), All working mothers will be those involved in the informal labour market. The participants will be residents of selected low-income neighbourhoods in Accra, Ghana.
If relevant, what location/s is/are involved? Interviews are likely to be conducted in participants' homes for convenience and minimise disruption to them. Some interviews and walking interviews will be conducted in the work place of mothers which are likely to include market places.
Will you be working alone or with others? This research will be facilitated by the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana. The research team will compromise of at least two people at all times (researcher and translator) to ensure safety.
Part 2 – Potential safety issues / risk assessment.
Potential safety issues arising from proposed activity? Risk of traffic accident whilst travelling to research sites Risk of attack whilst travelling including theft Risk of illnesses including that caused by food
Person/s likely to be affected? I and the interviewees

Appendix A

Likelihood of risk?
Low risk of traffic accident, illness and attack

Part 3 – Precautions / risk reduction

Existing precautions:
Interviews and work on the research sites will be conducted in pairs (for example researcher and translator) and will only be conducted in daylight. If travelling along is required information on where I am travelling to and expected return times will be given. In order to minimise the risk of illnesses, vaccinations have been given and malaria tablets obtained. Attention will be paid to hygiene especially in relation to food and bottle water will be bought. Valuables and large sums of money will not be carried and vigilance will be practiced in public areas; especially around ATMs if these need to be used. Use of credit card will be avoided due to high incidence of credit fraud, At the airport will be vigilant and wary of unsolicited assistance unless from uniformed porters. Will register with the British High Commission (LOCATE) service Contact details for Ghana will be given to supervisors and family members. Plans to contact family members at certain times will be made.

Proposed risk reduction strategies if existing precautions are not adequate:

Appendix A.6: Participant Information Sheet

Participant Information Sheet: in-depth interviews

Study Title: An investigation of childcare and work strategies of informal workers in Accra, Ghana

Researcher: Philippa Waterhouse   **Ethics number**: 1662

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

I want to thank you for taking the time to talk with me today. My name is Philippa Waterhouse. I am a postgraduate student from the University of Southampton, United Kingdom. I am currently conducting a study for my PhD programme which is interested in the different work and child care arrangements of mothers with young infants in Accra, Ghana and whether these strategies are perceived to meet the needs of mothers and infants. I would like to find out this information through talking to mothers. During the interview you will be ask questions on your work, childcare arrangements, support for household tasks.

If you do wish to take part in this study, your interview will last between 30 and 60 minutes. The interview will be recorded using a digital Dictaphone. Before you start the interview you will be ask to sign a consent form or I will record your voice to confirm you agree to take part in the study. The interview can be conducted in the English language or the language that you prefer to conduct the interview in. Where the interview is conducted in a local language a translator will be present to interpret everything that is spoken. This is because I am not familiar with the different local languages spoken in Ghana.
.
It is not felt there are any risks with participation in this study. Your participation in the study is voluntary. If at any point in the study distress or discomfort is experienced please remember you are free to decide to not answer individual questions or to stop participating in the study. If you chose to withdraw from the study, all response you have previously given will be deleted. Your decision to withdraw will not be viewed negatively or affect any service(s) or benefits you would normally receive.

All responses given in the interview will be kept confidential. Subsequent reports will not identify individuals but instead general information will be used such as:
- *Trader, infant aged 6-17mths, alternative care-giver used*

All the information that you share during the study will be kept securely in a password protected computer or locked filing cabinets.

The information that you provide will help achieve a greater awareness of the circumstances of mothers of young infants in urban areas including challenges that they face. This research may stimulate future research and interest in this topic area.

In the unlikely case of concern or complaint, these can be directed to the Chair of the Faculty of Social and Human Sciences Ethics Committee at the University of Southampton, Roger Ingham. Roger Ingham can be contacted through Sarah Boak or Martina Johnson by phone (02380 598101) or email (s.l.boak@soton.ac.uk) .

After the interview, if you have any concerns or further questions regarding the study please contact me, Miss Philippa Waterhouse on pjw2v07@soton.ac.uk

Thank you for your interest in this research

Appendix A

Participant Information Sheet: focus groups

Study Title: An investigation of childcare and work strategies of mothers in Accra, Ghana

Researcher: Philippa Waterhouse   **Ethics number**: 1662

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

I want to thank you for taking the time to talk with me today. My name is Philippa Waterhouse. I am a postgraduate student from the University of Southampton, United Kingdom. I am currently conducting a study for my PhD programme which is interested in the different work and child care arrangements of mothers with young infants in Accra, Ghana and whether these strategies are perceived to meet the needs of mothers and infants. I would like to find out this information through talking to mothers. During this focus group discussion I would like to talk to you all as a group about the type of work women in this community do, their household duty, typical childcare arrangements and the availability of social support.

If you do wish to take part in this study, it is expected the focus group discussion will last between an hour and an hour and a half. The focus group be recorded using a digital Dictaphone. Before the focus group starts you will be ask to sign a consent form or I will record your voice to confirm you agree to take part in the study. The focus group will either be conducted in the English language or the local language depending on the preference of the group.

As this is a group discussion your responses will be known by other members of the group. All respondents are requested to keep the focus group discussion confidential. Subsequent reports will not identify individuals but instead general information will be used such as:
- *Focus group discussion respondent, Ga Mashie*

All the information that you share during the study will be kept securely in a password protected computer or locked filing cabinets

It is not felt there are any risks with participation in this study. Your participation in the study is voluntary. If at any point in the study distress or discomfort is experienced please remember you are free to decide to not answer individual questions or to stop participating in the study. If you chose to withdraw from the study, all response you have previously given will be deleted. Your decision to withdraw will not be viewed negatively or affect any service(s) or benefits you would normally receive.

The information that you provide will help achieve a greater awareness of the circumstances of mothers of young infants in urban areas including challenges that they face. This research may stimulate future research and interest in this topic area.

In the unlikely case of concern or complaint, these can be directed to the Chair of the Faculty of Social and Human Sciences Ethics Committee at the University of Southampton, Roger Ingham. Roger Ingham can be contacted through Sarah Boak or Martina Johnson by phone (02380 598101) or email (s.l.boak@soton.ac.uk) .

After the interview, if you have any concerns or further questions regarding the study please contact me, Miss Philippa Waterhouse on pjw2v07@soton.ac.uk

Thank you for your interest in this research

Appendix A.7: Consent Forms for the Semi-Structured Interviews and Focus Group Discussions

CONSENT FORM (*Version No 2: Date 03/04/2012*)

Study title: An investigation of childcare and work strategies of mothers in Accra, Ghana

Researcher name: Philippa Waterhouse

Ethics reference: 1662

Please initial the box(es) if you agree with the statement(s):

I confirm that the research project has been explained to me via the information sheet (Date 11/03/2012/version 1 of participant information sheet) and I have had the opportunity to ask

I agree to take part in this research project and agree for my data to be used for the purpose of this study

I agree for my responses to be recorded on a digital Dictaphone

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)...

Signature of participant..

Date...

Appendix A

Name of interviewer/translator (print name)...

Signature of interviewer/translator..

Date...

Appendix A.10: Participant Factsheet for the Semi-Structured Interviews

INDIVIDUAL CHARACTERISTICS

Participant No:_____

Age:_____

Level of Education (*please tick):*

None ☐   Primary ☐   Junior Secondary ☐   Senior Secondary ☐   Vocational ☐   Higher ☐

Marital Status (*please tick):* Never Married ☐   Married (only wife) ☐   Married (polygamous) ☐

Separated/divorced ☐   Widowed ☐

Living Arrangements: Living alone ☐ Spouse/Partner ☐ Parent(s) ☐ Brother(s)/Sister(s) ☐

(the infant who is of interest of the research should be living with the mother)

Are you currently working: Yes ☐   No ☐

IF YES:

Main occupation:_____

Alternative occupation(s):_____

Place of work (*eg home, market)*:_____

Daily hours spent at work:_____

Average number of days worked a week:_____

Earnings from work per day/week:_____

CHILDCARE CHARACTERISTICS

Age of youngest infant *(please tick):* <6mths ☐   6-17mths ☐   18-36mth ☐

Sex *(please tick)*: Female ☐   Male ☐

What is your current childcare arrangement:

Care for child at work ☐   Care for child (non-working) ☐   Alternative care-giver ☐

Specify alternative caregiver (*grandmother, neighbour, crèche):*_____

Age:_____   Sex: Female ☐   Male: ☐

Appendix B: Childbearing and economic work: the health balance of women

Appendix B.1: Sampling and questionnaires of the WHSA

Wave I

The WHSA-I was motivated by the deficiency of health and morbidity information and data available in the urban SSA setting. Differences in factors such as living conditions, gender roles, work patterns, behaviour and lifestyle between rural and urban areas can result in health risks and outcomes unique to the urban environment (Hill et al. 2007). The primary aim of the WHSA-I was to investigate the prevalence of morbidity beyond the traditional focus on reproductive health issues and to identify risk factors to inform intervention. This was achieved through the use of medical histories, household surveys and clinical examinations, which included the screening for heart disease, obesity, cervical and breast cancer, hypercholestolemia, diabetes and HIV.

The study area was defined as the AMA. A two stage sampling strategy was adopted with the 1731 occupied EAs as listed by the 2000 Ghanaian Housing and Population Census used as PSUs. To increase the efficiency of the sample, EAs were stratified by their socio-economic status (SES) defined using information on education and household facilities (Duda et al. 2007). A total of 200 EAs were selected with a probability proportional to population size. Before women could be selected for the study, all eligible women (those 18 years or older usually resident in the AMA) were listed resulting in a sampling frame of 60,000 women. Women were selected with probabilities fixed according to the SES of their resident EA and their age (Table 5.1).

Table B.1A: The socio-economic status of residential areas and age of women present in the WHSA-I

	Age Group (years)			
SES of EA	18-24	25-34	35-54	55+
Low Class	259	299	219	199
Low-Middle Class	207	169	203	164
Upper-Middle Class	189	182	187	184
Upper Class	189	167	176	179

Source: The WHSA-II Writing Team (2011)

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Where sampled women could not be located after three attempts (681) they were replaced by women with similar characteristics (Duda et al. 2007). Problems finding women arose from the nature of female work in Accra meaning that women are away from the household for long periods of time. The WHSA-I attempted to combat this by conducting fieldwork before dawn or late in the evening. A further problem was the absence of clear addresses, where street names did not exist the location of households were defined by maps.

The WHSA-I questionnaire was based on the DHS (maternity and marriage histories), the National Health and Nutrition Examination Survey and WHO STEPS survey (risk factors and disease) meaning all questions incorporated in the survey had been previously tested and validated, although not necessarily in the Ghanaian context. The final questionnaire consisted of 17 sections; general health, self-care, pain and discomfort, hearing, breathing, energy and sleep, sexual behaviour, breastfeeding, family planning, cognition, community interaction, vision, physical activity, food security and reproductive health and sexually transmitted infections. The interviews were conducted by female nurses or nursing students and lasted between 1.5hours and 2.5hours. In addition to the household survey, comprehensive medical and laboratory examinations were conducted with 1,321 women at the gynaecology outpatient clinic at the Korle Bu Teaching hospital (Duda et al. 2007).

Wave II

The WHSA-II was designed to build upon information obtained during the WHSA-I with a particular focus being placed on expanding knowledge on the relationship between wealth and health at the household level (Darko et al. 2012). Fieldwork was conducted between September 2008 and June 2009. Prior to the commencement of interviewing, the field team[17] underwent intensive training including the practice and assessment of interview skills. At the end of this process the study area was split into four sites and divided among the 12 interviewers and 4 supervisors (The WHSA-II Writing Team 2012). Interviewing was interrupted due to difficulties relocating women interviewed in the WHSA-I and eight finders were hired. Trouble contacting

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[17] The field team originally consisted of 1 co-ordinator, 4 supervisors and 20 interviewers.

consenting women resulted from several factors: the poor quality of addresses collected in 2003, a deficiency of detailed maps and interviewers' knowledge of the study area, the destruction or removal of structures and the collection of names in 2003 that were not women's local names. Table 5.2 displays the results of tracking of women. As a consequence of relocation issues the WHSA-II sample (2,814) consists of both participants from the WHSA-I successfully relocated and replacement women who substituted previous participants who could not be contacted or who had moved outside the AMA. Replacement women were selected according to their age and SES resulting in the WHSA-II sample being a similar profile to the WHSA-I (Table 5.3).

Table B.1B: The number of women present in the WHSA-I who were successfully relocated to participant in the WHSA-II, and reasons for non-participation in the WHSA-II of women who were present in the WHSA-I but not the WHSA-II

Outcome of Tracking	Frequency
Found	1905
Found but travelled	5
Not found	103
Moved outside the AMA	116
Moved DK	369
Deceased	167
Refused	44
Unable	3
Structures removed or destroyed	169

Source: WHSA-II Writing Team (2011)

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Table B.1C: The socio-economic status of residential areas and age of women present in the WHSA-II

	Age group (years)			
SES of EA	18-24	25-35	35-54	55+
Low Class	211	187	180	207
Low-Middle Class	202	127	178	134
Upper-Middle Class	197	153	185	182
Upper Class	174	148	174	175

Source: The WHSA-II Writing Team (2012)
Note: SES – Socio-economic status

In the WHSA-II topics addressed were health concerns highlighted by the WHSA-I as well as issues of interest to policy makers such as the National Health Insurance Scheme membership (Darko et al. 2012). The final questionnaire consisted of twenty-six sections; a household roster, women's characteristics and migration, general health, self-care, pain and discomfort, community role, energy and sleep, mental health, routine health maintenance, use of health services, health insurance, malaria, heart-blood vessels-lungs, specific health conditions and symptoms, medication history, family history, reproductive health and family planning, pregnancy histories, pregnancy and malaria, breastfeeding, smoking and drinking, physical activity, nutrition, individual changes to improve health, body image assessment and medical measurements. Due to organisational difficulties clinical and medical examinations were not conducted in the WHSA-II but instead maximum data was collected during the household survey (Darko et al. 2012).

Table B.2: Model summary for change in health analysis

Model	Outcome	Bivariate/ Multivariate	IMR	Additional information
1	Change in mental health	Bivariate	1	Independent variable - birth
2	Change in mental health	Bivariate	2	
3	Change in mental health	Bivariate	3	
4	Change in mental health	Multivariate	1	Independent variables – birth. Control incorporated include change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. The household variables used as controls were relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
5	Change in mental health	Multivariate	2	
6	Change in mental health	Multivariate	3	
7	Change in physical health	Bivariate	1	Independent variable - birth

8	Change in physical health	Bivariate	2	
9	Change in physical health	Bivariate	3	
10	Change in physical health	Multivariate	1	Independent variables – birth. Control incorporated include change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. The household variables used as controls were relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
11	Change in physical health	Multivariate	2	
12	Change in physical health	Multivariate	3	
13	Change in mental health	Bivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval. Bivariate relationships considered with mental health and change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region,
14	Change in mental health	Bivariate	2	
15	Change in mental health	Bivariate	3	

				relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
16	Change in mental health	Multivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
17	Change in mental health	Multivariate	2	Social category variables included in model: change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. Household demography variables included in the model: relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
18	Change in mental health	Multivariate	3	
19	Change in physical health	Bivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
20	Change in physical health	Bivariate	2	

21	Change in physical health	Bivariate	3	Bivariate relationships considered with physical health and change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region, relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
22	Change in physical health	Multivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
23	Change in physical health	Multivariate	2	Social category variables included in model: change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. Household demography variables included in the model: relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
24	Change in physical health	Multivariate	3	

25	Change in mental health	Bivariate	1	Restricted to women without a child alive at WHSA-II born in the survey interval.
26	Change in mental health	Bivariate	2	Bivariate relationships considered with mental health and change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region, relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
27	Change in mental health	Bivariate	3	
28	Change in mental health	Multivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
29	Change in mental health	Multivariate	2	Social category variables included in model: change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region. Household demography variables included in the model: relationship to household head, the number of children aged 0-5 years and 6-11 years
30	Change in mental health	Multivariate	3	

				and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
31	Change in physical health	Bivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
32	Change in physical health	Bivariate	2	
33	Change in physical health	Bivariate	3	Bivariate relationships considered with physical health and change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was born in the Greater Accra region, relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I
34	Change in physical health	Multivariate	1	Restricted to women with a child alive at WHSA-II born in the survey interval.
35	Change in physical health	Multivariate	2	
36	Change in physical health	Multivariate	3	Social category variables included in model: change in wealth status, partnership dynamics, change in residence, religion, educational attainment, ethnicity and whether a woman was

				born in the Greater Accra region. Household demography variables included in the model: relationship to household head, the number of children aged 0-5 years and 6-11 years and the number of males and females aged 12-15 years, 16-54 years and 55 years and over present in the household at the time of the WHSA-I

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Appendix B.3: Women's socio-economic and demographic predictors of selection into both waves of the WHSA among women of reproductive age present in the WHSA-I

	SM1	SM2	SM3
Log Likelihood	-1249.71	-1188.40	-1416.05
Variables			
Age	0.0121*	0.0015	-
Wealth			
Poorest	0.9894**	-0.5496**	-0.5261**
Fourth	-0.1699	-0.1544	-0.2002*
Middle[a]			
Second	-0.2194*	-0.2465**	-0.2108*
Richest	-0.7331	-0.0996	-0.0894
Marital status			
Married[a]			
Never married	-0.1187	-0.1168	-
Separated/divorced/widowed	-0.0430	-0.0313	-
Religion			
Christian[a]			
Muslim	0.1552	0.1203	-
Other	-0.0563	-0.1143	-
Ethnicity			
Ga[a]			
Akan	-0.4126**	-0.3068**	-0.3061**
Ewe	-0.2987**	-0.2083*	-0.0262**
Other	-0.3241*	-0.2091	-0.1557
Education			
None	-0.2685**	-0.2813**	-0.1925*
Primary	-0.1240	-0.1047	-0.0795
JSS[a]			
SSS +	-0.0012	0.0168	0.0238

Relation to head of household			
Head	-0.0836	-0.0716	-
Wife[a]			
Daughter/daughter in-law	0.1077	0.0263	-
Other	-0.2432*	-0.2231	-
Not specified	-0.0744	-0.1201	-
Household Demographics			
Number of children 0-5 yrs			
0[a]			
1	0.0797	0.0665	-
2+	0.0608	0.0560	-
Number of children 6-11 yrs			
0[a]			
1	0.0766	0.0650	0.0561
2+	0.2865**	0.2916**	0.2963**
Number of females 12-15yrs			
0[a]			
1+	0.0590	0.0305	-
Number of males 12-15 yrs			
0[a]			
1+	0.0991	0.0976	-
Number of females 16-54 yrs			
1[a]			
2	0.0716	0.0515	-
3	0.1494	0.0868	-
4+	0.3507**	0.3054**	-
Number of males 16-54 yrs			
0	0.0935	0.0803	-
1[a]			

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2+	0.1772	0.1236	-
Number of females 55 yrs +			
0[a]			
1+	0.2142*	0.1554	-
Number of males 55 yrs +			
0[a]			
1+	-0.1398	-0.1277	-
Wellbeing			
PCS	-0.0081*	-0.0054	-
MCS	0.0096**	0.0086*	-
Participation in medical examination			
Yes[a]			
No	-	0.3910**	0.4378**
Cooperation			
Excellent	-	-0.1860**	-0.2271**
Good[a]			
Poor	-	-0.1237	-0.2054
Years resident at household			
0-4 yrs[a]			
5 – 9 yrs	-	0.2267*	0.2219**
10 -19 yrs	-	0.3838**	0.4540**
20 -29 yrs	-	0.5295**	0.5450**
30 + yrs	-	0.5396**	0.6089**

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09)
Abbreviations: PCS – Physical Component Score, MCS – Mental Component Score, SM1 – Selection Model 1, SM2 – Selection Model 2, SM3- Selection Model 3, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling
*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

Table B.4: Parameter estimates (point difference) of the bivariate and multivariate models of the unconditional change in physical health among women without a child alive in WHSA-II born in the survey interval

	25 (IMR1) Bivariate	28 (IMR1) Multivariate			26 (IMR2) Bivariate	29 (IMR2) Multivariate			27 (IMR3) Bivariate	30 (IMR3) Multivariate		
	β	β	95% CI		β	β	95% CI		β	β	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Wealth												
Wealth status lower in WHSA-II than WHSA-I[a]												
Wealth status higher in WHSA-II than WHSA-I	4.56***	2.38	-0.95	5.71	5.21***	4.13**	0.75	7.52	5.68***	4.85**	1.46	8.25
Wealth status consistent	1.49	0.45	-2.46	3.37	1.86*	1.33	-1.60	4.27	2.01*	1.55	-1.38	4.49
Partnership dynamics												
Never married WHSA-I and WHSA-II	-1.13	-2.26	-7.12	2.60	-1.00	-0.27	-5.10	4.56	-0.56	0.14	-4.67	4.96
Married[a] WHSA-I and WHSA-II												
Separated, divorced or widowed WHSA-I and WHSA-II	4.28***	2.97	-1.66	7.60	4.36***	3.87	-0.79	8.53	4.12***	3.93	-0.74	8.59
Never married in WHSA-I, married in WHSA-II**	3.51*	1.66	-4.74	8.05	3.98*	4.55	-1.72	10.83	4.59*	5.17	-1.08	11.42
Sep, div or wid in WHSA-II, married in WHSA-II	-1.41	-2.22	-6.62	2.19	-1.26	-1.66	-6.13	2.81	-1.10	-1.39	-5.86	3.08

Never married/married in WHSA-I, sep, div or wid in WHSA-II	-2.84	-4.54	-10.04	0.96	-2.53	-3.07	-8.78	2.63	-1.83	-2.48	-8.19	3.23
Change in residence WHSA-I and WHSA-II												
Yes	-0.26	-0.88	-3.95	2.20	0.12	-1.23	-4.33	1.87	0.65	-1.10	-4.21	2.00
No[a]												
Religion												
Christian[a]												
Muslim	-4.17***	-0.24	-6.19	5.72	-4.15***	-1.96	-7.90	3.97	-4.24***	-2.84	-8.73	3.05
Other	-5.55**	-3.95	-10.41	2.50	-6.59***	-5.02	-11.68	1.65	-6.41**	-5.20	-11.89	1.50
Highest Educational Attainment WHSA-I												
None	2.17	-0.24	-5.39	4.92	2.55	3.49	-1.29	8.27	3.38*	4.98**	0.31	9.66
Primary	0.25	-1.02	-5.51	3.47	-0.64	-0.52	-5.06	4.02	0.16	0.58	-3.93	5.09
JSS[a]												
SSS +	3.01***	4.09***	1.07	7.12	3.09***	3.96**	0.90	7.03	3.30***	3.99**	0.92	7.06
Ethnicity												
Ga[a]												
Akan	-7.36***	-10.14***	-14.35	-5.94	-6.15****	-5.71***	-9.24	-2.18	-4.98****	-4.01**	-7.53	-0.48

Ewe	-4.26**	-7.26***	-11.85	-2.67	-3.49**	-4.20*	-8.51	0.11	-2.79*	-2.97	-7.33	1.40
Other	-7.65***	-10.03***	-16.18	-3.88	-6.41***	-6.45**	-12.37	-0.53	-5.56****	-5.17*	-11.06	0.73
Born in the Greater Accra region												
Yes	0.94	-1.74	-4.68	1.20	1.22	-1.14	-4.12	1.85	0.76	-1.28	-4.28	1.71
No[a]												
Age at WHSA-I	0.08	0.14	-0.09	0.37	0.07	0.03	-0.19	0.25	0.04	-0.01	-0.23	0.21
Relationship to household head												
Head	2.33*	-3.26	-7.61	1.08	2.57*	-2.20	-6.54	2.15	2.61*	-2.20	-6.57	2.16
Wife[a]												
Daughter/daughter in-law	-1.14	-1.77	-6.50	2.95	-1.72	-3.57	-8.35	1.21	-1.76	-3.63	-8.42	1.16
Other	-1.68	-5.51*	-11.39	0.37	-1.10	-2.79	-8.47	2.88	-0.56	-2.14	-7.75	3.48
Not specified	0.58	-3.91	-9.44	1.62	0.90	-3.18	-8.73	2.38	1.08	-3.37	-8.96	2.22
Household Demographics												
Number of children aged 0-5 yrs												
0[a]												
1	0.89	1.41	-1.84	4.66	0.56	1.24	-2.10	4.58	0.61	-2.64	-5.72	0.43
2+	-5.81***	-4.39*	-8.92	0.14	-5.89***	-4.18	-8.74	0.38	-6.03***	-1.14	-5.13	2.86

Number of children aged 6-11 yrs												
0[a]												
1	-0.79	-1.08	-4.17	2.00	-1.10	-2.31	-5.38	0.77	-1.38	-2.64	-5.72	0.43
2+	-0.59	2.60	-1.64	6.84	-0.95	-0.06	-4.06	3.95	-1.51	-1.14	-5.13	2.86
Number of females aged 12-15 yrs												
0[a]												
1+	-4.44***	-3.36**	-6.45	-0.27	-4.87***	-4.64***	-7.72	-1.55	-5.26***	-5.03***	-8.11	-1.95
Number of males aged 12-15 yrs												
0[a]												
1+	1.01	1.95	-1.27	5.18	0.74	1.13	-2.13	4.38	0.50	0.96	-2.30	4.21
Number of females aged 16-54 yrs												
1[a]												
2	-1.84*	-0.18	-3.54	3.18	-1.73	-0.90	-4.23	2.43	-1.73	-1.16	-4.49	2.16
3	0.33	2.84	-1.19	6.86	0.31	1.44	-2.53	5.40	0.26	0.95	-3.00	4.89
4+	2.94*	7.28***	2.05	12.51	1.99	3.17	-1.67	8.01	1.56	2.01	-2.64	6.67
Number of males aged 16-54 yrs												

0	1.11	1.18	-1.89	4.24	0.92	0.04	-3.05	3.14	1.06	0.30	-2.83	3.43
1 [a]												
2	-1.70	0.11	-3.98	4.20	-2.26	-2.39	-6.33	1.55	-2.60*	-2.94	-6.84	0.96
Number of females aged 55 yrs+												
0 [a]												
1+	-2.59*	-0.59	-4.69	3.52	-2.71*	-2.03	-6.12	2.07	-3.16**	-3.02	-7.02	0.98
Number of males aged 55 yrs+												
0 [a]												
1+	-2.59*	-3.91**	-7.69	-0.14	-2.71*	-2.96	-6.74	0.82	-3.16**	-2.74	-6.52	1.03
Constant		-14.30**	-27.60	-1.00		-0.37	-11.12	10.38		4.81	-5.75	15.38
IMR		24.29***	12.40	36.18		5.55	-1.56	12.66		-2.34	-9.05	4.36

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=427

Abbreviations: MCS – Mental Component Score, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mills ratio calculated using probit model 1, IMR2 – inverse mills ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3

*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

Table B.5: Parameter estimates (point difference) of the bivariate and multivariate models of the unconditional change in physical health among women without a child alive in WHSA-II born in the survey interval

	31 (IMR1) Bivariate	34 (IMR1) Multivariate			32 (IMR2) Bivariate	35 (IMR2) Multivariate			33 (IMR3) Bivariate	36 (IMR3) Multivariate		
	β	β	95% CI		β	β	95% CI		β	β	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Wealth												
Wealth status lower in WHSA-II than WHSA-I[a]												
Wealth status higher in WHSA-II than WHSA-I	1.56*	1.73	-0.71	4.17	1.72*	1.68	-0.79	4.15	1.83*	1.70	-0.78	4.17
Wealth status consistent	1.48*	1.15	-0.98	3.28	1.56*	1.09	-1.05	3.23	1.59*	1.08	-1.06	3.22
Partnership dynamics												
Never married WHSA-I and WHSA-II	-0.03	1.33	-2.22	4.89	-0.23	0.60	-2.93	4.13	-0.16	0.39	-3.12	3.90
Married[a] WHSA-I and WHSA-II												
Separated, divorced or widowed WHSA-I and WHSA-II	1.29	1.77	-1.61	5.16	1.14	1.60	-1.80	5.00	1.06	1.55	-1.86	4.95
Never married in WHSA-I, married in WHSA-II**	-3.06*	-1.05	-5.73	3.62	-3.14*	-1.99	-6.58	2.59	-3.05*	-2.25	-6.81	2.30

Sep, div or wid in WHSA-II, married in WHSA-II	2.92**	3.01*	-0.21	6.23	2.55**	2.60	-0.67	5.86	2.57**	2.56	-0.70	5.81
Never married/married in WHSA-I, sep, div or wid in WHSA-II	-0.92	-1.47	-5.49	2.56	-0.99	-1.70	-5.87	2.46	-0.84	-1.74	-5.90	2.42
Change in residence WHSA-I and WHSA-II												
Yes	-0.76	-1.26	-3.51	0.99	-0.73	-0.96	-3.22	1.30	-0.63	-0.95	-3.21	1.31
No[a]												
Religion												
Christian[a]												
Muslim	-3.25***	-3.12	-7.47	1.24	-3.29***	-2.74	-7.07	1.60	-3.25***	-2.54	-6.83	1.75
Other	4.51***	4.53***	-0.19	9.25	3.70*	3.63	-1.24	8.50	3.69*	3.49	-1.39	8.36
Highest Educational Attainment WHSA-I												
None	-0.05	2.17	-1.60	5.94	-0.16	1.05	-2.44	4.55	0.02	0.89	-2.52	4.29
Primary	1.79	2.99*	-0.30	6.27	1.06	1.93	-1.38	5.25	1.25	1.88	-1.41	5.16
JSS[a]												
SSS +	1.37*	1.74	-0.47	3.96	1.29*	1.81	-0.43	4.05	1.35*	1.80	-0.44	4.04
Ethnicity												
Ga[a]												

Appendix B

Akan	-0.04	1.30	-1.77	4.38	-0.19	0.34	-2.24	2.92	0.51	0.35	-2.22	2.92
Ewe	-0.32	1.07	-2.29	4.42	-0.17	0.35	-2.79	3.50	0.11	0.45	-2.73	3.62
Other	-2.61**	0.26	-4.24	4.76	-2.47**	-0.40	-4.73	3.92	-2.24*	-0.47	-4.76	3.83
Born in the Greater Accra region												
Yes	-0.78	-0.92	-3.07	1.23	-0.76	-0.78	-2.97	1.40	-0.87	-0.78	-2.96	1.41
No[a]												
Age at WHSA-I	0.08*	-0.02	-0.18	0.15	0.08*	0.01	-0.15	0.17	0.07*	0.01	-0.15	0.17
Relationship to household head												
Head	-0.06	-0.62	-3.80	2.56	-0.43	-1.24	-4.41	1.94	-0.47	-1.39	-4.57	1.79
Wife[a]												
Daughter/daughter in-law	-2.38***	-2.95*	-6.41	0.50	-2.64***	-3.00	-6.49	0.49	-2.60***	-2.98	-6.47	0.51
Other	-0.17	0.91	-3.39	5.21	-0.44	-0.11	-4.26	4.03	-0.50	-0.50	-4.59	3.60
Not specified	-0.38	-1.24	-5.29	2.80	-0.61	-1.66	-5.72	2.39	-0.67	-1.86	-5.93	2.22
Household Demographics												
Number of children aged 0-5 yrs												
0[a]												
1	-1.33*	-1.30	-3.67	1.08	-1.19	-1.12	-3.56	1.33	-1.13	-1.04	-3.49	1.41

2+	-2.06*	-1.70	-5.02	1.61	-2.01*	-1.67	-5.00	1.66	-1.98*	-1.59	-4.92	1.74
Number of children aged 6-11 yrs												
0[a]												
1	-1.87**	-2.18*	-4.44	0.07	-1.77**	-1.87	-4.11	0.38	-1.80**	-1.85	-4.09	0.39
2+	-0.74	-1.73	-4.83	1.37	-0.63	-0.99	-3.92	1.93	-0.73	-0.98	-3.89	1.93
Number of females aged 12-15 yrs												
0[a]												
1+	-1.75*	-2.64**	-4.90	-0.39	-1.92**	-2.57**	-4.83	-0.31	-1.97**	-2.52**	-4.77	-0.28
Number of males aged 12-15 yrs												
0[a]												
1+	-1.70*	-1.76	-4.12	0.60	-1.87*	-1.74	-4.12	0.63	-1.82*	-1.60	-3.97	0.77
Number of females aged 16-54 yrs												
1[a]												
2	-0.52	-0.36	-2.82	2.10	-0.52	0.13	-2.31	2.56	-0.51	0.24	-2.19	2.66
3	-0.27	0.61	-2.33	3.56	-0.27	1.28	-1.62	4.17	-0.27	1.41	-1.46	4.29
4+	0.29	0.14	-3.69	3.96	0.04	0.55	-2.55	4.52	0.11	1.45	-1.94	4.84

Appendix B

Number of males aged 16-54 yrs												
0	-0.84	-1.63	-3.87	0.61	-1.02	-1.44	-3.70	0.82	-0.97	-1.31	-3.59	0.97
1[a]												
2	-1.40	-2.13	-5.12	0.86	-1.08	-1.19	-4.07	1.69	-1.05	-0.99	-3.83	1.85
Number of females aged 55 yrs+												
0[a]												
1+	-0.46	-0.74	-3.75	2.26	-0.45	-0.40	-3.39	2.59	-0.49	-0.19	-3.11	2.72
Number of males aged 55 yrs+												
0[a]												
1+	-0.71	-0.28	-3.04	2.48	-0.68	-0.30	-3.06	2.46	-0.71	-0.47	-3.23	2.28
Constant		7.93	-1.80	17.66		4.52	-3.33	12.37		4.38	-3.31	12.08
IMR		-7.36	-16.06	1.34		-2.92	-8.12	2.28		-2.85	-7.74	2.04

Author's own analysis of the Women's Health Study of Accra (2003 & 2008/09), n=247
Abbreviations: MCS – Mental Component Score, JSS – Junior Secondary Schooling, SSS – Senior Secondary Schooling, IMR1 – inverse mills ratio calculated using probit model 1, IMR2 – inverse mills ratio calculated using probit model 2, IMR3 – inverse mill ratio calculated using probit model 3
*** denotes significance at the 1% level, ** 5% level, * 10% level, [a] reference category

Appendix C: Intra and inter-generational relationships: influence of maternal employment and siblings on youths' educational outcomes

Appendix C.1: Model summary for educational analysis

Model	Outcome	Independent variables of interest	Controls
1	Completion of primary education among 12-14 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, sex, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, whether head of household <u>Household level</u> Wealth, no of children 0-5yrs resident, no of females aged 16-54yrs present, no of females and 55yrs present
2	Completion of primary education among 12-14 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, sex, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, whether head of household <u>Household level</u> Wealth

3	Completion of basic education among 15-17 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, sex, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, <u>Household level</u> Wealth, no of children 0-5yrs resident, no children aged 6-11yrs resident, no of females aged 16-54yrs present, no of females and 55yrs present
4	Completion of basic education among 15-17 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, sex, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, <u>Household level</u> Wealth
5	Attendance of SSS among 15-17 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, whether head of household <u>Household level</u> Wealth, no of children 0-5yrs resident, no children

			aged 6-11yrs resident, no of females aged 16-54yrs present, no of males and 55yrs present
6	Attendance of SSS among 15-17 yr olds	Maternal employment Youth's birth location among co-resident siblings	<u>Youth level</u> Age, relation to head, ethnicity <u>Mother level</u> Marital status, education, number of surviving children, age, whether head of household <u>Household level</u> Wealth

Appendix D: Quantitative Analysis Risk Assessment Form

UNIVERSITY OF
Southampton

January 2012

Ethics Review Checklist

Research Title:

COMBINATION OF WOMENS ECONOMIC + MATERNAL ROLES IN GHANA

Principal Investigator: PHILIPPA WATERHOUSE

Research Funder (if applicable): ESRC (PhD FUNDING)

		YES	NO
1.	Will the study involve human participants?		✓
2.	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people)		✓
3.	Does the study involve participants who are unable to give informed consent? (e.g. children, people with learning disabilities)		✓
4.	Does the study involve participants who are commonly viewed as 'vulnerable'? (e.g. children, elderly, people with learning disabilities) **CRB check needed if YES**		✓
5.	Will the study require the co-operation of a third party for initial access to the groups or individuals? (e.g. students at school, residents of a nursing home)		✓
6.	Will the study involve discussion of sensitive topics (e.g. sexual activity, drug use)?		✓
7.	Could the study induce psychological stress or anxiety, cause harm or have negative consequences for the participants beyond the risks encountered in normal life?		✓
8.	Will deception of participants be necessary during the study?		✓
9.	Will blood or tissue samples be taken from participants? Are drugs, placebos or other substances (e.g. foods, vitamins) to be administered to the participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?		✓
10.	Will the study involve prolonged or repetitive testing or physical testing?		✓
11.	Is pain or more than mild discomfort likely to result from the study?		✓
12.	Will financial or other inducements (other than reasonable expenses) be offered to participants?		✓
13.	Will the study involve recruitment of patients or staff through the NHS?		✓
14.	Is the right to freely withdraw from the study at any time made explicit? N/A		
15.	Where secondary data is to be used, is the risk of disclosure of the identity of individuals minimal?	✓	
16.	If you are using secondary data, are you obtaining it from any where other than recognised data archives?		✓

Please note that it is your responsibility to follow the University of Southampton's Ethics Policy and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.** It is also your responsibility to provide full and accurate information in completing this form.

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